Curriculum Innovations in Changing Societies

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Chinese Perspectives from Hong Kong, Taiwan and Mainland China

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Printed on acid-free paper

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FOREWORD

Concepts enjoy different lives in different settings at different moments. Modernization has not yet fully occurred in some places, places where modernization represents a progressive step forward from a present apparently frozen in the past. In places such as Canada, modernization has been condemned as catastrophic (Grant 1966 [1959]). Other places are characterized by multiple moments—such as pre-modern, modern, postmodern—that coexist, whereas in other places, the postmodern future is now. Hong Kong appears to be such a place (Law, in press).

   This particular temporal complexity complicates curriculum research worldwide and in welcomed ways. It requires us to contextualize curriculum research temporally and geographically to appreciate the what and the how, which the curriculum that we study addresses at a specific time or place. The curriculum communicates understanding of the historical world, in our time marked by economic anxieties, intractable political tensions, and impending climate catastrophe. In some places, political leaders expect schools to prepare children for success in the global marketplace, while concurrently addressing social injustice and resolving political tension. In the West, the school appears to have replaced the church as the salvational agency of humanity.

   As we see in this volume, the local and the global exist simultaneously, often in conflict, occasionally in confluence, more often moving us in several, sometimes contradictory, currents. Curriculum control may be common to all countries, but how the curriculum is controlled, to what extent, and how effectively it is controlled, vary not only across countries but also within countries, across regions, and even within one school or one classroom. Policy-makers – and sometimes individual teachers themselves—lament the lack of curricular control. Others celebrate it. Despite the determination of education ministries to install control, students and teachers sometimes subvert it, and not always deliberately. Although the curriculum has historically been in the service of nation building, it has not always succeeded.[1]

   The men[2] who run states and legislate schools as their instruments forget that the women who teach in these schools sometimes smile as they subvert their authority. This is hardly exclusively Asian[3]; nowhere is state control more evident than in the US today, in which the Obama Administration's intensification of George W. Bush's repressive accountability regime is now converting from rhetorical reparation (*Leave No Child Behind*) to crass commercialization, as Microsoft, Apple, and Pearson appropriate public budgets for private profit (Pinar 2013).

Yes, the curriculum communicates cultural, political, and epistemological messages, which are sometimes intertwined. The school curriculum may rarely be neutral but neither is it monolithic. Repression can breed revolt just as democratization can produce paralysis, which is obviously occurring in Washington, D.C. Even the worldwide hijacking of public education, everywhere seems focused on assessment in service to the economy, but fails to enforce either worldwide economic development or the subjugation of the masses. The July 2012 protests in Hong Kong (Lau 2012) testify to the resilience of the public despite persistent efforts to disperse them.

Although school subjects are increasingly standardized in the US, science, technology, engineering, and mathematics (STEM) are privileged over all other subjects. This policy is both a reflection of US culture, in which everything can be sacrificed for potential profit and a violation of American democratic ideals. The rhetoric of US school reform, such as "no child left behind" and "race to the top," has been progressive but disingenuously so. Nothing stifles democratic dialogue like sophistry.

Culture is not a monolithic phenomenon, which is an important point emphasized in this collection. Nor is it only nationally associated; culture is differentiated within nations and regions. Culture is historical as well, changing at different rates in various regions and countries at different moments. The curriculum is reflective of culture, in some places, whereas in others, curriculum represses culture(s). Today, in the US and in the name of "social justice," African American culture is being instrumentalized, as so-called culturally responsive pedagogy, in the name of quantified academic achievement and future economic advancement. Public-school children are being subjugated to "cram-school" conditions, more stereotypically associated with Japanese and other Asian school systems, which focus on "skills," not knowledge. Histories of slavery, segregation, and even the ongoing racial discrimination in the US are casualties of standardized test preparation, which is focused on the attainment of "skills," and not academic knowledge, which is essential to work through the trauma of the past. This policy is presumably required by a "global workplace"[4] that is often imaginary. However, in reality, the policy is too limited to absorb huge numbers of test-accomplished graduates. The apparent inability of the dynamic Chinese economy to absorb its university graduates is a case in point (Li 2013).

The issues we face, theoretical and practical, are numerous and complex. The emergencies of the present, economic or political, put the world at risk (Beck 2009). Consequently, they require that we should be at once intensely engaged and contemplatively distant. Indeed, at no time has curriculum research and development been more urgent than it is now. This book is testament to that fact. I congratulate Professors Edmond Hau-Fai Law and Chenzhi Li for assembling an important collection that addresses the complexity and urgency of the present moment.

NOTES

[1] The school curriculum may be an instrument of the state, the school, but Dewey famously believed (if only for a while, as Robert Westbrook reminds) that the state could be an instrument of the school. "By the eve of World War I," Westbrook (1991, 192) notes, "Dewey was more fully aware that the democratic reconstruction of American society he envisioned could not take place simply by a revolution in the classroom, that, indeed, the revolution in the classroom could not take place until the society's adults had been won over to radical democracy."

[2] Of course, female heads of state and many male teachers exist, but I argue that nonetheless a gendered dimension is present in school "reform," at least in the US (Pinar 2012). Curricular control represents men's efforts to control women's upbringing of their sons.

[3] Across Asia, "state control" takes many, including openly progressive, curricular forms: see, for instance, Zhang and Gao (in press).

[4] At present, what we have is less a global marketplace than an ever-shifting series of sometimes associated but distinctive national, regional, and local economies. Strangely, then, curricular standardization, supported by standardized assessment, is out of sync with global economic reality despite those rhetorical links that many political leaders and policy-makers assert.

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PART I

INTRODUCTION

KERRY J. KENNEDY

1. SHAPING THE SCHOOL CURRICULUM IN CHINESE SOCIETIES

Whether we look across or within societies, the importance of the school curriculum is unmistakable. School curriculum takes many forms—a social construct, an official document, a teacher's plan, or a student's experience. However, it can be all of these things at once, which is why separating these different forms of curriculum is not always easy. This book, through its comparative focus, raises important questions: Are these forms of curriculum universal? Or, in Schwab's terms, are there curriculum "commonplaces"[1] that transcend geography, history, and cultures? The comparative perspective here is on Chinese societies. Therefore, the following chapters provide an opportunity to consider culture in particular as a factor in defining curriculum commonplaces. As students from this part of the world generally outperform those from elsewhere, scholars are also given the opportunity to identify the characteristics of the curriculum that might account for this level of performance. This chapter is an exploration of curriculum commonplaces in the context of curriculum development, change, and reform across three Chinese societies particularly on cultural issues and student performance.

To pursue this exploration, five broad areas will be discussed:

- Curriculum control
- Forms of knowledge and the curriculum
- Ideology and curriculum change
- Teachers and the classroom
- Culture and the curriculum

CURRICULUM CONTROL—THE SETTING OF EAST ASIAN CURRICULUM DEVELOPMENT

Curriculum theorists understand that curriculum experiences may be shaped by teachers but are responded to by students in their own ways depending on their attention, motivation, and inclination to engage in planned activities. However, this view does not reflect that of the government, as is evident from the collection of articles in this book, especially in chapters, such as Ye (Chapter 13) who looked at moral education in Mainland China and the local and central issues that have shaped it in recent times. In each society represented in this collection, governments have undertaken definite steps to shape the curriculum to provide a set of common

experiences for students. Across societies, the curriculum is commonly viewed as an instrument of nation building, which is largely economic in nature but is also political. The beneficiary of this form of curriculum is the state itself, although well educated graduates who have experienced these curriculum forms also benefit. The "developmental state" (see Wong, 2004 for an analysis of the way the developmental state is seen to operate in East Asia) is often considered as the driver of change in East Asia, and the articles in this book indicate that such a term is appropriate in describing the role and function of the school curriculum as an instrument of state rather than personal development. Should this be regarded as a normal function of all systems or is it a unique feature of the school curriculum in East Asian societies?

Governments, regardless of political ideology, recognize the importance of school curriculum whether in promoting liberal democratic values as in the United States or a "socialism with Chinese characteristics" as in China. Hence, the control of education is certainly not outside the realm of developmental state. The school curriculum is never neutral. The concept of "collectivist culture" and "collectivist responsibility" (Hofstede, 2001) is a distinctive cultural characteristic in East Asia but is not prevalent in the West. Given the collectivist nature of East Asian societies, the state undertakes a more specific responsibility for its citizens compared with the individualist culture in the West. This is not a popular explanation for East Asian development (Abe, 2006) but it has found support (Hofstede & Bond, 1988) and may to help address Öniş's (1991, p. 116) statement about "how to explain the single-minded commitment of the state elites to growth, productivity, and international competitiveness." Öniş himself poses possible solutions in terms of external threats and internal reforms, but an equally plausible solution is a commitment to a common cultural value related to responsibility for the collective–a Confucian value–with widespread appeal in East Asian societies (Tu, 1996). When this collectivist value is applied to the development of meritocratic education systems capable of providing requisite human resources and opportunities for the best to succeed, such a value may be a part of what Öniş (1991) calls "the logic of the developmental state". At the very least, it remains an intriguing area that curriculum scholars in the region can explore further.

FORMS OF KNOWLEDGE AND THE CURRICULUM

Curriculum reforms in the region have resulted in a more liberalized curriculum (Kennedy, 2008), but it is no less academic. Examinations remain the single most significant influence on what is taught, tested, and consequently valued. Private tutorial schools remain a pervasive influence across the region (Bray & Lykins, 2012) as students and their parents strive to be included in meritocratic advancement that can come to those who succeed in these pressurized education systems. However, liberal curriculum reforms should not be underestimated.

While examinations remain vital, a number of education systems have attempted to introduce more relaxed forms of classroom assessment to try to minimize the

pressure of examinations. Although a number of curriculum forms remain outside the examination-dominated system, none can totally eliminate the real pressures that come from schools and parents for students to work hard and perform well, especially when cultural expectations play a role in such pressure. This view is particularly important. Just as the developmental state is influenced by basic Confucian values, so too are students and their parents. Working hard, especially to please parents and the family, is a basic Confucian value that has not disappeared in the twenty-first century. This value appears to be equally strong regardless of social class, and it may well account for the success of East Asian students in international assessments. Students work hard and perform well to honor their families, which is a striking difference between students in this part of the world and their Western peers. The idea was popularized in the book *Battle Hymn of the Tiger Mother* by Amy Chua and has also been the subject of a significant number of research which identifies how and why many Chinese students perform well. Such reasons are deeply rooted in cultural values (Watkins & Biggs, 1996; 2001).

Despite the distinctive cultural contexts that influence Chinese students, actual school subjects, such as mother tongue and second languages, Mathematics, Science, Social Studies, and Physical Education, are fairly standard and could be recognized easily by any observer. Another common feature across the region is related to civic, moral, or political education depending on the political orientation of the government. As Kennedy (2008) has emphasized, while the school curriculum in general has been liberalized, this does not apply to civic and moral education whose purposes remain deeply cultural and some would say conservative. "Good people make good citizens" is a popular aphorism in civics literature of the region and has remained an important rationale for moral education programs.

School-based curriculum development (SBCD) has taken some hold in the region, and this book provides examples from Taiwan, Hong Kong, and the mainland. For the most part, SBCD does not influence the core curriculum but as Law (Chapter 18) and Wan and Wan (Chapter 15) reported, SBCD can address important issues in Hong Kong. Zeng and Zhou (Chapter 14) also report the progress that SBCD has been in the mainland, but alternative forms of curriculum have not appeared to have taken a strong hold in Taiwan (Hwang and Ting in Chapter 4). Nevertheless, in all three places, local curriculum, which is distinct from system-oriented curriculum, retains core peripheral activities which are examinable and count towards university interests. Thus, the liberalized elements of the curriculum are always secondary to the examined curriculum that remains the most potent force in the region's educational provision.

IDEOLOGY AND CURRICULUM CHANGE

There is little doubt that curriculum reform has been a feature of the region in the current century (Kennedy & Lee, 2010), and this reform has been driven by the ideology of the developmental state as outlined above. This has linked education,

and the school curriculum in particular, to the human capital requirements of the state. Nevertheless, these requirements have often been couched in progressivist terms ("engaged students," "project learning," "peer assessment, "student-centered learning," etc.) so that Kennedy (2005, p. 12) referred to this amalgam of human capital objectives and progressivist pedagogies as "neo-progressivist." This draws on a broader strand of progressivism such as that of David Snedden[2] who championed a social efficiency version designed to both engage students and ensure a steady stream of labor to provide for social stability. Curriculum documents in the region do not require close reading to see how the two strands, namely, human capital needs and progressivist pedagogy, are often intertwined.

Curriculum documents can convey a sense of the official curriculum, which is what governments and policy makers intend. A number of chapters in this book also examine implementation, such as what happens to these official documents on the ground. A national curriculum in a country as large as Mainland China must respond to local needs, whether the quality of teachers is responsible for the implementation process, the specific needs of students in places as far as Shanghai on the east coast and Kashgar in the west, and even the physical and financial resources that are available in different parts of the country. Reports on policy implementation on the Mainland (Zhong & Tu, Chapter 2) or widespread reform in Hong Kong (Kennedy, Chapter 3) in this book tend to be somewhat more positive than similar reports from Western contexts, although the road to reform described in Chapter 3 seemed somewhat more unstable than that described in Chapter 2. Taiwan's reform process (Hwang & Ting, Chapter 4) encountered more problems than Hong Kong's or the mainland's, but nevertheless, many major changes are reported. Ideology may create the curriculum but cannot ensure the same implementation in every school. Although Hong Kong conducts stringent quality assurance assessments and school inspections to ensure consistency with the reform agenda, variation in curriculum delivery is still observed as different schools seek to meet the needs of their students. Lv, Ye, and Cao reported similar issues in Mathematics in Mainland China (Chapter 7), and Huang and Mao reported the same for Integrated Science in the mainland. These findings indicate that variation is intrinsic in the implementation of curriculum.

Therefore, implementation is the most significant challenge for reform agenda in the region. In Taiwan, for example, more liberal reforms, such as the use of multiple textbooks, created resistance from parents who were concerned that their children would not be well prepared for examinations if a single prescribed textbook was not used. Developing a reform agenda is one thing, and implementing it is another. More details about implementation processes need to be learned not only in the region but beyond as well.

TEACHERS AND CLASSROOMS

Students from Shanghai, Taipei, and Hong Kong are known to perform well in international assessments. However, the reasons for their satisfactory performance

are not yet well known. Two possible factors can be considered. Students from these cities work hard, and the literature indicates that they themselves attribute their success to their hard work rather than to their native ability (Mok, Kennedy, & Moore, 2011). Yet hardworking students need hardworking teachers, and McKinsey and Company (2011) reported that many of these teachers work in the region. Singapore, South Korea, and Hong Kong were included in the McKinsey study which indicated that teachers played a crucial role in sustaining high levels of student performance. However, a key factor remains missing in the analysis, and this factor is the recognition of cultural influences which give the teachers in the region a special status that cannot be replicated.

Why do teachers in the region work hard to achieve excellent results for their students? One way to understand the contribution of teachers in Chinese contexts was articulated by Kennedy (2011, p. 13).

> We hear little about "developing the mind" and more about becoming a "good person". We hear less about engaging students and more about students' responsibility to themselves and their families for doing well. We hear less about problems with the teaching profession and more about respect for teachers. That is to say, the values underlying education in East Asia are almost opposite of those in the West.

Teachers and students in Chinese societies work in distinctive cultural contexts. While these contexts are not a 'magic bullet' for instant success, they do provide a platform for learning and achievement. Sun, Grant, and Stronge (Chapter 26), for example, reported differences between exemplary American and Chinese teachers. A major difference is that Chinese teachers stay on task with a particular activity even if students are having problems. American teachers are more likely to explore alternative activities for students, whereas Chinese teachers will try to solve the particular problem that the student is experiencing. This contrast is an issue of differentiation and instructional method, but may imply that in Chinese contexts, teachers persevere with a particular learning outcome rather than adopt multiple outcomes for different students in their classes. This is likely because achievement itself is valued, not only in school but at home and in society as well. Learning is not optional for Chinese students. Rather, it is embedded in a set of social processes that make the educational enterprise an important part of social development. Fueled by hardworking teachers, hardworking students are given a good start in learning which can pave the way to success and social well-being.

CULTURE AND THE CURRICULUM

Throughout this introduction, many references have been made to culture and its apparent effects. Such effects have ranged from the possible effects of cultural values on the developmental state thesis that is often said to account for rapid economic growth in the region to the values teachers and students bring with them

to the classroom. In making these suggestions, I do not want to imply that culture is some kind of monolithic phenomenon that inexorably affects the individuals in the region or that individuals have no control over these influences. As Mok, Kennedy, Moore, Shan, and Leung (2008) showed, Chinese cultural values can work quite differently for boys and girls; hence, the so-called "myth of the Chinese learner" may be more complex than originally envisioned. Culture is important, but its effects will be moderated by individuals and groups when conflicting values and influences resist what might often be seen as mainstream cultural values.

In revisiting the work associated with the so-called "Chinese learner," Chan and Rao (2009), has made the valuable point that new curriculum and learning new demands are integrated or at least coexist with local cultural values and beliefs, which means that while the West remains an important resource for influencing educational reform, local values are not abandoned when adopting new Western values. Indeed, the opposite is probably the case. Asian societies are very good at adapting new ideas to suit their own ends and environments. This hybrid of Western-inspired ideas and Chinese characteristics is the real hallmark of the changes reported in this book. The emphasis on traditional moral education, for example, along with the recognition of the importance of so-called twenty-first century skills is a good example of the kind of hybrid thinking that can be found in the curriculum of Chinese societies. In the end, this hybridity may account for the successes of these societies as they negotiate a globalized world. Learning to change and what not to change perhaps best characterizes what is happening in Chinese societies as they develop curriculum for the twenty-first century.

CONCLUSION

Many scholars, such as Zhong and Tu (Chapter 2), Liu (Chapter 5), and Lv and Ma (Chapter 6), who have contributed to this book, advocate an ongoing curriculum research agenda. In addition, various curriculum research forms are reported in different chapters, including the use of surveys, case studies, and advanced statistical modeling, among others. For example, Liu and Ma (Chapter 6) used Decker Walker's curriculum model to report the deliberative processes used in the national curriculum development in Mainland China, while Liu (Chapter 5) called for more localization of curriculum research rather than the adoption of Western methods. The following question identifies the challenge for future curriculum research in Chinese societies: what would be considered indigenous forms of curriculum research that could open up possibilities for exploring and better understanding milieu, subjects, students, and teachers?

The chapters in this book, as reflected in the analysis in the previous section, show the focus of cultural assumptions that influence schools, curriculum, students, and teachers. Any research agenda must consider these assumptions so cultural analysis becomes an integral part of indigenous research activities. Culture, of course, is linked to politics, values, and social norms, thus providing extensive agenda for

researchers. Yet it seems clear that to ignore cultural assumptions that underlie the curriculum is to ignore a key aspect of what the curriculum means.

The commonplaces of milieu, subjects, teachers, and students remain important in the cultural contexts described in this book. A number of chapters also dealt with assessment (Gao, Chapter 25; Hung & Lee, chapter 25). Therefore, adding an assessment of the commonplaces, at least for the study of Chinese societies, does not seem unrealistic, especially because assessment plays such a central role in the lives of students, teachers, and parents that it can hardly be avoided. At times, certain ideas seem conflicting. For example, examinations remain in place, but formative assessment is considered to enhance student learning. Evidence from Hong Kong indicates clearly that teacher practice is guided by examinations despite assessment reforms (Brown, Hui, Yu, & Kennedy, 2011). Although elements of formative assessment have been introduced into classrooms in Hong Kong, they still have not replaced tests and examinations. The pedagogical uses of assessment are highlighted when formative assessment is introduced and when assessment is not performed simply by conducting a weekly test. If, as Schwab suggested, a commonplace is viewed "as a body of experience necessary for curriculum making and revision" (Joseph, 1986, p. 127), then assessment, as described in these contexts, is a fundamental curriculum issue that likely influences basic curriculum assumptions.

Therefore, any indigenous curriculum research agenda must include assessment as an area for investigation. The connections between assessment to different settings, subjects, teachers, and students can be explored in multiple ways because no single method can answer all the possible questions epistemologically. Methods in themselves are tools. Questions shape the research agenda and should be generated from local experiences. Questions are the foundation of an indigenous research agenda because they arise from what is important in local contexts. How to answer such questions is a second-order process; getting the questions right is a first-order priority for a research agenda that addresses real needs and issues.

This book is an excellent start on building such an agenda. Each chapter generates multiple questions that can become the basis of further research. Scholars who have called for ongoing curriculum research agenda are correct to do so because inquiry is the core of academic work. This book provides the foundation for new work in curriculum studies. All we need to do is to ask the right questions and continue conducting research on this matter to better understand the commonplaces–including assessment–that shape not just the curriculum, but also the societies in which they are embedded.

NOTES

[1] Schwab (1969) defined four curriculum "commonplaces" relevant to consideration of any curriculum: subject matter, students, teachers and milieu

[2] See David Labaree's chapter, "How Dewey lost: The victory of David Snedden and social efficiency in the reform of American education". In D. Trohler, D. Schlag & F. Osterwalder (Eds.), *Pragmatism and Modernities* (163–190). Rotterdam: Sense Publishers, for an excellent analysis of competing strands in early twentieth century progressivism.

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PART II

CHANGING CURRICULUM POLICY, RESEARCH AND TRENDS

ZHONG QIQUAN & TU LIYA

2. A CONTINUOUS JOURNEY: CURRICULUM POLICY CHANGE IN MAINLAND CHINA

INTRODUCTION

Curriculum change is the core of education development. Tracing the history of education development in the 20th century, most of the large-scale worldwide educational changes began with curriculum. Since the 1980s, the new trend of systematic curriculum change across the world has impelled curriculum reform to develop from incremental reform to restructuring and system-wide changes, and from fixing mere parts to fixing the entire system. This new trend in curriculum change has also triggered and relied on government involvement. Governments in different countries and regional areas have become active in curriculum change, publishing policy documents and working agendas, as well as guidelines to manage the process of curriculum change. In this sense, curriculum change is not merely an issue related to curriculum theory and practice; more importantly, it is a crucial policy issue (Zhong & Zhang , 2001). However, the systematic and overall change of the curriculum system has also restructured internal curriculum power relationships. States with centralized curriculum policy systems are devolving the authority of central government, those with the tradition of localized curriculum autonomy are beginning to strengthen the unified management of curriculum at the central level, and the original polarized curriculum power structure is moving toward a decentralized system. This new approach of power equilibrium in curriculum change does not weaken the power of government; rather, it reinforces the importance of government involvement and policy arrangements at both the central and local levels. Therefore, curriculum change and curriculum policy are related. In one way, curriculum change is the product of curriculum policy change (Hu, 2001); in another way, new curriculum policy always reflects the focal problems in the curriculum, aiming to respond to the need of curriculum practice.

At the turn of the new century, Mainland China launched a nationwide curriculum change in basic education. The change was extended to the senior high school level and continues to be implemented presently. As promoted by the central government, the initiation of the new policy change can be traced back to 1997, when the basic education division of the Ministry of Education (MOE) organized a large-scale investigation of nine-year compulsory education on curriculum implementation and identified sets of problems in the curriculum system. In 1999, the state council adopted the "21st century education revitalizing action plan" developed by MOE. The action plan proposed a cross-century "quality education project" as one of the four major projects, and stated the urgent need for establishing a 21st century

curriculum system in basic education with a modernized curriculum framework and standards as the first public articulation of the new curriculum policy. In 2001, the complete statement of the new curriculum policy, "Guidelines of basic education curriculum reform," was published, signifying the beginning of a new curriculum change across the nation. In the autumn of 2001, 38 national pilot areas were initiated. In 2005, the new curriculum was promoted to the whole country. With more than 10 years of exploration and practice, the new curriculum is now entering the phase of routinization and institutionalization. The curriculum system continues to change and be shaped in Mainland China. As an ongoing process, curriculum policy change is an emergent and constructive process, rather than a settled one. In the current paper, we aim to examine the 10+ years experience of curriculum policy change in Mainland China to explore how the process evolves and develops as the new curriculum policy is implemented, to articulate the Chinese experience in curriculum policy change, and to identify the localized features and perspectives, as well as possible reflections for optimization of future changes.

RESEARCH QUESTIONS

Curriculum policy change is never a subjective abstraction, neither is it a context-irrelevant practice. It is always enmeshed in its social historical circumstances at a particular time and place. As Stephen J. Ball (2006) points out, two major defects exist in educational policy studies: (1) the lack of the sense of time and process, seeing policy change as "snapshots" rather than a process "in continuousness, adaptation of practices, the arts of resistance and maneuver and value drift," and (2) the lack of the sense of "place," neglecting the "particularities of policy" or dislocating "schools and classrooms from their physical and cultural environment" (Ball, 2006). The current chapter intends to answer four essential questions to avoid the above problems in our research and acquire an overall picture of the new curriculum change:

1. What is the context of curriculum policy change in Mainland China?
2. What are the key areas of curriculum policy change?
3. What is the diachronic process of the policy change and its mechanism?
4. With the operation of new curriculum policy in practice, what explicit and implicit changes have occurred during the process? Specifically, what are the attitudes, perceptions, and actions of participants toward the new curriculum policy?

During the systematic exploration of these questions, we not only highlight existing experiences in curriculum policy change in Mainland China, but also apply our experience and views to a broader platform to "agree on the basic nature of this next stage, and the nature of the move required to take us there" (Pinar, 2002).

Thus, in our exploration of the new curriculum policy change in Mainland China, we attempt to resituate the process of policy realization in its historical context and social networks, elucidate what really transpired and changed during the process, and identify the features and meaning of the new curriculum policy change with

"Chinese" particularities. The above four questions are crucial in fully understanding the new curriculum policy change.

RESEARCH METHODOLOGY AND DESIGN

Document analysis and empirical analysis are the major methods used to explore our research questions. Questions 1, 2, and 3 cover the basic description and explanation of background, content, and procedure of curriculum policy change, respectively, which are based mainly on document analysis and synthesis. Documents collected for the analysis cover the following categories: (1) all the official documents related to the new curriculum policy, including formal curriculum policy documents or texts, meeting summaries, investigative reports, government communication, briefs, memorabilia, important leader speeches during policy operation, and so on; (2) studies and publications on the new curriculum policy, including theoretical, empirical, practical, or experience-based studies, among others; and (3) other documents or materials related to the understanding of new curriculum policy, such as documents that provide the background and social conditions of new policy, and informal discussions regarding the new policy in public media.

Question 4 involves the explanation and reflection of specific changes during the policy change process. A combination of document analysis and empirical analysis is used. The document analysis is divided into two categories: (1) empirical research work evaluating the new curriculum reform, including studies conducted by the "new curriculum implementation" evaluation project commissioned by MOE, evaluation studies organized by local government, and studies conducted by scholarly institutions and researchers; and (2) studies on curriculum policy analysis supplying suggestions and reflections for policy improvement.

Collection of time series data to supplement the inadequacy of document analysis for the empirical studies was conducted in two phases. The first-phase empirical data collection was conducted in 2005 (May to July) in Zhejiang Province, a relatively advanced and prosperous location in Southeast China, through questionnaires and semi-structured interviews in 14 sample schools in the national and provincial pilot areas. We chose the sample schools through purposive cluster sampling to expand the representativeness of the sample schools, covering different types of schools and basic education systems in the area.

Beginning 2005, the national pilot area implemented a new curriculum over the next four years, whereas the provincial pilot area launched new curriculum changes over the next three years; thus, not all teachers participated in the new curriculum reform. The anonymous questionnaire was distributed to 400 teachers who were already implementing reform in 14 sample schools. In all, 286 (71.5%) valid returns were collected. The questionnaire included six sections: implementation of the new curriculum, curriculum structure, textbook and curriculum resources, teaching and learning, evaluation and professional development, and three open-ended questions (data of attitudes of teachers, actions and experience, and perceived and experienced

Table 1. Types of sample schools

School category	Number and code	Total
Coastal area	7 schools (NE+NS+NN+NT+NX+NQ+NH)	14
Inland area	7 schools (HY+HC+HEB+HEC+HEA+HS+HM)	
Urban area		14
Experimental school	5 schools (HY+HC+HEB+NE+NN)	
Ordinary school	5 schools (NS+HM+HS+HEC+NH)	
Combined area of city and country	1 school (HEA)	
Rural area	3 schools (NT+NX+NQ)	14
Public school	12 schools (HY+HC+HEB+HEA+HS+HM +NE+NS+NN+NT+NX+NQ)	
Private school	2 schools (HEC+NH)	

Table 2. Questionnaire distribution and recycling

Length of teaching experience	Percentage of all sampling teachers
Less than or equal to 3	20.1%
3 to 15	58.4%
More than 15	21.5%

Questionnaire Distribution and Recycling
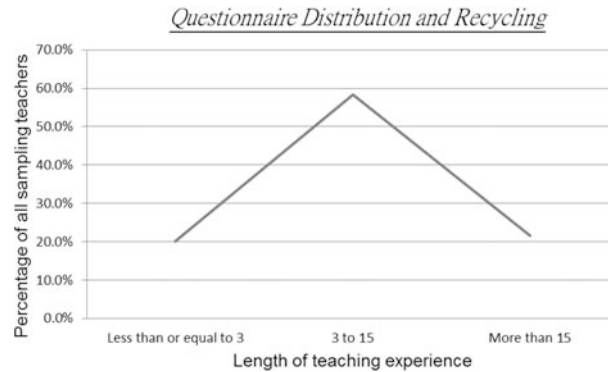
constraints and concerns). The overall conditions of the implementation were included in the investigation.

Interviews with school principals, leaders, and teachers with no administrative rankings were also conducted in the 14 sample schools. In all, 23 participants (4 school leaders at different levels and 19 ordinary teachers) were interviewed across the 14 schools (see tables 1 & 2). The questionnaire data were analyzed using SPSS V19.0, and the interview data were analyzed and categorized in accordance with five major aspects of the interview: (1) understanding and attitude toward the

Table 3. Status of sample schools and interviewees

School code	School level	Teacher code	Number
QT	Ordinary school (9 years basic education)		P: 1 SL: 4 ML: 6 T: 13
ZH	Key junior high school	Principal: P Senior school leader: SL Middle level school leader: ML Teachers: T	P: 1 SL: 2 ML: 4 T: 11
SY	Batch 2 key senior high school		P: 1 SL: 7 ML: 4 T: 18

new curriculum policy; (2) impact and innovation of curriculum implementation in school; (3) constraints and barriers in implementation; (4) effective external and internal support in implementing the new curriculum policy; and (5) further concerns and reflections toward curriculum policy change. Data used in the following discussion were combined with the school code, sample code (P = principal, L = School leader, T = Teacher), and number sequence. For example, HY-T1 means Teacher 1 in sample school of HY (see table 3).

Collection for the second-phase empirical data was conducted in March 2012 in Hangzhou, Zhejiang Province, through semi-structured interviews. Interviews were conducted in 3 sample schools (public schools) with 72 interviewees. In each sample, school interviews were categorized into the following focus groups: principals, senior school leaders (vice principal, academic director, and moral education director), middle level school leaders (year team leader and subject department leader), and subject matter teachers (Chinese, English, and mathematics).

The interview was focused on four aspects: (1) impact and practice of new curriculum policy in school and class; (2) effective external and internal support that facilitate the implementation; (3) key constraints and barriers in implementing new curriculum; (4) further reflections and suggestions for curriculum change, which also correspond to the first phase interview questions. The wide range of respondents provides diverse perspectives and experiences. The data were first categorized according to interviewed questions, and then coded according to major themes and key thematic categories using the qualitative data analysis system.

The discussion of curriculum policy change in Mainland China includes three levels of analysis: factual, value, and normative. Factual analysis is descriptive analysis regarding what and how the policy change takes place and is operated. Value analysis is the judgment of the change that considers social and cultural

features, understands the internal mechanism, and comments on the quality of the change. Finally, normative analysis is the rational proposition and reflection of what should be done and improved in policy change based on the status quo.

FINDINGS AND DISCUSSIONS

Context of Curriculum Policy Change

Era of knowledge economy. The arrival of knowledge economy has changed the mode of economic growth and the quality of new labor. Basic knowledge and skills no longer meet the needs of innovation in the ever-changing world. The new society needs a new kind of education to equip people with advanced self-learning abilities, problem-solving skills, interdisciplinary understanding and cooperation, innovative consciousness, and critical insights and creativity, as well as a sense of ethics and responsibility in leading and balancing the society. The new economy requires the transition of the curriculum system from the traditional "discipline-centered, classroom-centered, teacher-centered" approach to a new "real-life related, learning-centered, student-oriented" system. School curriculum policy change in Mainland China is the appropriate response to this reality.

Epoch of social transformation in the modernization of China. Chinese society has been experiencing systematic social transformation in economic, political, cultural, and societal aspects since the 1980s. From the planning economy to market economy system; from omnipotent, centralized government control to limited, service-oriented, and decentralized government, market choice, and public selection (Liu, 2003); and from a binary (politics and economy) to a tertiary social structure (politics, economy, and public civil society), we are not only reshaping the social structure, but are also bringing in new notions and values of modern civilization to China. The subjectivity, self-rationalization, flexibility, and awareness of public rules in new economy; the ideas of democratic, fair, equal, and effective politics in society; and the notions of efficiency and equity, fair competition and diversified excellence, and individuality and collective cooperation in social relationships are immersed in our value system during the process. In this sense, curriculum policy change in Mainland China is part of this multidimensional social transformation. It is necessary in constructing a new society because schools are where future citizens are molded. Therefore, the new curriculum policy proclaims the ideals of social transformation, and is designed and operated in accordance with other changes in the modernization of society.

International and domestic discourse of curriculum change. At the turn of the new century, a big wave of curriculum change swept across the world. Seeing education as the core of national power in the new century, most developed countries initiated new curriculum reform at the national and provincial levels to prepare the younger generation with a more comprehensive, flexible, updated, and diversified curriculum system. The domestic education system was also prepared for the curriculum change.

First, the nationwide advocacy of "quality education," in contrast to "examination-oriented education," since the late 1980s has prepared the education system for a transformative change. In addition to the discourse of "quality education," the experience and lessons accumulated from reforms in curriculum and decades of teaching also called for a systematic change in the curriculum system. Second, the rise of curriculum study as an independent field and its theoretical development after the mid-1980s provided intellectual and professional support for curriculum change. Third, criticisms of the existing curriculum system and systematic investigation on implementation of former curriculum reform (1993 curriculum reform) in 1997 created a sense of urgency for a change and triggered the new curriculum reform. The report of the investigation was later used as the original reference for new policy development.

Curriculum policy change is always a historical and social construct embedded in the reality and ideals of the society as "the product of interactions among political, social, cultural, and economic factors" (Hu, 2005). In this sense, the rational inquiry of one particular curriculum policy change should be based on the exploration of contextual conditions where the new policy is nurtured and developed, thus supplying the "all-encompassing totality" in understanding the logic and particularity of the change.

Key Areas of Curriculum Policy Change

Rationale of curriculum policy change   The basic notion of the curriculum policy change is "for the development of every student". The slogan implicates the major value of the change, which is to construct a new curriculum system that pursues both equality and quality. The new curriculum policy will protect the equal "right to learn" and "right to develop" of every student in the name of social justice. In addition, it will also emphasize the "quality" of student development, which is a holistic, balanced, comprehensive, diversified, and all-around development, rather than development with excessive emphasis on examination preparation and academic achievements. It is a curriculum system that will "enhance moral education, pay attention to humanity spirit, emphasis on information literacy and encourage knowledge integration" in nurturing future citizens (Zhong, 2001, 2003). The curriculum policy change attempts to achieve four fundamental transformations:

- From elitist education to education for all;
- From subject-centered curriculum (with narrow emphasis on subject-oriented knowledge and skills) to social-constructed curriculum (more comprehensive, integrated, and related to real life and people);
- From didactic methods of teaching to a progressive and child-centered approach of teaching; and
- From centralized curriculum control to curriculum decentralization at the national, local, and school levels.

Key areas of curriculum policy change.   As a systematic change to the original curriculum system, the new curriculum policy covers six major dimensions of

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Table 4. Six dimensions of curriculum policy change

Dimensions	From	To
Curriculum objectives	Knowledge and skill, performance focused, and examination oriented	All-round development of student, three-dimensional curriculum objective, i.e., basic knowledge and skills, learning process and learning method, positive attitude, emotion and value
Curriculum Structure	Academic subject-centered curriculum; single, fixed, and inflexible curriculum structure	Balanced, comprehensive, and flexible curriculum structure; combination of subject curriculum and integrated curriculum and national, local, and school-based curricula
Curriculum content	Unified national textbook; textbook-centered, difficult, complicated, obscure, and outdated content in textbook	Curriculum context connected with real life interests and experiences of students and modern society; new textbook system of one standard and multiple versions
Curriculum implementation (teaching and learning style)	Excessive emphasis on passive learning, lecturing, cramming, and rote learning	Facilitation of active involvement of student in learning; enhancement of discovery learning, exploratory learning, and project learning; emphasis on ability of information processing, problem solving, communication, and cooperation are emphasized
Curriculum evaluation	Summative evaluation; examination-centered; excessive focus on academic achievements stratification, and screening	Comprehensive, diversified, and multidimensional evaluation; formative evaluation; value-added assessment, and process-oriented evaluation
Curriculum management	Curriculum management by central government, unified national curriculum	Three-level curriculum management system (national, local, and school level curriculum); enhancement of the flexibility and adaptability of curriculum to specific regions, schools, and students

change: curriculum objectives, curriculum structure, curriculum content, curriculum implementation, curriculum evaluation, and curriculum management (MOE, 2001) (see table 4).

Process of Curriculum Policy Change

Key stages of curriculum policy change. The process of curriculum policy change can be divided into four key stages: initiation and conceptualization of the

Table 5. Key stages of curriculum policy change (Compulsory education)

Stages	Working schedule and content
Initiation and conceptualization (1997–1999)	• National investigation of nine-year compulsory education curriculum implementation conditions; report of the investigation analyzed the issues of curriculum system and gave suggestions for holistic reform (July 1996 to December 1997).
	• Basic education "quality education" experience exchange meeting held by MOE in July 1997 determined the initiation of new curriculum as the key issue in promoting "quality education" in China (Liu Bin, 1997).
	• Publication of the "21st century education revitalizing action plan" officially revealed the plan of the new curriculum policy change (MOE, January 1999).
	• Publication of "Decisions on deepening educational reform, promoting quality education" detailed the policy advocates of constructing the new curriculum system in basic education (State council, September1999).
Policy development and deliberation (1999–2001)	• "Basic education curriculum reform experts working group" (40 educational experts across the country from the university, research institution, government, and schools) was set up, responsible for the development of the "Guideline of basic education curriculum reform" (January 1999).
	• "Basic education curriculum and textbook development center" as the major research, development, and management institution of curriculum reform at the national level (June 1999) and 16 "basic education curriculum research centers" in China National Institute for Educational Research and 15 other universities were set up as professional support for the change (January 2000).
	• Initiation and public bidding of the "National basic education curriculum reform project," and the set up of 18 "curriculum standard development groups" on different subjects in progress (December 1999 to May 2000).
	• Research, discussion, investigation, development, and publication of the "guideline of basic education curriculum reform" were conducted by the expert group (with 28 revised versions) (January 1999 to June 2001).
	• Research, discussion, investigation, development, and publication of a "compulsory education curriculum standard" of different subjects were conducted (July 2000 to July 2001).

Table 5. Key stages of curriculum policy change (Compulsory education) (continued)

Stages	*Working schedule and content*
Pilot experiment and promotion of new curriculum policy nationwide (2001–2005)	• Construction of 38 national curriculum reform experimental areas in September 2001. • Construction of 528 provincial curriculum reform experimental areas in September 2002. • Expansion to 1642 national and provincial curriculum reform experimental areas (57% of the country) in September 2003. • Implementation in 2576 counties across the country (90% of the country) in September 2004. • Nationwide implementation of new curriculum in basic education in September 2005. • Nation-wide investigation on implementation of new curriculum in December 2001, March 2003, and November 2004. • Investigation on the usage of curriculum standards and revision of the standards (May 2003 to June 2004). • Reform of the junior high school graduation examination system and senior high school enrolment system in national experimental areas in 2004.

Continuation and routinization of new curriculum policy (2005–present)	• Second revision of curriculum standards (March 2007 to January 2008).
	 • Since 2008, the efforts to deepen curriculum reform have been focused on the following crucial issues:
	   – Enhancement of curriculum reform in the rural areas and western parts of China;
	   – Supervision and revision of textbooks of new curriculum;
	   – Improvement of the quality of education and reduction of the burden of students;
	   – Expansion of the curriculum reform of senior high school; and
	   – Reform on examination and evaluation system in education at different levels
	 • Publication of 2011 version curriculum standards of basic education in Dec, 2011

new curriculum policy, development and deliberation of policy documents, pilot experiment and implementation of the new curriculum policy nationwide, and the continuation and routinization of the new curriculum (see table 5).

With the development of curriculum change in basic education (Year 6 to Year 12), new curriculum reform in senior high school (Year 13 to Year 15) was also initiated in 2001 and developed simultaneously with the change in the basic education system (see table 6).

Given the routinization of the new curriculum policy in the basic education system, the policy focus of central government has gradually transferred to changes

Table 6. Main stages of curriculum policy change (Senior high school)

Initiation and conceptualization (2000–2001)	• National investigation on implementation of senior high school curriculum and the quality of senior high school education in 2000 to 2001.
Policy development and deliberation (2001–2003)	• Beginning of the development of the senior high school new curriculum reform plan and curriculum standards of different subjects in 2001. • Publication of the senior high school curriculum reform plan and 15-subject curriculum standard in March 2003.
Pilot experiment and promotion of new curriculum policy nationwide (2004–present)	• Pilot experiment of senior high school curriculum reform in four provinces of Guangdong, Shandong, Hainan, and Ningxia in September 2004. • Investigation of implementation of new curriculum in experimental provinces in 2004 and 2005. • Experiments extended to 10 provinces in 2006. • Reform of senior high school graduation examination system (academic proficiency text) in pilot provinces beginning 2006. • Reform of college entrance examination in four pilot provinces in 2007. • Experiments extended to 21 provinces in 2008. • The new curriculum continuously promoted to the other provinces in China in 2009 and 2010. • Comprehensive reform of the college entrance examination and enrolment system in 10 provinces in 2009 • Set up of the "National education examination advisory committee" in support of the college entrance examination reform in 2010. • Continuous exploration and promotion of academic proficiency test (graduation examination) and comprehensive quality evaluation system in common senior high schools across the country. • Start of the investigation and revision of the senior high school curriculum reform plan and curriculum standards in 2012. • Development and publication of the college entrance examination and enrolment system reform plan in 2012.

of the curriculum, evaluation, and examination system at the senior high school level. With the shifts of priority in the policy agenda, the main responsibility of the continuous promotion and deepening of curriculum change has also transferred to local agencies and schools. The success or failure of the change in practice is actually dependent on the understanding, will, and capacity of local administrators, school leaders, and teachers.

Mechanism of the policy process. The process of the new curriculum policy change is dramatically different from that of the traditional method of policy change in

China. Given the "top-level design", the "Guidelines of basic education curriculum reform," the new curriculum policy change has been systematically designed with rationales that intend to break away from the bureaucratic, centralized, and experience-based approach of curriculum change, and to seek a more democratic, scientific, and professional change.

System design. The operation of the change is scientifically planned and organized with reasonable procedures, aiming to guarantee the legitimacy and "fair outcome" of the process through "procedural justice". This operation begins with nationwide investigation and theoretical exploration, followed by experimental demonstration at the national and provincial levels, which is then gradually extended to the whole country, together with the ongoing evaluation and revision system. Admittedly, the smooth promotion of the new policy is largely dependent on administrative motivation. The power and the influence of the central government enable the rapid spread of the new policy, and also bring unnecessary burdens and chaos.

Professional leading. The change emphasizes the scientificity of the new policy based on professional engagement during the process. Special research and development institutions, advisory groups, and centers are established across the country. Educational experts are summoned from universities, government, research institutions, and schools, and are closely engaged in development, deliberation, training, consultation, and evaluation of the new policy.

Public deliberation. Public participation is an important feature in the development and deliberation of the curriculum policy. The 28 versions of the "Guidelines of basic education curriculum reform," as well as the revision of curriculum standards, are based on public consultations, hearings, proposal submissions, and discussions in public media. Public deliberation enables people from different areas to be involved in the process; expanding the public foundation of the new policy also triggers disputes and arguments in the process. The policy operation in Mainland China is especially meaningful because it is the first time the national curriculum policy has stepped out of the conference room of central government to seek public recognition and agreement.

Combination of multiple policy instruments. The usage of a broader set of policy tools (Hong, 2006) is another prominent feature in the operation of the new curriculum policy. Although the traditional mandates, incentives, sanctions, and inspection that reinforce top–down government control continue to be the main instruments of the policy operation of China, many new tools are employed and expanded in practice, exhibiting the new look of policy operation. First, great efforts are exerted in policy propaganda by formal and informal channels to persuade the public to identify with and believe in the value and notions of new policy, using slogans such as "for the development of every student." Second, funds from the central and local government, incentive systems, and policy support for school improvement are employed as positive inducements in implementation of the new curriculum. Third, the government stresses capacity building of teachers and educational administrators through professional development to meet the new

requirements of curriculum change. Various training programs are provided at the national, local, and school levels to "build resources and capabilities for future use" (Hong, 2006). Fourth, levers are also used at the regional and school levels, such as schools with teaching and research systems, university and school partnerships, and school alliance systems, which play an important role in leverage change in various settings. The simultaneous usage of multiple policy tools in curriculum policy change shows us that, in addition to the mandatory tools that assert authoritative ruling of the government, optional instruments also influence the change with explicit and implicit implications. With the increase of complexity of change in the modern educational system, the government also needs to become more flexible in promoting new policies. To this end, the new curriculum policy change in Mainland China can be considered as the most useful attempt thus far.

Changes of Attitudes, Perceptions, and Actions during the 10+ Years' Journey

With more than 10 years of exploration, the new curriculum policy has inevitably brought changes in the curriculum system and change in people. Compared with the changes in structure, content, form, and system of the curriculum, the changes in attitudes, perceptions, and actions of participants are more fundamental. In this section, based on empirical investigation and interpretive analysis, we focus on the changes of attitudes, perceptions, and actions of participants to determine the positive changes that have occurred during the process of the implementation of the new curriculum policy.

Change of attitudes. From vague to clear acceptance.   When people encounter changes, especially significant changes, they always develop different attitudes, such as active support, determined resistance, wait-and-see equivocalness, and pragmatic acceptance. However, in the new curriculum reform of China, even at the very beginning of the promotion of the new policy, we find a surprisingly high degree of acceptance of the new policy. During the 2005 investigation, 76.7% of teachers expressed belief that the new curriculum reform is meaningful, 84.3% of teachers expressed belief that the rationale of the new curriculum reform reflects their own ideas of good education, and 88.5% of teachers expressed agreement that the new curriculum reform is the positive impetus for teachers to reflect on the daily practice of teaching. This high degree of support is reasonable, partly because of the dissatisfaction of teachers with the conditions of the original curriculum and teaching system; they have already suffered from the inherent problems in the curriculum system and have desired change for a long time. Another reason for the high acceptance rate is the passive acceptance in the response; some teachers simply "try to tolerate" or "go along" (Evans, 1996) with the reform, which is different from sincere support. As noted in the 2005 investigation, 43.7% of the respondents expressed belief that they participate in the reform because they are active supporters of the reform, 50% of the respondents claimed that they participate in reform because

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the curriculum reform is part of their work, and 6.3% expressed belief that they have been forced to participate in the reform. This variation explains the different status of attitudes of participants in acceptance of the new policy. Even though most of the participants approve of the new curriculum policy and agree with the basic ideas of the change, the acceptance of the new policy is mixed with fears, concerns, uncertainties, fake understanding, and suspicions, which makes the acceptance of the new policy vague and unstable.

> "New curriculum cares for the development of students, which is very good, but the conservative ideas of education for academic achievements and examination are deeply rooted; schools and teachers could not abandon the basic knowledge and skills, that's the reality" (HM-P).

> "The new curriculum reform is acceptable in ideas, but difficult to carry out in practice" (HC-T4)

In this sense, the acceptance of the new curriculum policy at the early stage of the policy change supports the policy ideally, rather than practically. In the later stages of policy change, the attitudes of participants in support of curriculum policy become more clear, mature, and definite.

> "What ideas we have will influence our practice, the professional leading of experts in curriculum and teaching is very crucial in implementation of new curriculum, because the constant remind of ideas in reform will help teachers stay on the right track, and reflect their practice from time to time" (QT-P)

> "The real change in beliefs and ideas is difficult but vital; the deficiency of action is the reality we need to tackle in the change" (QT-SL1)

> "We have lived in new curriculum for years, this experience of implementing new curriculum is the process of learning and changing, our understanding of what is good curriculum and classroom teaching is gradually developed with improvement of our experience, you can say the new curriculum exerts imperceptible influences on our thinking and actions" (QT-ML2)

> "After the implementation of new curriculum, we begin to concern and care more about students rather than the process of teaching itself, focus more on students' experience and practice in learning, that's a fundamental change. In the old system, we will also carry out some activities in teaching and learning, but those activities are the goals or objectives of the teaching, the major change is that the final goals or objective is the development of students, that's crucial" (SY-ML3)

These responses show us that, with the development of curriculum policy change, the acceptance of the new policy is not merely the recognition of superficial features of the change. Rather, it is the internalization and understanding of the rationale of the policy, the sympathy for the development of education and society, and the

"active commitment and participation" (Evans, 1996) of those concerned in reality. This internalization is the premise of the new curriculum policy change, and thus must be accomplished to a significant degree.

Change of perceptions: From multiple views to coherent understanding. With regard to perceptions on new curriculum, much concern is on the identification of barriers and constraints in its implementation. At the early stage of policy implementation, the feeling of being unable to control the implementation makes teachers sensitive and agitated because they perceive stress and conflict as constraints and barriers. In a 2005 investigation, participants identified several factors that hinder the implementation of curriculum policy. According to importance, the 12 identified factors are as follows: lack of professional guidance, complexity and difficulty of the reform, difficulty in usage of new curriculum standard, difficulty to adapt to new ideas and methods, lack of experience reference and practical training program, the constraints of examination system, lack of teaching resources, the quality and practicality of new textbooks, big class size, understanding of new curriculum, lack of holistic support from related organizations and authorities, and insufficient time and energy (see figure 1).

At the beginning of curriculum policy implementation, the lack of a holistic picture of the reform causes the perceptions of participants to be indefinite, overlapping, and
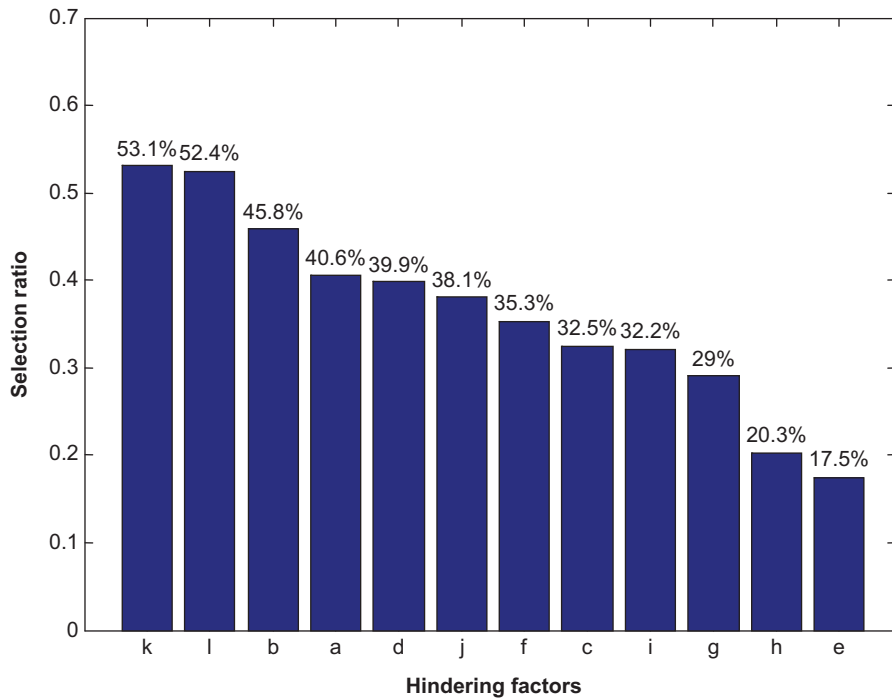
Figure 1. Identification of constraints in policy implementation.

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perplexed. Most constraints identified are explicit and superficial. Some constraints are typical at the beginning of implementation, such as the conditional support of policy and the basic understanding of new ideas and methods.

In the interviews conducted in 2012, the participants' responses regarding the constraints and barriers of curriculum implementation are much more mature, profound, and focused. The perceptions are organized with an internal logic and can be easily categorized into three types: constraints from system, policy, and people perspectives. In the first perspective, three important system barriers are identified by different respondents. The first and greatest constraint mentioned is the profound difference between the new curriculum and the traditional examination system (junior high school graduation system and college entrance examination system).

> "College entrance examination is always the lifeline of the school, to the teacher, they teach according to the examination. The problem is that the examination system is not changed in consistent with the new curriculum" (SY-P)

The second constraint in the system perspective is the strict quality monitoring system of local authority. The strict supervision and inspection system is a legitimate control and hierarchical intervention of a school's autonomy. Regulative system in education does not facilitate, rather interrupts, because it is hypocritical. This strict controlling of higher authority reflects the distrust of local government and schools, which ends up in even more severe conflicts in fake decentralization and empowerment to schools implementing new curriculum policy.

> "Too much regular examination, tests and inceptions organized by local authorities, excessive control from the higher authorities, the school couldn't breathe" (QT-P, SL-2)

> "We are tired up with all the administrative works and all kinds of inceptions and supervisions, the time for real research and preparation of teaching is limited" (ZH-T5)

The third constraint in the system perspective is the stress and expectation coming from the society, the deep-rooted examination orientation, and academic achievement-centered value system. The accustomed beliefs, traditions, relations, and values in the society are developed over time and with persistence in our society.

> "The priority concern of the society is still the academic achievement of student; the holistic development is at the second place, the fickleness and utilitarian of the commercial society is contradictory with the culture of new curriculum" (QT-SL4)

Aside from the constraints in system perspective, those from perspectives of the policy and the people are also identified. Constraints from the perspective of policy are considered from two aspects: the problem on practicality of new curriculum standards and textbooks in use and the problem of frequent adjustments and the irrational rush in promotion of new curriculum policy.

"New curriculum standard is very flexible in organization; it gives much autonomy to teachers in the classroom, but also increases the difficulty to handle" (QT-T3)

"The quality of new textbooks is questionable, for example, in mathematics, most of textbooks are shallow and broad, it is very difficult to teach, and unable to reflect the ideas of new curriculum at all" (ZH-T3; SY-T2)

Moreover, three key constraints related to people are identified: the conflicts of new curriculum ideas and teaching method with the traditional ones, the challenge on teachers' competence and capacity, and teachers' autonomy to have enough time and space to research and teach.

"New curriculum has set up a very high standards for teachers, the school is lacking of professional teachers in operating new curriculum, such as the integrated curriculum, comprehensive activity learning, etc., that's a challenge to school and also to teachers" (QT-ML4).

"The new curriculum is very comprehensive and flexible, I am a history teacher, but in order to teach the new curriculum, I also need to know the knowledge of politics, geography, and even economy and laws, if you do not keep learning, you will not be qualified to teach" (ZH-ML2).

"New curriculum is a reform of traditional ideas and methods of teaching and learning, the conflicts between the old and the new is always there, for example, the teachers' authority in teaching, overemphasis teacher lecturing, is never easy to change" (SY-T13).

"Teachers are too busy; they really need enough time and space to research into curriculum and teaching" (QT-SL4).

After 10 years of implementation, most participants have developed rational and holistic perceptions toward the new curriculum policy. Most have formed a profound understanding of the ideas in change and its realty. They are able to identify the substantive conflicts and "deeper relationships" of constraints in the implementation of new curriculum policy. These changes indicate that, not only would the attitudes change, people's perceptions will also develop as they accumulate experience.

Change of actions: From surface-level attempts to core and substantial innovations. At the early stage of implementation, much effort was focused on familiarization with the new curriculum, ideas, structures, materials, skills and techniques, relationship, and power, among others. At the national and local level, the government provided necessary "hardware" and "software" investments, including financial investment, resources support, equipment and appliance update, class size control, and teacher training programs, among others. The teacher training program is an example. In the 2005 investigation, although 89.1% of teachers acknowledged the importance of training, most also mentioned its inadequacy.

"Too much talk about the theories, lack of practical guidance" (NE-T6).

"In need of trainings closely related to classroom teaching by subjects, such as lesson observation, workshop of successful experience, method and skills" (HC-T2).

At the school and classroom level, many actions are carried out in the early implementations of new curriculum. The new curriculum timetable is acquired by schools, with new integrated curriculum and comprehensive practice activity. In schools, new textbooks are adopted, and school-based teaching and research system[1] are established. New methods in teaching and learning are practiced in classroom teaching. In the 2005 investigation, 96.9% of the teachers stated that they are trying diversified methods in teaching, whereas 89.2% expressed advocacy of the new methods of active, cooperative, and explorative learning. In addition to traditional written examinations, new assessment methods are introduced into student assessments in the new curriculum (Figure 2). Local and school-based curricula are integrated into the curriculum structure.

The early implementation of new curriculum involves mostly marginal attempts. The start-up of new changes, such as use of new materials and learning of new techniques, is superficial. At this level, the implementation is more "focused on the surface-level forms", indicating the imitation of the new policy in forms. For example, to inspire active involvement of students in learning and to respect their subjectivity in learning, the new curriculum advocates cooperative, participatory, and explorative methods of learning in classroom teaching. Consequently, we may see several classrooms with excessive activities. Such a situation seems to show the achievement of goals of the new policy; however, in reality, the fundamental rationale of the policy is lacking. In this sense, the similarities in forms of policy implementation do not reflect the underlying functions of the policy ideas. As Fullan (2007) points out, the profound level change is not only the grasp of new techniques,
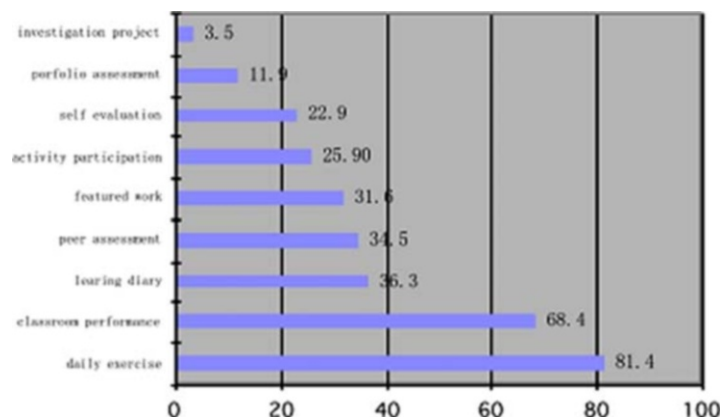
Figure 2. Use of different assessment methods in the new curriculum (%).

but the internalization and understanding of the rationale to make the appropriate judgments regarding when to and how to use these techniques, and how to adopt them creatively. In our case, we have acquired the skills and techniques of cooperative learning or participatory learning. We do not need to engage our kids every second in our classroom, or occupy the class with activities. More important is to break the loop of imitation in forms, and to fully take control of new skills and techniques.

However, the surface-level implementations are important foundations for the development of change. In the 2012 interview, the actions of the policy change were found to be more focused on essential and substantial issues. At the national and local level, great efforts have been exerted in the reform of the examination and evaluation systems. Based on the pilot experiment in several provinces, the college entrance examination and college enrolment system reform plan are to be published in 2012. At the school and classroom level, the implementation of new curriculum are focused on the following domains: the continuous capacity building of school leaders, teachers at different levels, cultivation of broad partnership and communication, curriculum and teaching initiatives at school level, construction of supportive school culture and innovative leadership, and so on. A number of innovations have taken place to deepen the implementation of new curriculum.

In support of in-service professional development of teachers, most schools have developed school-based platform for research, teaching and training, and organizing effective and professional program or activities within or out of school.

"Our school has a specific teacher development group to establish training and school based teaching and research programs according to the needs. Except for the regular training and in-school research and teaching activities, our school also provides teachers with many out-of-school training programs across the country" (QT-SL2).

"We have very well-organized and effective school-based teaching and research programs. Each semester, each subject oriented research and teaching group will develop a series of core themes for the professional development of the whole semester, based on the core themes, we will developed related workshops by teachers in each subject department, all of these activities are practice focused and are very helpful in daily teaching and research work" (QT-T6).

"Teachers are gathered to develop school based curriculum, exercises books, and other learning materials to facilitate the learning of students" (ZH-T6).

"We will also invite teachers from other schools to come to our school and organize research and teaching activities together, to display exemplars of lesson plan and teaching, and exchange ideas" (ZH-T3).

The broad partnership and communication with sister schools within the region and across the country are also important measures for schools in learning from other's experiences in curriculum change.

"The regular teaching exchange programs organized with brother schools within and out of our province, such as schools in Shanghai, Suzhou, Nanjing, etc., are very crucial in promoting the understanding of new curriculum through professional dialogue" (QT-SL3).

"We have district-wide Internet platform for teachers to share teaching materials (ZH-T4).

"All staff training program and thematic training program are also organized at district, municipal level, as well as the teacher's research league across the schools" (QT-T8).

"Peer support is also very important in the change, in our school, we have teacher mentorship tradition, and young teacher will be grouped with experienced teacher in carrying out new curriculum" (SY-T5).

More importantly, most schools have begun their own exploration under the new curriculum change, and have initiated series of grass-rooted reforms in curriculum and teaching at school level. On one hand, most reforms are focused on classroom teaching and school-based curriculum in operation. On the other hand, those reforms are considered core issues that are consistent with the overall plan of school development, seeking for schools' own characteristics and particularities in the nationwide curriculum change.

"The real curriculum change is happening in school and in every classroom, so it is very important for schools to initiate their own change in adapt to school context and requirements. In the new curriculum change, our school take the 'low burden high quality' as the brief understanding of the main idea of change, we started school-based research project, pay attention to curriculum development, and acquire professional support from local government and universities in facilitating our school-based initiatives" (QT-P).

"Curriculum change is not only a broad sense for school if it is going to be carried out in reality, it need some specific and concrete action plans to fulfill the change step by step in school, such as small class size experiment, learning directed teaching mode, in this semester, our school promoted some new teaching methods in classroom teaching" (ZH-ML3).

"The new curriculum promotes diversity and flexibility in curriculum. In order to cultivate our own feature in the change, we restructured our curriculum system by adding more selective courses for the individualized development of every student and start the mobile school-based curriculum system. Students from Grade 7 can choose their own school-based curriculum. For example, two of our featured courses are robot curriculum and critical writing; both of them are very competitive and famous in the city. Take the robot curriculum for example. We cooperate with companies and universities and help our

student to compete in international robot competitions. With these selective curricula and flexible system, it is not only our students who find confidence and interests, but also our teachers, who have developed their specialties. In the long run, with the development of new curriculum, a school is going to be judged by its feature rather than by its academic performance, this is the opportunity for the development of schools" (SY-P).

"The innovations in school are based on our school development plan. In these past few years, we have had five major projects, and three of them are related to curriculum development and teaching, for example, the ecological class teaching project, harmonious teacher students relationship project, featured curriculum projects, etc. They are playing a key role in the new curriculum change" (SY-ML4),

Most schools have also noticed that curriculum change not merely involves curriculum, but is related to the change of school culture and management system. The supportive evaluation and reward system in school, professional support and opportunities provided for teachers, concern for teachers' recognition, satisfaction and welfare in their career, cooperation from parents and community, flattened management structure that encourages inclusive engagement of teachers in school management, and energetic school culture as a learning community in favor of new initiatives are all considered important factors in implementing the new curriculum.

"The curriculum management and leadership at school level are very crucial. Systematic and specific planning at school level, in subject department and year team group, are important in engaging the whole school in the reform with clear blueprints and guidelines" (QT-T11).

"In our school, we have collaborative lesson planning group, and also other curriculum resources to support teachers' preparation of lessons. In addition, our school is also active in building platform and seeking opportunities for teachers' professional development from the city" (ZH-T9).

Therefore, with the development of new curriculum implementation, we should be able to witness the reform. It will gradually nest in the complex web of the school system, be embedded in the specific context of every school, become a series of concrete reform initiatives in school's daily practice, and break away from the superficial imitation at the early stage of reform. The sense-making process of new curriculum implementation in reality is transforming the policy documents to real actions to realize core ideas and underlying intent of curriculum reform. It is regularly connecting the reform with the school's organizational structure, development plan, institutional system, in-service training for teachers, research project, requirements for students, and outside partners. In this sense, with the contextualization of curriculum reform, the actual reform eventually takes place in grassroots action.

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CONCLUSIONS

Curriculum policy change is not a series of instructions or intentions that can be easily achieved. It always displays a variety of stances, styles, and problems in the "real relational settings in which schooling is located" and evolves with time. Institutionalizing the new curriculum policy is a long, continuous process. The new initiatives in curriculum policy become a stable curriculum behavior and part of daily teaching activity.

More than ten years of curriculum policy change in Mainland China has been shown as a holistic process in the systematic curriculum reconstruction. The changing process is developed vis-à-vis the modernization of China's social, political, and economic systems. It brings a more scientific, normative, and democratic process of policy change that emphasizes power decentralization, system design, professional leadership, and public participation. All these efforts indicate the maturation of curriculum policy operation, breaking away from "experience-oriented approach" (Huang, 2003) and focusing on the effectiveness, justice, and legitimacy of change. However, as previously mentioned, the procedural justice in the change process does not absolutely justify the fair result of the change. A real change in a particular nation or region is always affected by its cultural, political, and ideological conflicts or struggles. Based on the ten years' experience of curriculum change in Mainland China, further considerations and concerns need to be pondered. These reflections are based on the experience of the Chinese and developed from their perspective, but may still shed new light on the curriculum policy change process with international significance.

Importance of Strengthening Curriculum Research.

Curriculum policy change is a professional and specialized field of change, unlike other educational policy change. Curriculum change always involves design of new curriculum structure, content, resource, or evaluation system. Hence, the continuous adjustment of curriculum system is not only based on previous experience, but, more importantly, based on the profound understanding of curriculum and its system and prediction of its development. The understanding of the system and the ability to suggest and adjust the change can only be developed through theoretical and practical curriculum research. Although in China's new curriculum reform, the importance of basic research on curriculum has been realized, basic research is still at the early stage, and related research on curriculum policy is far from sufficient. First, the theoretical basis and methods of existing curriculum policy research remains quite weak. "Most research involves only the general policy comments", rather than comprehensive policy analysis. Meanwhile, the usage of traditional research methods, such as document and historical analyses, comparative study, and empirical research, remain greatly preferred. The lack of theoretical foundation and interdisciplinary explanatory research has limited the research vision in curriculum

study and resulted in similar, unimpressive research findings. Second, structural imbalance is another prominent issue in the current curriculum policy research. It focuses more on structural analysis, over detailed discussion and interpretation. In addition, the practice-oriented curriculum research is still a weak link in curriculum study, expanding the gap of theoretical curriculum research with curriculum policy design and curriculum action in practice, which is known as "three skins" (Huang, 2003) in the field. Considering these facts, more efforts should be focused on the basic research of curriculum theory, policy, and practice to develop a systematic, multidimensional, and in-depth research foundation for curriculum change, as these are important to the optimization of curriculum policy change, as well as to the scientific development of curriculum field.

Construction of Specialized Working Group and Normalized System
in Curriculum Change

Effective and responsible curriculum change needs to rely on long-term and sustained research and demonstration through specialized groups on a regular basis. Without the specialized organization and persistent attention, we cannot guarantee the continuity and coherence of curriculum system development. In China, curriculum policy change continues to follow the project-driven model, which is only effective in one-time curriculum change. It is able to gather a group of experts in the field in a short time, and guarantee the scientificity and integrity of change to some extent. However, sustaining the consistency and continuity of curriculum policy is difficult in the long run. The continuous development of curriculum system is based on the systematic, long-term exploration of the system and on insightful perception, and on sustained reflection of a specific subject matter or thematic domain. To achieve such a goal, curriculum change should become an institutionalized activity, rather than a one-time government agendum. A specialized research and development team should be established to promote the adjustment and revision of curriculum policy on a regular basis in order to ensure the inherent continuity of curriculum policy that targets continuous curriculum system development. Recently, the need to establish a specialized team and an institutionalized system in curriculum change has been noticed by MOE.[2] In addition to the set up of professional agency, the specialization of internal staff of education offices in government is also a fundamental key to enhance the professionalization and institutionalization of curriculum policy change.

Awareness of Shared Curriculum Power and the Assurance of Specific Working
Mechanism in Curriculum Change

In the trend of the worldwide curriculum policy change, the distribution of curriculum power has become a consensus. However, the achievement of democratic participation and power autonomy in curriculum change relies on careful consideration of following issues. The first aspect is the consciousness of every participant of his/

her rights and shared participation and power in curriculum policy change. In China especially, the long-term bureaucratic control and hierarchy monitoring in education administrative system have formed the tradition of obedience to authority. To foster the sense of distributed power in curriculum change, "people need to view them as subjects." They need to "acknowledge the existence of their perspectives and perceptions," and "respect for their shared intelligence and powers of choice" (Scheffler, 1984) in the change. This self-consciousness of shared curriculum power is divided into two parts: (1) reflection of people who are in power and the self-awareness of their role in new curriculum policy change as policymaker, inspector or supporter and service provider; and (2) reflection of people who have been long absent in curriculum decision making (teachers, the public, students, and so on) and the self-awareness of their legitimate power in curriculum policy change, such as the right to be informed, to participate, express one's views, make recommendations, and their professional authority in classroom teaching, among others. Clarifying the subjective power without being marginalized and objectified is the first and most crucial step in guaranteeing actual power distribution and democratic participation in curriculum policy change. The second aspect is the substantive and detailed work mechanism and institutional specifications to guarantee the democratic participation and power implementation. Without institutional assurance and a feasible working mechanism, the decentralization of curriculum power, the scientificity of curriculum change process will only remain at the level of symbolic significance, and will result in empty talk. In curriculum policy change, some important working mechanisms need to be emphasized and established systematically, such as the information disclosure system, communication and feedback mechanism, policy deliberation system, power supervision mechanism, accountability advisory mechanism, and so on. Thus, the awareness and commitment of every subject in curriculum change, as well as the strong support in institutional and mechanism construction, are important basis for effective operation of curriculum policy.

Maintaining Coherent and Consistent Attention Toward
One Curriculum Policy Change

Every reform has its own rules. A curriculum change also has its time cycle. As Fullan (2007) comments, compared to a step-by-step task, the performance of new behavior needs more time. Any aggressive and catch-up of policy operation would be counterproductive. In Mainland China, even after more than ten years of promotion, complaints continue to be inevitable about the hasty curriculum policy implementation. As one principal commented, "some immature ways should be improved for the healthy development of curriculum change. The law of education should be followed and the curriculum change should be pushed forward gradually. Rome was not built in a day. Hence, we are not aiming to achieve holistic success in a short time, but to bring about fundamental changes through small efforts and innovations in practice. Instant success does not apply in curriculum change. Either

in the pilot or in the implementation period, the actual use of new curriculum will need more time than any utilitarian intentions." With instability, modifiability, and a short processing cycle, the comment reminds us what curriculum change is facing. Any subtle factors, such as the transfer of key leaders, the change of government agenda, or the diminishing administrative support, would challenge the coherence and consistency of curriculum policy, placing in danger the effectiveness and depth of the new change. Considering the complicated and persistent curriculum change, the enhancement of curriculum policy change is better not seen as a one-spot political action, but as a professional and continuous process of trying out that requires consistent attention and support.

Significance of Supportive Public Opinion and Social Environment

Curriculum policy change is always accompanied by various opinions. Some are supportive, defensive, resistant, and some stay neutral. The diverse opinions of different stakeholders form the social environment in which the curriculum policy change resides, bringing social pressure to school leaders and classroom teachers in curriculum decisions making. Primarily, the academic direction of curriculum change in professional field also directs public opinion. Especially in China, with the tradition of respect for authority and scholars, the academic discussions will always indicate the general trend in policy interpretation, lead the focus of public attention, and finally guide policy practice. The rational and decent academic direction of public opinions in curriculum change not only depends on the professional competency of educational researchers, but also relies on their moral commitment and social responsibility. Another crucial power in forming public opinions is from mass media. The media not only play an important role "in the policy-making process," but also determine "what the masses will know about, think about, and talk about" (Dye, 2001). Generally, in China, the public opinion environment of curriculum policy change needs to be improved. In the public discussion of curriculum policy, the media still lack accurate sense of problems identification and capacity for professional deliberation, focusing on micro-level questions that belong to teachers' professional regulation and autonomy in classroom teaching. They do not require universal discussion, and ignore the decisive problems that will facilitate public understanding of new curriculum policy. The market-oriented mentality and the pursuit of tabloidization in mass media will also result in false progress with regards to public opinion of curriculum change. It will miss the inherent duties of serious investigation, insightful thinking, and social responsibility. Furthermore, the establishment of sound public opinion and guidance system is also important in preventing irrational arguments in building the public opinion environment, and encouraging more rational and decent public interactions. Overall, curriculum policy change is not exclusive in the curriculum field, but goes far beyond the boundary of educational system as a social construct. We have common interests in curriculum policy change in terms of providing our

children with better education. Curriculum policy serves the society with a more well-prepared labors, and provides our nation with more well-educated citizens. In this sense, everyone has the responsibility to provide the curriculum policy change with optimum conditions during the process.

The process of curriculum policy is full of flexibility, uncertainty, fluidity, diversity, contradictions, and complexity. It is a process of recontextualization and adaptation, of empowerment and capacity building, and of discourse confrontation among different stakeholders, and a continuous exploration and interpretation of inner meaning of curriculum policy change. Similar to a competent doctor who not only provides a prescription for the patient, but also collects new evidences to modify his/her former diagnosis, curriculum policy change is the process to increase the possibility of new understandings based on their prior knowledge and pre-structure. After all, no research can claim total understanding of curriculum policy change, or that what is not discussed in research is not important. What is important is to deepen and extend the understanding of the curriculum policy change in different situations and contexts to facilitate and optimize our related behaviors and practices. Curriculum policy change is an open and evolving process that cannot be confined in the existing model. Only through ongoing reflections and criticisms can we develop the capacity to face the emerging issues. As Fullan (2007) reminds us, success is only the measure we take with regard to the ever changing problems. Therefore, the research on curriculum policy change in this chapter is only a brief glance of Chinese experience and a reflection of our perspectives.

NOTES

[1] School-based teaching and research system are newly introduced to schools in the new curriculum reform. School-based professional development system for teachers involves professional leadership, peer cooperation, and independent reflection. The research and teaching activities are carried out regularly in school, and are a very effective, practice-oriented, and flexible system in promoting teachers' professional development.

[2] The establishment of a specialized curriculum guidance and deliberation team (organization) at the national level has been noted by MOE. MOE also entrusts a specialized group to research the project, and has submitted a consultation report on "National Curriculum and Textbook Guidance and Deliberation Committee: Internal Experience" (Cui Yunhuo, 2008). From the international experience, to promote curriculum development along with society, a permanent and specialized group that is able to track, research, investigate, and demonstrate necessary changes in curriculum system at regular basis is not only an important and indispensable organizational structure, but also a scientific and effective way to carry out new changes, which is the purpose of the system in a particular nation or region.

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3. TRANSFORMATIONAL ISSUES
IN CURRICULUM REFORM

Perspectives from Hong Kong

INTRODUCTION

Curriculum reform has been a constant feature of the Hong Kong educational landscape for almost a decade (Kennedy, 2005; Kennedy, Chan & Fok, 2011). Hong Kong's post-colonial government moved quickly after 1997 to launch a major reform initiative that has influenced every aspect of Hong Kong's education system. Some have argued that Hong Kong's teachers now suffer from 'reform fatigue' described by Kim (2005, p. 76) as "the condition in which government workers become cynical and tired reform". For many teachers there has been too much reform, it has come too quickly and it often appears uncoordinated. There have been political fall outs from the reform process which has seen one Permanent Secretary of Education come under severe pressure and teacher unions line up against the government's reform agenda. In other words, curriculum reform in Hong Kong has reflected many of the characteristics of contested reform efforts elsewhere in the region.

There are thus regional commonalities that have driven reform in Hong Kong. Yet there is also a distinctiveness that has created some important local characteristics. In this chapter I would like to focus on both the commonalities as well as the distinctiveness to portray a holistic picture of the reform process and make an assessment of how these have influenced classroom practices. To do this I shall draw on a significant range of research that has been conducted over the past decade in Hong Kong and other parts of the region.

In specific terms I shall address the following issues:

- Rationale for reform in the Asia Pacific region – the new 'progressivism'
- Hong Kong's rationale – post colonial release
- Features of Hong Kong's reform process – policy intentions
- Changing classroom and school practices – policy implementation
- Changing approaches to curriculum leadership
- Changes for new times – what has been achieved?

RATIONALE FOR REFORM IN THE ASIA PACIFIC REGION – NEW THEORY FOR EDUCATION

Kennedy and Lee (2010) highlighted the pervasiveness of educational reform across Asia as the new century dawned. The scope of regional reform is shown in Table 1 (Kennedy & Lee, 2010, p. 24).

There are many similarities here – lifelong learning, the dominance of information technology, the focus on learning. All of this was driven by a common theoretical rationale that accounts for the pervasiveness of reform. At the same time in Hong Kong there were quite distinctive reasons driving the reform effort and these interacted with the more general rationale. In what follows, both the common rationale and local reasons for reform will be discussed.

REGIONAL EDUCATION REFORM – THE 'NEW ECONOMICS' AS A COMMON MOTIVATOR

I have discussed in a number of places the economic motives for educational reform in the Asia Pacific region (Kennedy & Lee, 2010; Kennedy, 2007, Kennedy, 2005). I shall draw on this work in what follows.

Ritchie (2003) explained the economic imperative this way:

a key driver of innovation and technological progress is the supply of and demand for a large and competent pool of intellectual capital—the knowledge and skills found in the local labor pool. This is not to say that physical capital, investment, and macroeconomic stability are no longer necessary for economic growth. Rather, they are no longer sufficient. Whether they positively impact long-term technological upgrading (as opposed to only aggregate growth) depends largely on the creation of new knowledge and skills in the local economy. (p. 3)

The results of such a perspective for education are significant and I summarized them: (Kennedy, 2007, p. 813):

In terms of labor, therefore, the essential ingredients are ideas, creativity, innovation, problem solving and critical thinking skills. These are not skills and attributes associated with the traditional academic approaches to schooling that characterized the Asian region towards the end of the twentieth century. Education monitored by bureaucratic systems that rationed education for elite served the old but would not serve the new economy. Herein lies a rationale and impetus for reform: the "knowledge economy" required workers who are flexible and responsive, able to respond to new contexts and capable of innovation to provide new solutions to old problems Schools needed to become the engine rooms where such skill sets could be developed, a fact acknowledged directly by a number of Asian education policy makers (Goh, 1997; Law, 2002) as well as curriculum reform documents.

Table 1. The scope of education reform in the Asia Pacific region, 1997–2002

Country	Policy	Year	Emphasis
China	*Curriculum Reform of Basic Education*	2001	Focus on students' learning interests and experience; include knowledge and skills which are necessary for lifelong learning.
Hong Kong SAR	*Learning for life – learning through life*	2000	To build a lifelong learning society.
	Learning to learn: The Way Forward in Curriculum Development	2000	Help students to build up their capabilities to learn independently.
Indonesia	*Competency Based Curriculum*	2002	To develop a process-oriented way of teaching multicultural attitudes and behavior such as tolerance, mutual-respect, mutual understanding, and recognition of religious, ethnic, and cultural diversities and differences.
Japan	*The Education Reform Plan for the 21st Century*	2001	Establish an educational philosophy suitable for the new century and improve the provision for education.
Korea	*Adapting Education to the e Information Age*	2001	It is a reform of the educational system for the new society through ICT.
Malaysia	*Smart School Curriculum*	1999	To foster the knowledge, skills, and attitudes appropriate for success in the Information Age.
Philippines	*Restructured Basic Education Curriculum*	2002	Raising the quality of the Filipino learners and graduates and empowering them for lifelong learning.
Singapore	*Thinking Schools, Learning Nation*	1997	A 'learning nation' envisions a national culture and social environment that promotes lifelong learning in our people.
Taiwan	*Moving Towards a Learning Society* and *Action Plan for Educational Reform*	1998	Curriculum designed for the new century: • developing humanitarian attitudes, • enhancing integration ability, • cultivating democratic literacy, • fostering both indigenous awareness and a global perspective, • building up the capacity for lifelong learning.
Thailand	*National Education Act, 1999*	1999	Lifelong education for all, 2) participation by all segments of society, and 3) continuous development of the bodies of knowledge and the learning process.
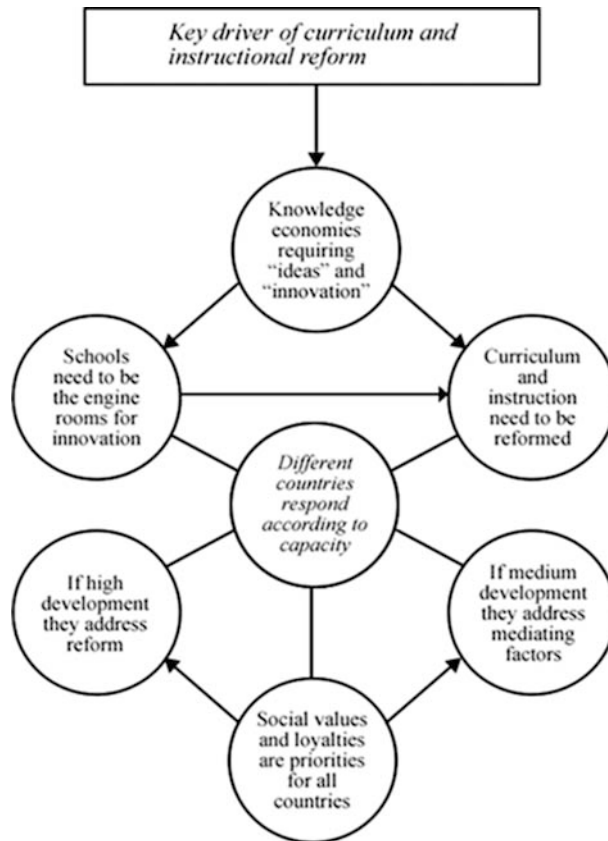
Figure 1. The key drivers of curriculum and instructional reform (Kennedy, 2007, p. 814).

This view can be shown diagrammatically as in Figure 1 that is taken from Kennedy, (2007, p. 814). At the heart of this economic view of schooling and the contribution of education is "learning", a construct with which all educators are familiar. In Figure 1 learning is driven by the needs of the knowledge economy for "ideas and innovation". This learning, though, is viewed through a theoretical lens that I have described as a "pastiche" of progressivisms – what I have called the "new progressivism" (Kennedy, 2008, p. 20). It draws from the broadest conceptions of progressivist teaching and learning principles. Its emphasis is not so much "child-centred" progressivism but rather social efficiency that focuses on the role of schooling in the provision of a skilled workforce. Sargent (2006, p. 10), writing on curriculum reform agenda in China, made a similar point, "education policy officials in China use this language of progressivist ideology and weave it seamlessly into functionalist rhetoric about the need for a labor force that is capable
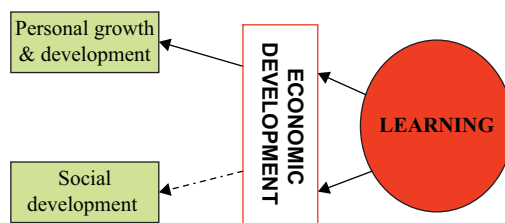
Figure 2. A neo-progressivist view of the value of learning in the school curriculum.

of innovation and of acquiring and applying information in practice in the global knowledge economy of the 21st century". In other words, as I have argued, "the state has co-opted progressivist principles to support an economic instrumentalism as the basis of the school curriculum (Kennedy, 2007, p. 817). That is to say integrated curriculum, assessment for learning, and engaging teaching strategies do not just represent a particular educational ideology: they are seen by governments to advance the development of the knowledge economy through stimulating problem solving, creativity and critical thinking.

In Hong Kong, and I would argue in the rest of the region as well, reform agendas have been driven by this neo-progressivist view of learning that is summed up in Figure 2. It recognizes the value of learning primarily in terms of the potential of learning's return to the economy. The personal and social benefits derived from learning are residual rather than central. This "new learning" – learning harnessed to the needs of the economy – underpins the curriculum reforms and in an important sense the reforms only make sense within the framework I have outlined. The issue to be explored further is whether this broad theoretical conception of learning has had any impact in classrooms. I shall return to this issue in subsequent sections.

HONG KONG'S RATIONALE – POST COLONIAL RELEASE

The rationale for reform outlined above certainly applies to Hong Kong and is described in some detail elsewhere (Kennedy, 2005). Yet there was also another impetus for educational reform. Hong Kong's colonial history resulted in a well developed education system by the time of Hong Kong's return to China. Yet it was a colonial system rather than a local or indigenous system. I have described the colonial curriculum in this way (Kennedy, 2005, p. 101):

There is general agreement that the pre-1997 curriculum in Hong Kong was derived from what might best be called "the English grammar school model" (Morris, 1988, McClelland, 1991, Adamson and Morris 2000). Morris and Chan (1998, p. 249) have identified the underlying rationale and ideology as "academic rationalist" (Eisner, 1992) based on a "collection code" curriculum (Bernstein, 1975, 1990). This usually means that the curriculum is based on

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traditional academic disciplines, usually focused on the preparation of students headed for higher education often in the context of limited places, little control can be exerted by teachers, parents of students so the emphasis is on central control and examinations are the key selection mechanisms. Thus the pre-1997 curriculum could be defined as traditional, elitist, competitive, exam-dominated and bureaucratic.

This is in stark contrast to what was proposed by Hong Kong's post-colonial Education Commission (2000, p. 5) where the vision for the future was outlined:

- to build a life-long learning society;
- to raise the overall quality of students;
- to construct a diverse education system;
- to create an inspiring learning environment;
- to acknowledge the importance of moral education; and
- to develop an education system that is rich in tradition but is cosmopolitan and culturally diverse

The last two dot points here are particularly important to note since they introduced a very local element into what otherwise can be seen as a neo-progressivist reform agenda. The focus on 'moral education' and the reference to an education system that did not neglect 'tradition' was a clear signal that in post-colonial times Hong Kong would return to its roots as a Confucian-oriented Chinese society. The development of national identity became an important issue for the new curriculum (Education Commission, 2000 p. 46) Students should:

Have a deeper understanding of the history, culture, natural and human environments of China, strengthen their national identity, and will develop a social and humanistic perspective for making sound judgments about issues concerning the local community, the nation and the world" (Education Commission, 2000, p. 46)

This reflected the curriculum reaction to colonialism and it continues in Hong Kong to the present time. The balance between 'moral education' and 'tradition" referred to above is in fact a very specific approach to civic education that highlights two dimensions: the personal ('being a good person') and the collective ('becoming a good citizen'). The latter, of course is defined in distinctly Chinese terms and is more likely to mean loyal and patriotic rather than reflect any liberal democratic conception of the 'good citizen'. This dual conception of civic education characterizes what is otherwise a neo-progressivist curriculum reform agenda as highlighted by the Education Commission (2000, p. 38, 40):

In a knowledge-based society, the knowledge cycle is short and information spreads fast. The workplace requires more than ever before good communicative skills, adaptability, abilities for cooperation, self-learning, exploration as well as creativity…In a knowledge based society, students would no longer receive

knowledge passively. Through the process of learning, they also continuously create and construct knowledge.

Thus post colonial Hong Kong's reform agenda was impelled by two motifs – creating a "Chinese" education system that could nevertheless cope with the new directions in the global economy, the new demands for innovation and creativity and the needs for mass rather than elite education. Adamson and Morris (2000, p. 10) have pointed out that the colonial government was not unaware of the need for a reenergized education system, but it was left to successive post colonial governments to pursue this goal.

FEATURES OF HONG KONG'S REFORM PROCESS – POLICY INTENTIONS

Hong Kong's curriculum reform agenda was set out in the Curriculum Development Council's (2001, p. 2) statement, *Learning to Learn – The Way Forward in Curriculum Development*. The reform principle was clear:

Our overarching principle is to help students Learn to Learn, which involves developing their independent learning capabilities leading to whole person development and life-long learning.

I have described the main elements of the reforms (Kennedy, 2005, p. 111):

To achieve this objective school subjects are grouped into Key Learning Areas thus encouraging more integrated approaches to curriculum development and a focus on generic skills, assessment for learning is promoted rather than summative assessment in the form of tests and examinations, four cross curriculum perspectives are identified to support student growth and development as citizens and as learners (moral and civic education, reading, project learning and using information technology and the focus is to be on learners and their needs. There is also recognition that responsibility for the school curriculum is shared between the Curriculum Development Institute, a central government agency, and schools. While the latter are encouraged to experiment and respond to their local communities, there is also an injunction to provide students with access to a curriculum that reflects the principles of the reform. This is a key issue for the reforms and represents one of the most significant challenges since schools in Hong Kong have considerable freedom to implement the kind of curriculum that they determine is appropriate.

Figure 3, drawn from Curriculum Development Council (2001, p. 2), shows the shift of Hong Kong's school curriculum from its traditional base in the grammar school model (shown on the right hand side of the diagram as a subject based curriculum with different streams for different abilities) to that proposed under the reforms (shown on the left hand side of the diagram which shows a more integrated curriculum for all students with a focus on generic skills).
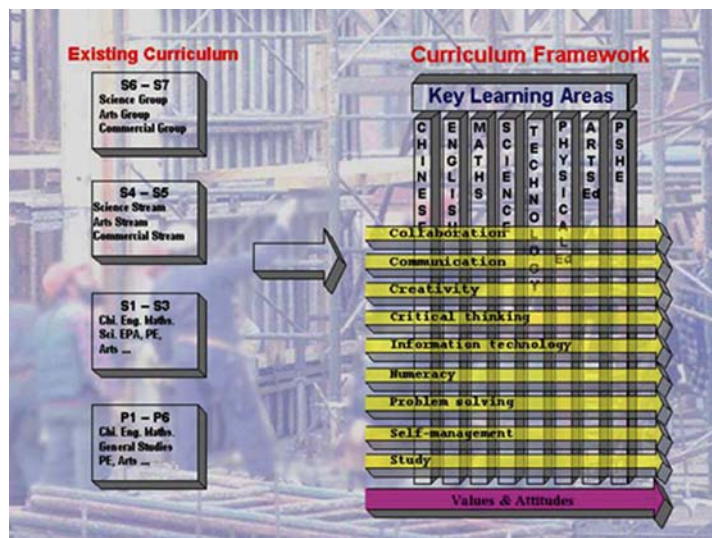
Figure 3. Transforming Hong Kong's school curriculum (Curriculum development council (2001, p. 22).

It should be noted that in this figure the curriculum reform process is not confined to basic education (Primary 1- Secondary 3) but goes all the way to Secondary 7, the final year of secondary schooling. In this sense it was a comprehensive reform proposal. Details of the senior secondary reform were announced later . Under the new structure for senior secondary: all students would go to Form 6 rather than a few; the length of senior secondary would be reduced from 7 to 6 years; there would be 4 core subjects (English, Chinese, Mathematics and Liberal Studies); fewer examinations, 'A' levels were to be replaced by a new local examination; undergraduate university degrees were to be lengthened by one year. These are comprehensive reforms that are still in the processes of transforming secondary education in Hong Kong and in broad outline they were envisaged from the beginning of the reform process. They are very much part of Hong Kong's "colonial release" referred to in the previous section. Yet it was not only the school curriculum, in terms of subjects, that was part of this transformational process. Assessment reform was also highlighted. My colleagues and I summarized its main characteristics:

> With a focus on "assessment for learning", teachers have been encouraged to view assessment not only as examinations and tests, but also as part of a learning process that can provide feedback to students to help them improve their learning (Curriculum Development Council, 2002). The Education Commission (2000) proposed to eliminate excessive dictation exercises, mechanical drills, tests and examinations and recommended the use of various

Before 2001	After 2001
• Assessment of learning	• Assessment for learning
• To assess how well students have mastered their subject content knowledge and skills	• o assess students' generic skills, especially those higher-ordered generic/thinking skills identified as the learning goals of the reform
• To grade the students against the standards they have attained	• Teacher gives constructive feedbacks to enhance students' learning
• No / limited teachers' feedback given	• Students are aware of their learning objectives and pick up teachers' feedbacks for continuous learning
• Test and examination oriented	
• Emphasize summative assessment	
• Transmission of knowledge and drilling are common classroom activities	• Formative assessment and summative assessment are used
• Emphasize the learning product	• Process and product are stressed

Figure 4. A comparison of assessment policy before and after 2001 in HK (Chan, Kennedy, Fok & Yu, 2006, p. 6).

modes of assessment including flexible formative assessment. The Curriculum Development Council (2001) suggested that "(a) teachers provide feedback to students of their strengths and weaknesses and (b) schools include key attitudes, self-management, and moral and civic qualities in report cards as part of student achievement and as a basis for further improvement. The Council made assessment for learning the prime target in all its proposed measures, which included: 1. evidence-based quality criteria in line with the curriculum framework; 2. combined curriculum and assessment guides for each subject to make assessment and objectives consistent; and 3. liaison with the universities about broadening university admission criteria.

(Kennedy, Chan, Yu & Fok, 2008, p. 3)

The radical nature of these proposed changes cannot be over-estimated. The changes are summarised in Figure 4 (Chan, Kennedy, Fok & Yu, 2006, p. 6).

The assessment reform agenda was designed to challenge a deeply embedded examination culture in order to free up classrooms from regimes of testing and to enhance a learning culture. It was an ambitious agenda and its implementation challenges will be discussed later.

Curriculum and assessment reform was accompanied by an equally strong emphasis on the reform of teaching itself. The Curriculum Development Council (2001, p. 79) outlined an ambitious agenda:

• Different forms of *classroom organization* (such as variations in grouping, whole-class setting and seating arrangements) facilitate the delivery of diverse learning and teaching strategies such as and whole-class teaching, group learning and individual works.

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- We can help students to move from being recipients of knowledge to seeing the relationships between ideas, applying ideas, and ultimately thinking critically and creatively and constructing knowledge.
- Teachers can give students *opportunities* to express themselves openly and share their work in class and publicly to enhance their confidence. Teachers can capitalise on opportunities (e.g. current affairs, school/classroom contexts) to facilitate spontaneity and change in responding to different demands and situations. This widens the exposure of students and helps them to learn in a changing environment.
- Teachers can use different learning and teaching strategies to achieve the different purposes of learning and to suit the learning styles, abilities, interests and needs of students. There is no fixed rule regarding which strategy is the best. Teachers master learning and teaching strategies differently. They can develop the repertoire which is most effective for them to enhance the independent learning capabilities of students for whole-person development.

Thus curriculum reforms went beyond subjects to include assessment and teaching as well. It was thus a broadly based attempt to reorganize classrooms so that they were aligned with the learning need of students. Textbooks did not escape this transformational emphasis of Hong Kong's education reforms (Curriculum Development Council, 2001, p. 91):

Well-written textbooks developed in accordance with the new curriculum framework will serve the purpose of effective learning and teaching. Textbooks should be written for students. They should provide the core elements of learning in KLAs or subjects recommended by the CDC, develop critical and creative thinking and other generic skills in the learning resources and activities provided, and also open up space for learning through suggestions that go beyond their confines. Quality textbooks help students to achieve learning targets and objectives, consolidate what they have learned, and extend their personal knowledge.

The reforms thus sought to review and revise all aspects of schooling so that they would align with the demands of the "new learning". The extent to which this agenda has been successful will be explored in the following sections.

CHANGING CLASSROOM AND SCHOOL PRACTICES –
POLICY IMPLEMENTATION

Moving from policy design to implementation is by no means a simple task for any education system. In Hong Kong there has been a ten year concerted effort to transform schools, learning and students. How successful has it been? Given the limitations of space, only selected aspects of the reforms will be discussed.

Table 2. The development strategies adopted by the government
at different stages of implementation

Short-term (2001–02 to 2005–06)	• Renders support to schools by providing curriculum guides, teacher and principal development programmes, on-site school-based support, etc. • Works in partnerships with schools and tertiary institutions to conduct "seed" projects to generate and disseminate successful experiences for the references of other schools. • Conducts a review by the end of the short-term phase to take stock of the overall progress and to consolidate successful experiences.
Medium-term (2006–07 to 2010–11)	• Consolidates and disseminates systematically the experiences accumulated during the short-term phase to help schools develop school-based curricula and improve learning and teaching strategies. • Continues with the tasks undertaken in the short-term and improves plans and actions based on the review in 2005–06.
Long-term (beyond 2011)	• Continues to update and improve the curriculum framework according to the needs of society and students. • Continues to work in partnership with schools and various concerned parties to generate and accumulate successful experiences with a view to helping schools further improve the quality of education.

Fok, Kennedy and Chan (2010) have described the approach to implementation as "gradualist" and they used Table 2 below (adapted from Curriculum Development Council, 2001) to show the pace of reform:

These measures were also accompanied by External School Reviews and the introduction of Basic Competency Testing – what Fok, Kennedy & Chan (2010) refer to as 'hard measures'. These were not directly linked to reform implementation but were part of a broader raft of accountability measures that have nevertheless had an impact on the take up of the reforms in schools.

Fok, Kennedy & Chan (2010) have explored this implementation context with the 'soft' measures as shown in Table 1 and the 'hard' measures referred to above to assess their impact on project learning, a key reform initiative,. The Education Bureau (2004) reported that in excess of 90% of Hong Kong had adopted project learning. This seems like an extraordinary success rate considering that at the time the reform and had only been operating for two years. Fok, Kennedy & Chan (2010) concluded that :

Officials initiated project learning as well as other curriculum policies and perceived that they were using soft instruments to implement these policies. However, schools and teachers associated all curriculum policies with hard policies and perceived all measures as hard policy instruments

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Table 3. Summary of attempts at "assessment for learning" strategies

School A	School B	School C
Project Learning	Project Learning	Observation Report
Information Tech Folder	Self and Peer Evaluation	Self and Peer Evaluation
Book Report		Web-based Assessment
Critical Reflection		
Learning Portfolio		

in the process. All recommendations and suggestions in curriculum guides (CDC, 2001) were becoming rules and were necessary to apply to schools and classrooms.

The broader policy context of the reforms was one of declining school enrolments, new standard setting for language teachers, publication of the results of external school reviews (this practice ceased in 2005) and the introduction of basic competency testing. These were very threatening processes to schools so that resistance to reform implementation was not really an option as highlighted by Fok, Kennedy and Chan, (2010):

> Though government officials assumed that project learning was an appropriate approach for student learning, school teachers treated it as an instrument and evidence for QAI1, SSE2 and ESR3. Thus, they had to launch it as if it was a compulsory requirement as it was one of the foci of QAI, SSE and ESR.

Thus implementation in this context may not be a good measure of success since it was constrained by so many external factors. Nevertheless, there are some excellent examples of project learning in Hong Kong schools and they have even made it into You Tube (for example see http://www.youtube.com/watch?v=VhhQxo3fEqw)!

We can also take a closer look inside classrooms to get some idea of how the reform agenda has been implemented. Yu, Kennedy, Fok, & Chan (2006, p. 8) reviewed the progress that three schools in Hong Kong had made and summarized the results shown in Table 3.

Yu, Kennedy, Fok, & Chan (2006, p. 8) concluded that:

> All of these schools still maintained the use of testing and examinations for grading students by the end of the school years though they have reduced the number of assessment strategies demanding memorization, e.g. dictations. They have gradually introduced formative assessment methods in different subjects. Project learning, self and peer evaluation were the most popular strategies used. The extent in applying new assessment strategies promoted in curriculum reform varied from school to school.

Table 4. Implementing assessment strategies (Education and Manpower Bureau, 2004)

Strategies on assessment	Implemented	
	Primary School (%)	*Secondary School (%)*
Formulate a whole-school assessment policy	71.9	69.8
Use appropriate assessment modes to obtain feedback on learning and teaching	75.0	68.6
Reduce the time spent on tests and examinations when planning the school calendar, so as to allow students to have adequate learning time	99.2	90.7

These results were not inconsistent with the survey of reform progress conducted in 2003 (Education and Manpower Bureau, 2004).

Yu (2007, p. 8) found after an interview study with teachers in selected schools, however, that the use of new modes of assessment did not necessarily mean that they were as valued as more traditional modes:

Most of the traditional assessment would contribute to the grades in students' reports but not many new assessment forms did. Even these assessments were counted, they usually accounted for a small percentage of the assessment grades.

Chan, (2007, p. 7) reported a similar result with a different sample of schools:

Although there was a variety of forms of assessments adopted by the schools, the different forms of assessment did not appear to have equal status. Among the many forms of assessment, test, quiz, class exercise, homework, oral presentation, group work, project, etc. that were commonly used by the case studied schools were assumed to serve the purpose of assessment for learning. On the other hand, the mid-term and final examinations served the purpose of assessment of learning. Although these different forms of assessment were experienced by the teachers in their daily teaching, they did not know the reason for implementing them except to follow the policies set by the authority, as one of the teacher in School F said,

I take Chinese teaching as an example, the assessments that we set actually follow closely the requirements of EMB [Education and Manpower Bureau], i.e. a diversity of assessment modes like peer assessment, parents' assessment and self reflection….and I don't know what is meant by assessment for learning. I seldom heard of it. (Teacher, School F, interview)

Berry (2004, p. 12) also interviewed Hong Kong teachers about their assessment practices and while she saw positive signs of change she also had some reservations :

On the whole the teachers treasured formative assessment and they understood that both teachers and students should be involved in the assessment as it

helped teaching and learning. However, there were big gaps between what teachers thought they should do and what they actually did. Teachers did not seem ready for this kind of assessment.

Thus implementation contexts need to be examined very carefully when trying to make a judgment of what is happening in schools and classrooms (see table 4).

Exactly the same constraints apply to the use of textbooks in Hong Kong schools. The Education Bureau maintains a "Recommended Textbook List" form which schools can choose but they can also choose textbooks that are not on the list if they meet the learning needs of their students. The criteria for textbooks to get on the 'Recommended List' are aligned with the principles of the education reform Education Bureau (2007):

- The aims, targets and objectives are compatible with those laid down in the relevant curriculum or subject guide
- The core elements of the subject curriculum are included. Not too much information is covered, in order to leave room for students to learn how to learn. If the materials included are non-core or serve to provide enrichment opportunities only, they should be properly indicated.
- The content is current. Information and data are relevant and accurate. Concepts are correct and precise. Ideas are coherent. There are adequate examples and illustrations. Such examples and illustrations are relevant to learners' experience.
- Generic skills are developed. Nine types of generic skills are identified as essential: collaboration skills, communication skills, creativity, critical thinking skills, information technology skills, numeracy skills, problem-solving skills, self-management skills and study skills.
- Appropriate values and attitudes are nurtured
- Cross-curricular elements are encouraged. For example, environmental, civic, moral, and sex education as well as occupational safety elements can be incorporated into different subjects.

Parents are also provided with guidelines to help them choose textbooks for their children (Textbook Committee, 2008) and again the emphasis is on ensuring that textbooks constructed to promote learning are selected. Yet it seems that the education reforms have by no means diminished the use of textbooks in Hong Kong classrooms.

Based on a report from the Hong Kong Consumer Council, Li (2010) highlighted the fact that "the average spending on textbooks by Form Five students under the new curriculum structure has risen from HK$1,415 last year to HK$2,135 in 2010 when the reform was not in place". There was considerable variability across sectors with costs rising more in secondary than primary schools and between schools in the same sector. Several structural reasons were advanced for this but the main issue to note is that textbooks and the reforms are by no means incompatible, at least from the point of view of schools and parents who are the main players when it comes to textbooks.

Nevertheless, textbooks have become controversial in Hong Kong with the Legislative Council taking some time to consider the issues (Legislative Council, 2009a). One issue is price as outlined above, but particularly the impact on low income families; successive editions produced very soon after the first edition thus creating more expenses for families; another is the sheer physical weight of textbooks that impact adversely on student health; and then the issue of "bundling" textbooks with learning resources which also affects the price. These issues became linked to the use of IT in schools and the feasibility of making more electronic resources available in order to relieve the burden of textbook purchase. The Government has moved forward with the following concrete actions that will establish a pilot scheme to: (Legislative Council, 2009b, pp. 4–5):

(a) develop, try out and evaluate when and how e-Learning works best to bring about effective interactive learning, self-directed learning, catering for learner diversity in different curriculum and school contexts in Hong Kong in order to facilitate the charting of the way forward for implementing e-Learning in schools; and

(b) explore commercially viable business models for the development of e-Learning resources, in order to meet the needs of schools, teachers and students.

In other words, the textbook issue will be addressed indirectly through the exploration of an alternative learning process mediated through electronic resources. In this sense, the reform process has resulted in the beginning of a change process for textbooks the results of which are still uncertain. This has meant that the government has avoided directly confronting the commercial interests associated with the textbook industry in Hong Kong but has signaled that there may be alternatives. Furthermore, in the current funding period it has invested $HK140 million to explore this alternative. In addition, a number of measures have been undertaken with the purpose of reducing textbook costs and providing more choice for parents in purchasing either textbooks or the optional accompanying resources but with no compulsion to buy everything a publisher makes available. The direction of government policy on this issue is unmistakable and it is away from the traditional textbook.

CHANGING APPROACHES TO CURRICULUM LEADERSHIP

A significant innovation of the reform agenda was the introduction of a new position in primary schools given the formal title of Primary School Master/Mistress (Curriculum Development)(PSMCD). Its function was to provide curriculum leadership for the reforms (Kennedy & Hui, 2006). This was a move away from the top down leadership usually associated with positional authority holders in Hong Kong schools such as Principals, Deputy Principals and Panel Chairs. These newly appointed curriculum leaders (PSMCDs) retained a teaching load (50%) but for the remainder of their time worked with their colleagues on classroom issues relating

to reform implementation. It was an attempt to implement a form of distributed leadership in primary schools and create change from the "bottom up". The success of the initiative is currently being evaluated.

In launching the curriculum leadership initiative, the HKSAR government recognized the need to prepare teachers for their new roles. One way that was found to be useful in assessing whether curriculum leaders were in fact growing into these roles was the use of a measure of teacher self efficacy (Hui & Kennedy, 2006; Tsui & Kennedy, 2009). This is a standard measure that continues to be used in Western contexts but it had not previously been used in Chinese contexts. An unexpected outcome of the research that was conducted with curriculum leaders on this measure was the discovery that the latent structure of the factors for Chinese teachers was consistently different from what had been found with Western samples. This led to suggestions that Chinese teachers may think of teaching in a different way fuelled by conception that are more Confucian in orientation than would be found in any Western sample. In particular, it seemed that Chinese teachers did not really believe that their task was to engage students in the classroom but rather that students should already be engaged and understand that their duty is to learn. This has opened up some new lines of research to explore in Chinese contexts since it seems expectations for learning amongst Chinese teachers are very high. These expectations themselves may exert considerable influence on students. The ways in which they might do so needs further study especially in light of the reform priorities around student learning.

Curriculum leadership remains a fundamental issue in relation to the reform agenda. Who can best provide that leadership remains an open question. The role of the Principal is always seen to be important but it does not seem than Hong Kong Principals see themselves as "curriculum and instructional" leaders in which case the distributed role of a curriculum leader (PSMCD) could fill the gap. Yet the demands of being a curriculum leader with distributed leadership responsibilities should not be underestimated as pointed out by Li (2004, p. 10) who commented that "knowing how to do curriculum development matters but it is not sufficient. It is how the curriculum leaders influence people and to get people involved and engaged in school reform with commitment that matters most". The reform agenda in Hong Kong has begun this experiment in distributed leadership and that is a good outcome in itself. Yet much more work is needed to understand how this process works in local contexts, what is needed to support curriculum leaders who do not have any positional authority and exactly how the reform agenda is advanced through the work of this kind of leadership. It is a challenging agenda for the future.

CHANGES FOR NEW TIMES – WHAT HAS BEEN ACHIEVED?

It is difficult to provide a definitive answer to this question. There is evidence that changes have taken place in Hong Kong classrooms but it does not suggest that these changes are comprehensive or deeply embedded. Surveys have shown that many of the elements of the reform agenda have been adopted but they do not indicate that

the competitive nature of education in Hong Kong has been in any way ameliorated. International studies of student achievement suggest that Hong Kong students continue to do well in relation to the international peers but there is a worrying suggestion that they are not as happy or content as these peers. An international report (McKinsey & Company, 2007) has suggested that Hong Kong's education system is among the top performing systems in the world. Yet there remains dissatisfaction in the local community about schools and teachers in general, graduates and their competence, especially in relation to language and the capacity of the education system, including universities, to produce workers for the knowledge economy. These are not issues that the reforms can address but they remain issues for the community.

On the more positive side, the education system that was inherited from the British colonial administration in July 1997 has been transformed. Curriculum structures have changed, there has been more experimentation with different forms of assessment, including school based assessment, more attention has been paid to the needs of ethnic minority students, special needs education has received more support and attention, the benefits of small class teaching have been recognized and language education has been recognized as a key area for development for all students. It is perhaps the transformation of the British 'A' levels examination to the Hong Kong Diploma of Secondary Education to commence in 2012 that is the most notable change signaling an end to the colonial education system and the beginning of a locally developed and internationally recognized system of education. These are significant changes that mark Hong Kong's transition from a colonial society to one that has responsibility under the Basic Law[4] for its own education system. By any measure, the government has taken this responsibility, seriously and moved forward on many fronts.

Hong Kong's education reform agenda has been, and continues to be, a bold experiment and I have tried to outline its broad features here. It has signaled change at every level of the education system and it has attracted significant resources. The ultimate success of the reform agenda is a matter for future judgment; but what is certain is that change is underway and there is no turning back from what is undoubtedly the most serious and far reaching set of reforms ever applied to Hong Kong's education system.

NOTES

[1]   Quality Assurance Inspection
[2]   School Self Evaluation
[3]   External School Review
[4]   The Basic Law is Hong Kong's mini-constitution setting out the constitutional principles for the governance of Hong Kong as a Special Administrative Region of the People's Republic of China.

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4. IMPLEMENTATION OF TAIWAN'S CURRICULUM REFORM POLICY: FROM THE PERSPECTIVE OF CURRICULUM GUIDELINES

INTRODUCTION

Since the lifting of Martial Law in 1987, Taiwanese society has been liberalized, democratized, and diversified. Educational reform came into full bloom, with a focused concern on curriculum reform. The present paper analyzes the political, economic, and social backgrounds for Taiwan's curriculum reform, as well as the revision of the curriculum standards for elementary school and junior high school during the early post-Martial-Law period. The current study further explores the far-reaching "general guidelines of grade 1-9 curriculum of elementary and junior high school education," which is referred to as the Grade 1-9 Curriculum Guidelines, and the revision of "curriculum guidelines of senior high school." The objective is to examine the reform policy, as well as its implementation and problems. Furthermore, the current study aims to provide solutions.

POLITICAL, ECONOMIC, AND SOCIAL BACKGROUND

The more-than-two-decade curriculum reform for elementary and secondary schools is reflected in the revision of curriculum guidelines that served as curriculum standards. Social changes provide the backdrop for curriculum reform and could have significant impacts.

Globalization has placed Taiwan in a position open to intense changes in political, economic, and social aspects, as well as technological transition. Curriculum reform must catch up such changes (Chang, Doong, Wang, Hwang, Chen, & Tu, 2011). In the political sphere, global competition causes civilization conflicts and pushes global governance to the surface. In 1949, the KMT-led nationalist government retreated from the Mainland to Taiwan. In 1971, the Republic of China withdrew from the United Nations. In 1987, the nationalist government in Taiwan announced the lifting of Martial Law. The 2000 presidential election brought the Democratic Progressive Party to power and created a peaceful regime change. In 2008, KMT defeated the Democratic Progressive Party and repossessed political power. It was a peaceful transition of power, showing that democracy has taken root in Taiwan and become a consensus of the Taiwanese people. In as short as 25 years, Taiwan has built a democratic political system, with parliamentary elections, direct presidential elections, and local elections held regularly. Likewise, the country has established

an independent judicial system. With growing public awareness, democracy must be deepened for Taiwan to deal with problems in civil society, political neutrality, constitutional reform, judicial reform, and cultural diversification appropriately.

During this time several people in Taiwan started to re-identify with the term Taiwanese and attempted to redefine Taiwanese ancestry, language, and culture by recovering historical facts and enriching memories (Wang, 1997). As democratization differentiated the Taiwanese society, national positioning and identification soon came under question, thus challenging the legitimacy of the Republic of China. Democratization is a process described as the people's joint participation in politics to create a citizenship-centered national identification and community. Simultaneously, China launched a series of reforms in 1978 that caused dramatic changes to its political and socioeconomic spheres. Since 1987, when Taiwan started to embrace exchanges with the Mainland, it has had to face the rising power of China and deal with national identification.

As Taiwan's industrial structure is leaning toward a service-sector orientation, industry and manufacturing weigh less. The role of the service sector is gaining importance, whereby innovation is emphasized. Globalization and competition bring an even more difficult challenge as globalization of talents adds the pressure of attracting talented foreigners to work in Taiwan and preventing talent drain. Globalization prompts the extent of interdependence between Taiwan and the world economy, thus increasing financial risks. Following the worldwide trend, Taiwan's economy has sought to participate in regional economic cooperation. Additionally, the country has strived to find ways to help its disadvantaged industries. Other challenges include income level staying flat or even going downward, as well as the widening economic gap. Furthermore, worsening unemployment situations caused by global changes in the manufacturing industry, government control over the labor market, and changing structure of the jobless population could be expected. Global warming, extreme weather, and damage to biodiversity and environment will also force Taiwan to consider and value green economy, protect the environment, and pursue sustainable development as it is a place short of natural resources and energy.

Taiwanese society is aging and becoming diversified due to its low birth rate. This situation affects the consumer market and industrial structure. Other challenges include delayed marriage, fewer children, changes in family types, single parenthood, and grandparent childcare. Immigrants and foreign workers fill the labor shortage, adding energy and innovation to Taiwanese society, providing opportunities for multicultural exchanges, and developing world views. Equality has become a shared value for all, regardless of gender, ethnic group, social class, and political belief. Multicultural thinking and practice are now mainstream concepts. The job market is geared toward a knowledge-based economy and atypical employment. Core capacities valued in the job market include innovation, problem-solving, and communication, with the last one comprising cross-cultural communication. These capacities are valued in addition to knowledge, information, and technique levels.

In the cultural aspect, Taiwan is facing a trend of globalization and localization. It absorbs foreign cultures promoted by the expansion of cultural imperialism and advertised by cross-national media, while seeking self-identity, introspecting local culture, and conserving cultural heritage and the mother tongue in an attempt to make the world appreciate Taiwanese culture. In the technological sphere, as technology in Taiwan continues to enjoy professionalization, specialization of labor, growing system dependence, instrumentalization, quantification, and black boxing, more risks lurk. Awareness of risk prevention and management is therefore paramount. Technological development often comes with changes in the distribution of social resources, as well as includes risks and issues, such as social distribution justice and risk-sharing-and-taking justice. After Taiwanese society continues to strive for further democratization, people anticipate to play a role in technology policy-making and risk management. Hence, a diversified and multi-tiered interactive platform should be established.

REVISION OF CURRICULUM GUIDELINES IN THE EARLY POST-MARTIAL-LAW PERIOD

Curriculum guidelines, previously known as curriculum standards, were the major part of the curriculum reform for elementary and secondary schools. The Curriculum Standards of Elementary School had not been revised for more than a decade after the lifting of Martial Law. This, along with the drastic changes to society, necessitates revision. Meanwhile, the Curriculum Standards of Junior High School was revised to accommodate the curriculum reform for elementary and junior high schools. The Ministry of Education (MOE) announced the reforms in 1993 and 1995. The revision of the curriculum standards followed the traditional method set by the MOE. The MOE set up a curriculum revision committee that planned an outline for curriculum standards, including education goals, subjects, learning periods assigned for each subject, and implementation guidelines. Then, curriculum standards were instituted for each subject, including instructional goals, distribution of learning periods, outlines for teaching materials, and methods of implementation. The Curriculum Standards of Senior High School was publicized in 1995 to engender continuation of the learning process of the students.

This round of revisions of curriculum standards was directed at reforming different ideologies and social inequity, as well as at breaking prejudice and bias against issues in politics, gender, ethnicity, and classes. Moreover, the revision aimed to aid the physically and mentally challenged members of Taiwanese society, in line with the country's liberalized, democratized, and diversified society. Active movements were also launched to help promote social equality and support disadvantaged minority groups. The curriculum reform for elementary and junior high schools switched its focus to educational localization. Elementary schools started to provide activities that taught students more about their homeland. In junior high schools, students were taught local culture and courses about Taiwan. Other key elements in the reform included the acquisition of more computers for junior high schools, thus allowing

junior high students to take beginner computer courses. These efforts were exerted to enhance information education. Learning periods were reduced to relieve students' academic pressure. In 1995, the curriculum guidelines of senior high schools featured the integration of civil education theories and practice. These were implemented in accordance with the design of social science and science subjects as follows: common curriculum for the first grade in senior high, exploration in the second year, and differentiation in the third year. Additional features included the availability of arts and life courses as electives, home economics and crafts/technology classes integrated into one "home economics and technology" class, elimination of gender difference in curriculum, provision of accommodation measures to help students develop their potential and expertise, specialized elective courses replacing placement, and flexibility and autonomy for curriculum arrangement to address the different needs of diverse students.

PROMOTION OF GRADE 1-9 CURRICULUM

Despite the achievements of the revision of the curriculum standards in the early post-Marital Law Period, society expected more from the educational reform. Therefore, the government started to promote the Grade 1-9 Curriculum of elementary and junior high school education, which was later referred to as the Grade 1-9 Curriculum in the1990s.

Background

On April 10, 1994, more than 30,000 people from all walks of life took to the streets to protest and ask for the establishment of more senior high schools, small-sized classes and schools, education modernization, and the "Educational Fundamental Act." The first two were directed at reshaping the educational environment and structure, whereas the latter two sought to break the inactive traditional educational system. In response to the public's demand, Executive Yuan pledged to set up the "Commission on Educational Reform" and appointed the president of the Academia Sinica, Yuan Tseh Lee, as the convener. In 1996, the Commission on Educational Reform proposed "The Consultants' Concluding Report on Education Reform," which sought to liberalize elementary and secondary school education, take good care of each student, reform curriculum and instruction, introduce English to the classroom at an earlier age, and enhance students' key competencies. Among the seven recommendations for curriculum reform, the following five were directly related to the Grade 1-9 Curriculum: the need to design practical curriculum for elementary and secondary schools, the need to use curriculum guidelines instead of existing curriculum standards, the need to develop basic competence indicators, the need to integrate curriculum, and the need to reduce the learning periods (The Commission on Educational Reform The Executive Yuan, 1996). To implement The Consultants' Concluding Report, MOE initiated a twelve-subcategory "Action Plan for Educational Reform." This move marked the unfolding of far-reaching educational reform.

Process

The Grade 1-9 Curriculum Guidelines was prepared in the mid 1990s to meet the nation's need for development. The preparation marked the turn of the century, and Taiwan sensed the need to upgrade the people's and the nation's competitiveness as other countries were also engaging in educational reform. Furthermore, the reform was a response to the clamor for all circles from society who expected a transformation in education. Based on the comments from Executive Yuan's "The Consultants' Concluding Report on Education Reform" and MOE's "Action Plan for Educational Reform," the preparation and implementation of Grade 1-9 Curriculum was prioritized (MOE, 2004).

The Grade 1-9 Curriculum Guidelines include general curriculum guidelines and specific curriculum guidelines for each learning area. The implementation of the guidelines was divided into three stages (MOE, 2008; Chin & Lai, 2006). The preparation stage was from 1997 to 1999. The "Special Panel on the Development of Elementary and Junior High Schools' Curriculum" was set up to map out basic principles and structure. The Grade 1-9 Curriculum Guidelines revealed ten major core competencies, seven major learning areas, six major issues, and integrated instruction. Then, the "Panel on Researching and Formulating the Guidelines of Each Learning Area in Grade 1-9 Curriculum" under the general curriculum guideline created "the Guidelines of Each Learning Area in Grade 1-9 Curriculum," which included instructional goals, competence indicators, and curriculum guidelines on the contents of each learning area. Afterward, the "Review Committee on Revision and Formulation of Elementary and Junior High School Curriculum" reviewed the appropriateness of the contents for each learning area in the guidelines and then planned the supporting measures for the promotion of new courses.

The second period or the test period was from 1999 to 2001. In September 1999, MOE announced "Provisional Directions Regarding Grade 1-9 Curriculum of Elementary and Junior -high School Education (draft)." The trial was participated by 334 schools, including 100 junior high schools, nationwide. The schools included those appointed and selected by local governments, as well as those that voluntarily participated. In preparing for the curriculum implementation for seventh graders, all junior high schools were asked to join the trial.

The implementation completely started in August 2001. The process required the completion of nine circle grades within four years. The first grade began in 2001, which included grades 5 and 6 English courses. In 2002, grades 1, 2, 4, and 7 were implemented, whereas grades 1 to 5 and 7 to 8 were initiated in 2003. Grade 1-9 entered the period of "General guidelines of grade 1-9 curriculum of elementary and junior -high school education" in 2004. After the Grade 1-9 Curriculum took effect, adjustments were made to curriculum guidelines for each leaning area to meet the needs of actual situations. In 2008, the curriculum guideline was publicized to be implemented in school year 2011 to 2012. The guideline incorporated ocean education as seventh major issue, as well as made adjustments to competence indicators and relevant wording (MOE, 2008). Follow-up reviews will be needed to see the results.

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Rationale

The Grade 1-9 Curriculum followed the spirit of the educational reform movement in 1994, which recognized that all recipients of education are the subject of education and that every learner should be given chances to develop their potential. This thrust reflected the sentiments of the period, which included anti-authoritarianism, anti-intellectualism, and anti-elitism. In other words, the sentiments depicted separation of powers, knowledge-based living, and knowledge-led education (Chen, 1998, 1999). The Grade 1-9 Curriculum was also under the influence of thinking trends, such as humanism, postmodernism, and constructivism. The right to learning replaced the right to education. Flexible curriculum and supplementary learning were adopted to consolidate adaptive education. Educational relaxation, teacher autonomy, school-based curriculum, and textbooks edited by the private sector all helped realize postmodern thoughts, such as social deconstruction, counter-text, counter-memory, and politics of difference. The emphasis on the learning process, discussion, and introspect helped consolidate students' learning (MOE, 2004). The Grade 1-9 Curriculum was influenced by the sociology of knowledge proposed by British scholar B. Bernstein. Bernstein thought that the classification, distribution, and transmission were affected by the power structure and distribution in society. He divided courses into two types, namely, "collective code" and "integrated code." He argued that knowledge should be the main contents of the courses, and discussed that learning should not be confined to a selection of values, but also delve into the structure and distribution of power. The more traditional a society is, the more "collective" the distribution of knowledge. The concept stresses that the delimitation of disciplines will enhance the distribution and independence of the knowledge structure. In a liberal and democratic society, the distribution of knowledge is likely to become more life-related and diverse. Knowledge structure of tends to be "integrated" and would weaken the limits of disciplines (Bernstein, 1971).

Key Points in the Reform

1. Key competencies replace knowledge. The reform should be designed to help students develop key competencies, not load them with more work. Therefore, the core of the curriculum design should include key competencies that modern citizens need, as well as competence indicators for each learning area for reference of textbooks editors and teachers.

2. Integration of seven major learning areas to replace separate disciplines. The 21 subjects in junior high schools and 11 subjects in elementary schools were adapted into seven learning areas, namely, Language Arts, Health and Physical Education, Social Studies, Arts and Humanities, Mathematics, Science and Technology, and Integrative Activities. Relevant disciplines were integrated and taught. Reduction in learning periods for the disciplines and weekly learning periods would help relieve

the students' workload. The school-based curriculum broke the uniform curriculum, used schools as the base station for educational reform, and brought together the efforts of teachers, students, communities, and parents to enhance the diversity and suitability of the curriculum. Moreover, it made the learning process more open, and catered to individual differences. Flexibility was applied to the learning periods of each learning area. The total required learning periods was reduced, subsequently resulting in a 10% decrease for elementary schools and 30% for junior high schools. Alternative Learning Periods, which comprise 20% of the total learning periods, were also included in the guidelines, allowing curriculum autonomy for schools.

3. Major social issues supplementing knowledge and integration of related learning areas.   Drastic social changes brought about social issues with which students had to identify and cope. In helping students learn relevant knowledge, discuss and find ways to solve problems, and apply what was learned into practice, social issues were adopted into the curriculum, and teachers were asked to integrate issues with teaching activities. These issues included gender education, environmental education, information technology education, human rights education, home economics education, and career development education. The infusion of social issues into curriculum aimed to equip students with the ability to acclimate to society.

4. Curriculum guidelines replacing curriculum standards and the emphasis on specialization of labor and performance.   The key competencies stipulated in the curriculum guidelines were used as indicators of academic performance. They provided bases for curriculum design and performance evaluation, as well as for remedial courses. Additionally, the key competencies could be used to develop academic exams that can replace the existing entrance exams, as well as to evaluate the performance of schools. Educational institutes were assigned different responsibilities for curriculum decision-making and evaluation. Those in the central government would be responsible for establishing indicators for academic achievements and overseeing school performance. Meanwhile, local governments would be responsible for holding exams. Schools would be responsible for curriculum design and teaching/studying performance evaluation.

REVIEW OF THE GRADE 1-9 CURRICULUM

Problems of the Instruction of Learning Areas

Traditional academic subjects were divided into seven major learning areas. Subject outlines were adapted for the guidelines of each learning area. The textbooks of each learning area were written as well. Although team teaching fell short, all learning areas were integrated and taught by teachers of corresponding disciplines. This approach was conducted because teachers had to master the contents before teaching and for the integration of disciplines to be effective. Subsequently, the

students would then be expected to develop under an integrated learning experience. However, more observation is needed to determine whether such practice would go in the traditional way in the course of time.

A review is needed for different learning areas taught in the same percentage of learning periods from the first to ninth grades, instead of in varying hours depending on the actual needs of the study stages. The percentage of learning periods for different learning areas should be rearranged according to the corresponding needs and functions. The integration of varying disciplines into seven major learning areas could become impractical. For example, in the arts and humanities area, which includes music, art, and theater, hiring a teacher with expertise in all those fields may prove difficult. Moreover, the language area, which includes Mandarin, English, and native languages, should actually be taught separately. The math area is nothing different from the original math subject. The learning area system and separation of subjects should be reviewed. Consolidating the learning effects of elective courses and determining whether students are overloaded with learning native languages, Mandarin, and English should also be reconsidered.

A review of the global trend indicates that most countries limit the maximum or minimum learning periods or percentage of learning periods for learning areas or subjects. Schools are empowered to organize learning areas and learning periods on a weekly basis. In fact, some countries do not dictate time distribution. Taiwan may as well consider following suit to empower schools with more curriculum flexibility.

Problems of Competence Indicators

In accommodating the implementation of the Grade 1-9 Curriculum, each learning area has competence indicators for different study stages. These indicators provide bases for class material selection and instruction, which would help writers of classroom materials and teachers to focus more on the development of abilities, in addition to knowledge contents. Implementing competence indicators by steps has no consistency. No clear description is available, only disconnected and repeated concepts. Editors, instructors, and researchers of the Basic Competence Test for curriculum designers and textbooks have difficulties carrying out the implementation of the curriculum. These problems have to be reviewed.

Content reference for teaching students in varying grades is available only for math and junior high school social science subjects. This situation adds difficulty to students as they catch up between different grades. Therefore, reference for different teaching styles at varying grades should be established (Hwang, Fang & Peng, 2010).

Problems of School-based Curriculum

The school-based curriculum policy empowers schools to be more flexible and teachers to have more freedom with the curriculum. Therefore, the existing culture

in schools was relaxed, teachers' attitudes were reshaped, and the school vision could be mapped by all. Up to more than 80% of the teachers "much agree" and "agree" with the implementation of the school-based curriculum in all learning areas (Chang, Yeh, & Wu, 2010). Under the Grade 1-9 Curriculum, teachers at schools have to prepare a school curriculum plan, provide elective courses, plan for and implement integrated courses, select textbooks, and review teaching materials, as well as teach and evaluate student performance. With all these extra responsibilities for teachers, efforts must be taken to enhance teachers' professionalism and help them exercise their rights and responsibilities. Sharing of authorization over the curriculum will make school education more diversified and help suit students' needs. However, schools still focus on pushing students to earn high exam grades and prioritize exam subjects, while offering no encouragement to teachers for them to improve themselves. These factors would impact the result of the implementation of the school-based curriculum.

Several factors come into play in the implementation of the school-based curriculum policy and even cause gaps. These are as follows: 1. There is a gap between countries and cities, as well as among different schools and different grades. The gap in curriculum content and scope is particularly wide. Some are fragmentary, despite the written curriculum; 2. There is a lack of stability because the curriculum would change with the changing taste of school principals; 3. The curriculum cannot be custom-designed to meet students' needs. Thus, several courses suit only a small group of students while most students are unable to receive what they want; and 4. Minutes of the curriculum development committee tend to be empty of substance and lacking in concrete discussion. The functions of the committee are not performed sufficiently (Chang, Yeh, & Wu, 2010). School-based curriculum development should consider the following factors: conditions of the school, community features, parents' expectations, and students' needs. The entire faculty and community resources should also be pooled.

Problems of Alternative Learning Periods

Arrangement of alternative learning periods often spurs dispute among teachers. Alternative learning periods are becoming inflexible. This period was originally designed to prompt school-based curriculum and the professional development of teachers. However, studies show that understanding of the learning areas remains the priority in the instruction stage. The situation is more apparent in junior high schools than in elementary schools.

Problems of Major Issues

Major social issues previously included six parts prior to the inclusion of ocean education. Whether information technology and home economics education are important issues remains open to discussion. Requirements for different issues vary.

The number of learning periods for information technology and home economics education under the requirements is the same. The Grade 1-9 Curriculum Guidelines are conceived to infuse real life situations into classroom activities by introducing major social issues and adopting different teaching methods. However, teachers fail to realize the ideal, either because they could not finish the materials, or they lack the expertise.

Drafting of major issues involves struggle. Some people with a specific interest start to influence the process. Originally, the introduction of major issues was conducted to accommodate social changes and transform null curriculum into a substantive version. Therefore, social issues should be integrated to the learning area instead of developed separately. Additionally, the course should be designed to meet students' needs. Arrangement of integration of major social issues should be reconsidered and adjusted.

Educational authorities in both central and local governments capitalize on the "issues" in the school curriculum to implement policies and fulfill political promises and goals. Therefore, courses that ignite debates are already beyond the seven original major issues in the curriculum guidelines, and the number keeps growing. Over-emphasis on written performance reports not only poses trouble to the school, but also makes the issue on instruction empty of substance.

Problems of Curriculum Evaluation

Curriculum evaluation is highly valued in the Grade 1-9 Curriculum. The mechanism rests in the central government. The roles and functions of local governments and schools are different, thus providing opportunities for the review of curriculum and performance evaluation. However, units at varying levels did not clearly know what to do and how to conduct curriculum evaluation. Moreover, workshops failed to deliver expected results. Regulations on curriculum evaluation did not work well. Curriculum evaluation at varying levels should be designed based on six aspects, namely, rights and responsibilities, evaluation purposes, scopes and contents of the evaluation, organization, methods, and process and application of evaluation results. Allocation of rights and responsibilities was the starting point.

REVISION OF THE CURRICULUM GUIDELINES OF SENIOR HIGH SCHOOL

To facilitate the implementation of the Grade 1-9 Curriculum, MOE announced the "Provisional Curriculum Guidelines of Senior High School" in 2004. Guidelines, otherwise known as the 95 Provisional Guidelines, were scheduled to come into force in the school year of 2006. It has the following features (MOE, 2006 December): First, it considered the connection between university education and grade 1-9 education, replacing "curriculum standards" with "curriculum guidelines," as well as emphasizing separate instruction of the learning area and spirit of school-based

curriculum. "Alternative learning periods" were designed to empower schools to develop special curricula. Required courses on health and nursing were added. The revision was designed to accommodate later secondary-school education core courses, which comprise 7 major areas and 14 subjects, accounting for 48 credits. Additionally, the total graduation credits should be 160, among which required credits account for 120, integrative activities account for zero credit, and elective credits account for 40, in accordance with the provision of the Senior High School Law. The original subjects were reclassified into three categories, namely, life and cultivation, career development, and life value, to lessen the number of subjects and help students achieve goals at this study stage.

The National Conference for Development of Senior High School Education held in April 2004 also helped the establishment of revisions for the new curriculum, which was scheduled to come into force in the school year of 2009. However, the 98 curriculum guidelines did not take effect until the school year of 2010. On the consensus of teachers, parents, and students, committees were set up to handle the revision of senior high school curriculum. MOE sought recommendations from different circles and commissioned academics to research on curriculum differentiation (Hwang et al, 2005), classification of levels (Yang, Lee, Gau, Hwang, Lee & Chen, 2005), and required and elective courses (Pan, Wang, Yeh, Chang, Wu & Wu, 2005). Task forces for the promotion of senior high school curriculum were set up, with duties including the establishment of an opinion exchange platform. Consulting teams and study centers at different districts were set up as well. Comments from varying circles were collected to provide inspiration and find ways to solve potential problems. The "Action Plan for Teacher Education Alliance" was promoted in cooperation with the teacher education center, education center, and educational administrative authorities. Supporting measures were taken as well. The following is an analysis of the enforcement of the revision of the 98 curriculum guidelines for senior high schools:

Planning and Problems of Curriculum Differentiation

Curriculum differentiation is a policy intended to accommodate the aptitude, potentials, and career plans of students and provide suitable courses to help them learn effectively. In 1962, the senior high school curriculum was revised, with students asked to choose between humanities and science tracks to provide them with corresponding courses. Elective courses were provided to enhance the grouping (Hwang et al, 2005). The 1995 revision of curriculum standards aimed at "suitability, diversification, and humanities" and emphasized elective classes instead of track grouping. However, senior high schools still provided "set meal" courses that catered to the requirements for taking the college admission exam. The ideal of replacing track-specific curriculum with elective courses failed. Considering the curriculum development worldwide and the delayed classification in universities, the "curriculum guidelines of senior high school (draft)," revised in 2001 stressed

on "enhanced general education, delayed placement till university, and no grouping of students into humanities and science." However, due to the lack of supportive measures of university admission and many other policies, the National Conference for Development of Senior High School Education recommended postponing the enforcement of grouping. In recent years, universities in Taiwan have seen a trend of delayed grouping, joint admission, and growing emphasis on general education. Basic education in senior high school has become important. The regulation of "no placement of tracks chosen in the first and second years in senior high" and "grouping in the third year" is intended to improve general and holistic education in senior high schools and help students develop the habit of learning throughout their lives and cultivate their interests in humanities, social studies, and technology. The 98 curriculum guidelines require 24 credits in social science and 16 in science, an increase of four credits in science compared with the requirements of the 95 curriculum guidelines. The decision to delay grouping has been criticized as it would neglect students who are aware of their aptitude, disrespect their rights to education, and degrade their level and national competiveness. Other difficulties included the limited classroom space, teacher job vacancies, and academic pressure.

Planning and Problems of Curriculum Levels

In the revision to the curriculum guidelines for senior high schools, the curriculum levels are defined as systems where students are placed and taught according to their abilities, achievements, and pace. The revisions are designed to respect individual differences, improve all students, as well as provide chances for them to explore their interests. Studies commissioned by the MOE suggested that English and math courses for the second year in senior high schools should be taught in accordance with the students' achievements, aptitude, and career plans. Less than 20% (18.37%) of senior high schools polled in the studies provided multilevel programs for math, English, physics, and chemistry; up to 76.16% of the questionnaire respondents agreed with levels of curriculum (Yang, Lee, Gau, Hwang, Lee & Chen, 2005). Those who disagreed with the levels were concerned with labeling, unfair placement, and loss of opportunities to gain admission to universities. The need for levels of curriculum lies in the growing number of senior high schools, and the growing differences among students. Thus, providing multilevel programs to address the different needs and aptitude of learners is necessary. Under the 98 curriculum guidelines revision, multilevel programs for English, math, and physics start in the second year in senior high school.

Problems of the Pressure of Curriculum Reform

Curriculum design is a public concern, and a number of factors, either from the public or within the government, come into play in curriculum revision for senior high schools. In school year 2005 to 2006 (MOE, 2006 December), the MOE received recommendations from within the ministry. The Science Education Advisory

Committee recommended physics, math, and chemistry classes to be taught according to ability. The Disaster Prevention and Research Center recommended that disaster prevention be incorporated into the new curriculum. The School Health Committee recommended that "health and nursing" must be included in the curriculum for senior and vocational high schools and account for at least six credits as a required course and a subject in the college entrance exam. The committee also recommended that health education be enhanced to ensure the well-being of teenagers. The Division of Environmental Protection Education recommended that non-ionizing radiation issues should be incorporated into the learning area of science and life.

More opinions were heard from outside the MOE. The Legislative Yuan suggested prioritizing the incorporation of information education and increasing learning periods spent in physical education. The Association to Remedy Chinese Language Education opposed the reduction of learning periods spent in Chinese from five to four periods. Nanshe recommended the ratio of learning periods spent in world literature, Chinese literature, and Taiwan literature to be 1:1:1. The National and Provincial Public and Private Senior High School Principals' Meeting recommended that "career planning course" be changed from an elective to required course. With regard to maritime talent cultivation, relevant maritime issues should be introduced into classes. The cancellation/continuance or transformation of military education in schools likewise aroused wide discussion. The Ministry of National Defense, parents' association, and teachers' association were divided in their opinions. Some groups held that the function of military officers in maintaining security and order on campus should be retained. Concerns over other disciplines lie in the appropriate ratio of learning periods spent in arts, life, health, and physical education.

Disputes over History and Chinese Subjects

The publication of the 98 curriculum guidelines of senior high school in January 2008 was followed by endless criticisms. The Association to Remedy Chinese Language Education, which is composed of high school teachers and university professors of the Chinese language, was among the most active opponents. The Association made a few attempts to appeal to the MOE, Executive Yuan, and the President for the abolishment of the 98 curriculum guidelines for senior high schools:

> In a press conference, the Association asked the MOE to put an end to the implementation of the 95 provisional curriculum guidelines for senior high schools and insisted that learning periods spent in Chinese literature in senior high schools should not be cut down. The ratio of classic Chinese literature should not be cut from 65% to 55%, and the status of Chinese culture fundamentals should not be changed from required to elective course. The Association further stated that at least two extra members should be added to the revision committee with regard to the 98 curriculum guidelines of senior high school. (Learning periods spent in Chinese literature should not be cut, claimed by the Association to Remedy Chinese Language Education, 2006 May 4)

The MOE planned to adjust the draft guidelines for Chinese literature education in senior high schools by increasing the maximum ratio of classic Chinese literature contents from 50% to 60%, cutting classic outside reading materials from 40 to 30 articles, decreasing Taiwan-specific contents from 8 to 3 articles, and adding Chinese literature basics as an elective course. Some teachers agreed with the idea, as they believe that Confucian and Mencius Analects should be required. Others lashed at the change, accusing the move as a rise in the great China ideology and asking for a decrease in the ratio of classic Chinese literature contents. (Arguments in the guidelines for Chinese Literature taught in senior high schools, 2009 December 11)

This past February, the MOE made prompt changes to the curriculum guidelines requiring the Chinese culture fundamentals course, which is featured in the Four Books, be required from next year. The move attracted disagreement from dozens of scholars, who pointed out that priority over Chinese culture was illegitimate and against the Constitution (Revision of the curriculum for senior high schools: Four books being required, 2011 June 30).

Some historical scholars asked for a complete review over the curriculum guidelines for the history subject as they were worried about the continuance of the de-Sinofication policy if a reshuffling of committee members was not done. On October 27 2008, the MOE held "Committee of Curriculum Development for Senior High School," and announced tabling the 98 curriculum guidelines for Chinese language and history for more discussions. The 95 provisional curriculum guidelines for the two subjects would prevail until the new guidelines were finalized (Wang, 2008):

The serious problem arising from the 95 provisional curriculum guidelines to the 98 curriculum guidelines was in the history subject. The attempt to disconnect Taiwanese history and Chinese history, incorporate the histories of the Ming and Qing Dynasties and the Republic of China into world history was to serve the political goal of "de-China-nizing" and changing the youth's identification with the history of great China. The 98 curriculum guidelines were the continuance of the "de-China-nization" movement and contradicted the Constitution. (Wang, 2008)

The MOE recently held a public hearing for the revision of history curriculum. DPP legislators argued that the attempt to change the ratio of learning periods spent in Taiwanese history, Chinese history, and world history from 1:1:2 to 1:1.5:1.5 and to trace Taiwanese history back to the Three-Kingdom Period was to brainwash students and advertise the historical perspective that Taiwan should belong to the mainland. On the other hand, KMT lawmakers held that the Ma administration was bringing the previous Chen administration's de-China-nization policy back on track. The Chairman of Formosan Association for Public Affairs said the Taiwanese government should follow the practice in Japan and Korea by incorporating Chinese history into world history.

A committee member said Taiwan was part of the Chinese culture and that learning periods for Chinese history should be increased to make the ratio of hours in Taiwanese history, Chinese history, and world history 1:2:1. Another committee member was worried that increasing the number of learning periods of Chinese history and decreasing world history will bring Taiwanese history under the categories of cross-Straits friendship history and Chinese regional history, which would distort high school students' view of history. (Disputes arising from the revision of history curriculum guidelines for senior high school, 2010 September 22)

After a series of disputes, discussions, and revision process, the MOE announced history curriculum guidelines (MOE, 2011a) on May 27, 2011 and the curriculum guidelines for senior high school, Mandarin curriculum guidelines (MOE, 2011b, 2011c) on July 14, 2011. Both guidelines would be implemented in school year 2012 from the first year in senior high schools. History would be taught in the first and second years, with two credits each semester. Taiwanese history will be taught in the first semester in the first year and Chinese history in the second semester in the first year and in the first half of the first term in the second year. World history will be taught in the second half of the first term in the second year and in the second term in the second year. Chinese language would be taught throughout the six semesters across the three years in senior high schools with four credits each semester that would make a total of 24 credits. The materials would cover both modern and classic Chinese language works. Classic materials would account for 45% to 65%. Chinese cultural fundamentals became a required course with one credit each semester, making the entire course a total of four credits.

SUPPORTING MEASURES FOR THE IMPLEMENTATION OF CURRICULUM GUIDELINES

Implementation of the curriculum guidelines would require supporting measures. The following addresses the enrollment system, normalization of teaching, involvement of legislation in curriculum and teachers' professional development, and issues related to supporting measures.

Reform and Problems of Entrance Examination

Entrance exams for senior high school and university are among the most important ways to control curriculum. The senior high school exam covers five major subjects: Chinese, English, math, social studies, and science. The university entrance exam covers Chinese, English, math, science (physics, chemistry, biology, and earth science), and social studies (civil issues and society, history, and geography). The entrance exams are high-stakes exams as these exams determine the students' future academic path and later career development. All students prepare for the exam

subjects to obtain good scores, but this situation would generate problems. First, instruction and learning will be directed toward becoming exam-oriented, forcing students to seek cram school programs or enroll in private classes after school.

The design of the exam questions is clearly the key to implementation of curriculum guidelines. If the exam questions conform to the goals, competence indicators, and contents of the guidelines, the guidelines would be functional for instruction and learning. Otherwise, these guidelines would be useless. As the exam questions used to require rote learning, the purpose of the reform was to make a change and switch focus onto the ability to understand, analyze, organize, and think. The success of the reform hinges on the direction of exam questions being kept consistent and the scope being kept within what is defined in the guidelines to avoid worries and uncertainties.

Normalization of Teaching and Other Issues

Revisions on the curriculum guidelines were directed toward achieving the goal of holistic education. The revised curriculum was designed to be applied to instruction and learning. However, under the exam-oriented system, subjects were classified into exam and non-exam subjects. Classes for exam subjects must be taught; equipment and materials must also be acquired but neglecting non-exam subjects would be allowed and thus, schools do not follow the guidelines to provide normal curriculum and classes. One way to solve the problem is through changing the admission methods. There are multiple ways for students to gain admission into universities, such as the traditional exams and new referral and application methods. More openings are reserved for referral and application approaches. Admission requirements include exam scores, in-school performance, and other achievements. As such, students, teachers, and parents are compelled to value performance in non-exam fields.

With the aim of bringing talented students to universities and cultivating Taiwan's future social backbone, the MOE launched Star Project in 2007, with 12 universities participating to enroll students via unconventional ways. Up to 675 students from 228 senior high schools were admitted. For 117 senior high schools among the 228, it was the first time in over three years that they would have students admitted into these 12 universities (Department of Higher Education, MOE, 2012 October 22). In school year 2008, Star Project was expanded, and in 2010, all universities participated in the project. The project was then integrated with the referral system to become the Star Referral Project, which helps to secure chances for students in remote or rural areas to gain admission into universities. Those who pass the ability exams of the departments in the universities would be considered as candidates, and their performance at school will be used as assessed, instead of their marks in the entrance exam. Thus, students are given the opportunity to choose a nearby senior high school, normalize their senior high school education, and bridge the educational gap between rural and urban areas.

The reform of senior high school entrance exams actually preceded the reform of university entrance exams because junior high school education had already been made compulsory and was popularized. As junior high school students tended to experience much more academic pressure than senior high school students, the reform of junior high school education became the earliest focus of concern. Reform started with changes in the design of questions for senior high school entrance exam, in hopes of supporting teachers with quality exam guidelines and encouraging positive way of learning among students. Later, a multiple admission project exam was established, in addition to the traditional entrance. In June 1998, the Research Center for Psychological and Educational Testing of the National Taiwan Normal University was commissioned to plan and launch the basic competence test for junior high school students (Committee of the Basic Competence Test for Junior High School Students, 2012 October 31), where junior high school graduates could apply for a senior high school with their test scores and in-school performance. Efforts were made to normalize education in junior high school and help promote holistic development.

In view of the failure of reform efforts to help relieve academic pressure among students and the trend of prolonged national education among advanced countries, the 12-year Compulsory Education was planned to solve existing problems, improve students' qualities, and enhance competiveness. The policy of exam-free admission into senior high schools, vocational schools, or five-year technical colleges has been planned and will be implemented for the 2014 class of junior high school students (Department of Higher Education, MOE, 2012).

Problems of Textbooks

Textbooks are most commonly used materials by teachers and students and the crucial role of textbooks has made them a focus of concern in the implementation of curriculum guidelines. Issues related to textbooks include editing, reviewing, selection, use, and evaluation as well as who would be granted rights to write textbooks.

The nine-year compulsory education was implemented in 1968. By 1988, one edition of textbooks was prepared by a government institution. Between 1989 and 2000, the policy stated the parallel practice of both official and private editions, with government approval. In 1987, Martial Law was lifted, and to accommodate social diversification, educational liberalization, and curriculum reform, the MOE opened the market of textbooks for arts and crafts subjects and activities by allowing private publishers to supply the materials. Materials from private publishers had to be reviewed and approved by National Institute for Compilation and Translation before publication. In school year 1990, the market for textbooks for elective courses in junior high schools was opened, whereas that for textbooks for arts and crafts subjects and activities in elementary schools was opened in school year 1991. In 1996, the market for textbooks used in elementary schools was opened, but the contents still

had to be reviewed by the government. In 2000, the market for textbooks for both elementary and junior high school was opened in support of the implementation of the Grade 1-9 Curriculum. The MOE, under the provisions of "Compulsory Education Act," announced "Regulations Authorizing the Approval of Elementary and Junior High School Textbooks" in 2000, which stipulated that elementary and high school textbooks should be open to private publishers. This put an end to the "unified edition" and National Institute for Compilation and Translation was made responsible for reviewing and examining textbooks. Since 2005, both government and private editions have been available in the market. The opening of the market generated doubts over the pricing and quality of textbooks. In 2002, the Legislative Yuan reviewed the MOE's budget and resolved that government-edited textbooks should resume. The MOE then decided to edit textbooks starting in 2005 for math classes in elementary schools and junior high schools, and science and technology classes in junior high schools. The National Academy for Educational Research was responsible for preparing and printing of the government edited textbooks, whereas National Institute for Compilation and Translation was responsible for reviewing before the textbooks were approved for publication.

The opening of the textbooks market came with disputes and attracted concern from varying circles. Even the Education and Culture Committee of the Legislative Yuan asked the MOE to present on this issue. The main problems included approval, price approval and pricing policy, selection, and acquisition. In response to the doubts, the MOE proposed strict control over the quality, regular holdings of conferences on textbook review, reviews on relevant regulations, consultation with relevant private sector on pricing policy, promotion of the enforcement of acquisition regulations in schools, supervision over inappropriate gift and free teaching materials, decentralized review and examination of the acquisition, measures for handling multiple editions, and the establishment of a textbook evaluation mechanism (Hwang, 2002 April).

The textbook is the product of politics, economy, society, and education. Even under strict supervision and guarding, forces from different groups still come into play and impact the quality of these textbooks. In a market-oriented society and under academic pressure, there are some areas that deserve focus. For instance, when the review results contradict teachers' preferences, publishers often opt to cater to the taste of teachers to survive. Second, exams not only direct the contents, but also the selection of textbooks. From the teachers' perspective, a good textbook is one that helps students obtain good grades in tests (Zhu, 2012). Finally, the policy of an open textbook market will still have to give way to students' pursuit of academic achievement, forcing the contents to become unitary and thus, similar to the government edition. Thus, the goal of addressing different needs would not be fully achieved.

Problems of the Involvement of Legislation in Curriculum Design

As society continued to become democratized, different interest groups became involved in the revisions of the curriculum guidelines for elementary and junior high

school education. Some groups took legislative approaches to influence elementary and secondary school education, such as inclusion of lessons in all-out defense, family, gender equity, and environment.

The Law of All-Out Defense Education (2005, February 2) was enacted to promote general education of national defense to increase people's knowledge of national defense, enhance public awareness, improve national defense, and safeguard national security. Article Seven requires the promotion of general education of national defense across schools of all levels and the integration of diversified teaching activities if appropriate.

Under Article 12 of the Family Education Act (2011, December 28), senior high schools and schools at lower levels should spend at least four learning periods on family education and related activities in addition to the normal curriculum each semester. Schools should also organize parent education programs with parents' associations. Competent authorities should take an active role in the establishment of teacher training institutions and list family education or relevant courses as required courses or as part of the general education courses.

Under Article 17 of the Gender Equity Education Act (2011 June 22), school curricula and activities should be designed to help students develop their potentials and avoid biased gender-specific treatment. Elementary and junior high schools should include gender equality in their curricula and allocate at least four hours on gender equality education or relevant activities every semester. Such courses should also be provided in senior high schools and the first three years in five-year technical colleges. Universities should provide relevant courses on gender studies. All schools should develop curricula that promote gender equality and establish an evaluation method in this regard.

The Environmental Education Act (2010 June 5) was enacted to promote environmental education, boost public awareness of the close relationship among individuals, society, and environment, and enhance people's sense of responsibility to help balance the ecosystem, show respect for all creatures, uphold social justice, cultivate environmentally aware citizens and learning communities, and achieve sustainable development. Under Article 16, all competent educational authorities should supervise how school use their campus, prepare relevant environmental courses and materials, organize holistic activities, and enhance environmental education among school faculty.

Most of the regulations required schools to provide a certain number of learning periods and stressed the implementation of the provisions. However, the gap between these connecting courses was overlooked; as such, a complete review is needed before better solutions are found.

Problems in Facilitating Teacher Professional Development

Revisions of curriculum guidelines have to be implemented by teachers, and thus, they are also keys to its success. Implementation of the guidelines in schools

requires teachers' perception and interpretation before the guidelines are put into practice. If teachers fail to understand, accept, or know the curriculum guidelines, their implementation would be empty talk.

Fidelity orientation, mutual adaptation orientation, and curriculum enactment orientation are important considerations. Different perspectives would impact the implementation of curriculum guidelines. During the Martial Law period, fidelity orientation was adopted, and teachers were required to follow the curriculum fully without any independent input from them. With the lifting of Martial Law, society became liberalized. Particularly, education was liberalized, democratized, and diversified, and mutual adaptation orientation started to attract more attention. Teachers enjoyed more flexibility in making adjustments to suit real circumstances during implementation of curriculum guidelines. The development of democracy has helped back schools' claim for autonomy. Curriculum reform switched to curriculum enactment orientation, allowing space and freedom for teachers and schools to plan their curricula. This way, teachers are not only implementers, but also developers; thus, they have to possess the ability to develop curriculum.

Teachers still have to gather opinions, achieve consensus, and seek support from the school curriculum committee to promote curriculum articulation and integration and finalize the curriculum, raising the importance of teachers interacting with committee members and colleagues in the same field. The revision of curriculum guidelines empowered the teachers. Hence, there should be ways to support teachers in developing capacities for new tasks. The MOE is promoting an evaluation plan for professional development of elementary and secondary school teachers (MOE, 2011d), encouraging local governments and schools to initiate evaluation protocols for professional aspects before relevant regulations are enacted (MOE, 2011e). In addition to curriculum committees and instruction research associations, the government also encouraged the establishment of professional communities to assist teachers in improving their professionalism under the auspice of the government (The Editorial Commission, 2009).

Problems of other Supporting Measures

Revising general curriculum guidelines is an important task in educational reform. Building a sustainable curriculum reform mechanism requires the participation of educators, experts of subject areas, parents, administrative staff, and civil groups. Revisions of curriculum guidelines as well as entrance exams and admission standards have to be implemented in schools with the support of educational authorities, universities, publishers, and society (Fang, 2012). On-the-job training for faculty, class material review, amendments to relevant regulations, equipment renewal, space distribution, exams, and budget preparation are keys to the success of curriculum reform (Wu, Wu, Chang & Chang, 2012). The responsibilities and rights of the central and local governments and schools should also be identified. Conclusions and revisions have to be made based on the education law; moreover, the general curriculum

guidelines have to be legalized, and educational budget and resource distribution for curriculum implementation also have to be authorized along with the specialization for curriculum managers or implementers (Yu, Hwang, Hsu & Tseng, 2010).

More importantly, curriculum research and development should be conducted periodically as organized by National Academy for Educational Research with the support of universities and other research institutions. Sufficient financing should be provided to ensure full implementation. Hastily prepared and incomplete schemes should be avoided (Hwang, 2010).

The general curriculum guidelines represent interests from diverse circles, and the revision involves the struggle of interests and political maneuvers. Thus, an appropriate review mechanism for the reform of the general guidelines should be set up. A panel should be established with qualified members from relevant circles, and terms of membership should be specified. A review of textbooks should be conducted under regulations, and situations where the change in membership and meeting process could impact curriculum reform should be avoided. Supportive measures should be put in place to facilitate the review mechanism. A close review of past practices of curriculum reform and an overview over the global trend should be carried out. Plans for curriculum reform should be created and should be based on long-term efforts. In this educational reform, all circles should be considered and effective communications achieved to ensure consensus.

PROSPECTS

Changes must be made to the Grade 1-9 Curriculum Guidelines after the enforcement of the National 12-year Basic Education System. The National 12-year Basic Education System will take effect in school year 2014. Senior high school admission will be exam-free. The tuition will be free and not forced, and the MOE plans to classify admission to senior high schools and vocational high schools into exam-free and special methods. The special methods for admission have to be approved with the provision of special curricula at the school level. For the exam-free type, if the applicants outnumber the planned number of enrollees, an evaluation process should be carried out under relevant regulations. The government may assign schools that adopt only exam-free admission methods. As Taiwan is experiencing low child birth rates, which promises a decrease in the number of students, curriculum reform plays an important role for schools to attract students. Senior high schools expect the curriculum guidelines to allow more freedom to schools and enable them to plan their own special curriculum. Junior high schools, which used to equip students with test-taking abilities for senior high school entrance exams, are expected to experience dramatic changes after the enforcement of the National 12-year Basic Education System. Junior high school students will be free from academic pressure. For private schools that enjoy more freedom than their public counterparts, whether will they return to traditional teaching methods to rise above the competition and the curriculum reforms they will undertake should be observed.

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5. CURRICULUM RESEARCH IN MAINLAND CHINA: LOCALIZATION AND GLOBALIZATION*

INTRODUCTION

Globalization is associated with the non-Western countries' demand for localization. As a developing country faced with the Western countries' strong involvement in various academic subjects in philosophy and social sciences, China feels deeply worried. On one hand, it has been embracing Western academic thinking since the 20th century. This patronage is evident in China's introduction to and appropriation of the temporal spirit, academic thinking, academic standards, and academic system of the West, allowing it to secure its position as a global academic leader. On the other hand, since the introduction of Western academic thinking in China, some scholars have begun to establish and assert the relevance of local knowledge. For example, Yan Fu (January, 1854–October 27, 1921), a Chinese scholar and translator, believes that the "re-trial" of ideas and methods should be clearly advocated in the introduction of Western ideas. He said that the "test" of success is not in the books but in nature and society.

In Yan Fu's view, "reading the book of [the] original land" is the initial expression of localization. This view has a relatively far-reaching effect on China's localization of the social sciences. Zhang Taiyan (1869–1936), a Chinese scholar and translator, clearly points out that the subjects in the social sciences are different from those of natural science; hence, in studies on the former, researchers must pay attention to the social conditions in their countries. In '*Social Michiaki*' *Business Against* (1907), Zhang Taiyan explains that social science is different from natural science, because the latter can be copied without national boundaries, whereas the former has to pay attention to the specificity of its country. The pursuit of localization has become the emotional appeal of non-Western countries. The process of maintaining the necessary tension between globalization and localization is not only a worldwide issue but also an inevitable problem, which the non-Western countries need to address. In fact, the history of China's curriculum research is the same as the history of social science research. This essay analyzes the two complementary themes, namely, localization and globalization, as well as the respective histories of their development. Furthermore, this essay probes into the theoretical framework from which lessons can be drawn so that the future trend of the systematization and globalization of China's curriculum studies can be described.

Curriculum Research: Globalization and Its History

Since the early 20th century, China's dream has been to conduct a curriculum research that is meant for the globalized world. What is worth exploring are the history of the globalization of China's curriculum research as well as the background, conditions, and characteristics of academic research.

Some researchers pointed out that the word "globalization" first appeared in the English Dictionary in 1944, and the word "globalism" to which it was associated appeared in 1943. We believe that the term "globalization" is not only a concept but also a phenomenon of human social development. At present, the term is defined in many ways. Globalization refers to the fact that different cultures and economic systems around the world are connected and are similar due to the influence of large multinational companies, resulting in improved communication.[1] In the usual sense, globalization refers to the growing global links, the development of human life on a global scale, the rise of global awareness, and the political, economic and trade interdependence among countries. The term can also be interpreted as the compression of the world as a whole. Based on this basic interpretation, at least a few points can be generalized. Globalization is a concept that refers to people's vague understanding of "border" in the development of the world. In other words, globalization is the blending of the economic, political, and cultural spheres of different countries, thereby breaking down boundaries that divide them. Likewise, globalization is regarded as an inevitable development stage of modern society. From the perspective of Western scholars, modernization is a process of social development, which includes all the features of the high-level development of technology, politics and economy, among others. Last but not least, globalization is a social theory that allows us to explain and understand the whole process of social change. The theory explains the process of modernization as a grand theory that is known as the integration of different social science disciplines and the orderly process of the complex reality of the outside world.

Modernization theory refers to the following research perspectives. First, the characteristics of traditional society are determined by the cultural characteristics of Western society. Those that are different from Western society are considered the cultural characteristics of traditional society. The distinctions between traditional and modern societies are determined through the differences of their cultural characteristics. Second, the effects of concept, values, and moral are at the core of social change and modernization and are regarded as a cultural process. In other words, modernization promotes the spread of Western industrial civilization in the world. Third, modernization can be seen generally in the world; hence, third-world countries can import Western capital, technology, institutions, and cultural values to achieve modernization. However, because the stages of development and modernization vary, societies differ from each other in terms of the rate of success, particularly in appropriating the characteristics of other modernized societies. In short, globalization refers to the interaction of politics, economy, and other fields.

More importantly, it can be seen as a research perspective that stresses the world's universal nature knowledge which is often seen as a representative of the advanced Western academic standards. Thus, globalization has become a phenomenon that non-Western countries seek to achieve to obtain a more integrated academic thought. The process involved in the development of China's curriculum research resembles the development of economic and political globalization. Traditionally, China does not have a sense of contemporary Western academic curriculum research. With the introduction of Western theories into the country, Chinese curriculum research has come to be regarded as "alien" rather than native. The introduction of Western curriculum research inspired Chinese academic to establish their own system and method of curriculum research. For instance, Chinese researchers learned the basic approach, content, and conclusions of curriculum research in Western countries by translating and publishing foreign works, such as *Course* and *Design Organization on the Primary School Curriculum*. These works fascinated the Chinese academics and served as the foundation of the country's curriculum research. Other Chinese works are compilations of translated works, including *Introduction to the Primary School Curriculum*, *Principles and Methods of Curriculum Development*, *History of China's School Curriculum*, *Of the Primary School Curriculum*, *Principles of Curriculum Development*, *Evolution of the Primary School Curriculum*, *Comprehensive Course on the Lower Primary*, and *The Evolution of Modern Chinese Primary School Curriculum*. The basic framework of Western curriculum research was introduced through compilations and then integrated with the actual social conditions in China. In-depth discussions on these works gave the Chinese academics opportunities to examine the problems in their respective curricula.

The history of curriculum research also belongs to studies that borrow the framework of the Western curriculum analysis. The teaching materials in China in the early 20th century are additional areas of curriculum research, which are mostly about the convenience of teaching, such as *On Teaching Material of Primary School*, and *The New Research on Teaching Material of Primary School*. The peak of China's curriculum research was from the early 20th century to the mid-20th century. During this period the discussions on the theories of curriculum reform were also published aside from the various works on curriculum research.

Curriculum research during that period was also seen as the initial phase of globalizing curriculum research. That period can be divided into three stages. First, it began with the introduction of Western curriculum research, which encouraged the Chinese to conduct curriculum research. Second, China's objective reality was described and explained through the imitation of foreign theory. Finally, foreign theory was used selectively in accordance with China's own tradition and deep understanding of the country's situation at that time. Globalization requires people to look into the world; thus, curriculum research inevitably includes a study of the experiences of foreign countries.

From 1949 to 1978, curriculum research in Mainland China was influenced by the pedagogical thinking of the Soviet Union. At that time, curriculum research was not

considered as a major field of study. However, due to the succession and imitation of Soviet Union's curriculum and teaching ideas, China aimed at achieving similar success in its curriculum research.

The revival of China's educational research, particularly research on its curriculum theory, ushered a new era of development. Upon establishing the importance of curriculum research, it has become the main focus of published papers and monographs in the field of educational research. This also paved the way for the emergence of the problem domain of curriculum research. Such issues as curriculum design, curriculum development, and the history of development became the important topics of curriculum research at that time. Finally, foreign representative works were translated and published, such as *Curriculum Research Series*, which included *Theory and Practice of Curriculum Research*, *School Science Curriculum*, *Curriculum theory*, and *The Theoretical Basis of General Secondary Education Content*. Similarly, two writings of Chinese scholars, namely, *Curriculum Theory* and *History of Modern Chinese Curriculum* were also published. Apart from these, *Curriculum Introduction* and a large number of foreign works were also translated and published in the recent decade. Recently, when China's basic education curriculum reform program was implemented in the whole country, translating and publishing foreign works on curriculum theory became an obsession among academics. During that period, the typical curriculum research still featured foreign curriculum treatises. However, a large number of studies based on China's curriculum practice quenched the Chinese scholar's thirst to catch up with the trends in the world's curriculum research.

From the brief description of Chinese curriculum research, its globalization course primarily reflects an introduction to Western curriculum research. The establishment of a system for curriculum research satisfied the criteria of Western academics. In this respect, Chinese researchers started their curriculum exploration based on domestic facts and practices, aiming to achieve two goals: (1) obtaining cutting-edge results similar to those attained globally in the field of curriculum research, and (2) advocating contemporary thoughts on China's curricula in an international forum.

Curriculum Research: A Course on Localization

China's initiation of curriculum research system was inspired by the very arrival of Western curriculum theory in the country. The underlying logic is that Western curriculum theory is advanced. However, research conducted in the West cannot essentially offer an effective explanation and guidance to curriculum practices in China owing to the different political, economic, and socio-cultural backgrounds. Hence, creating a curriculum with Chinese characteristics has become the primary essence of localizing curriculum research.

Localization of Chinese Curriculum Research

"Self-localization" Huntington states that self-localization is launched by leaders endowed with capability, perspicacity, and adaptability. He asserts that the process of localization within any country is primarily staged by those who have the experience, especially those who obtained their education overseas, so that they could instill self-localization into the national consciousness.

In China, self-localization was initiated by some insightful pioneers who had strong national consciousness and had full understanding of the Western countries. They shared a basic trait, which is promoting "Western" research in certain fields. Therefore, their goal was to introduce Western academic thoughts in terms of research objects, methods, frameworks, and so on. In other words, a wealth of Western academic works were translated and subsequently published in China.[2] Considering the foreign curriculum theories localized in China, they experienced the same stages from the end of the 19th century to the beginning of the 20th century; they also witnessed the emergence of various versions of pedagogy, primarily, the translated works of Japanese pedagogy. Later on, many Chinese studying in American and European countries started to come back to China and began to translate a group of Western pedagogical works. From this phenomenon, the primary condition for the localization of Chinese curriculum research was drawn from the needs of the people who had enough knowledge of the curriculum in Western countries (Japan included). They then chose which among the Western works should be introduced based on their integrative grasp of Western academic research.

The localization of the curriculum theories can be called "self-localization," but if understood merely through this concept, it could turn into a mire of simplification. Thus, we need to probe into this very stage.

The presupposition for localization is the superiority of Western academic research over that of China. This notion also pervades many other social sciences in China. Only when this supposition is adopted can there be any possibility and necessity to introduce Western academic research. This preconception that some people with certain amount of overseas experience and research capabilities started localization research in China is of great significance to Chinese academic research.

However, one of the goals of self-localization is Westernization, which in terms of the stages of social development, is the Westernized process of promoting modernization. The academics' main intention is to take Western social or academic development as a basic model for domestic development. Western academic research methods are regarded as standards or models in conducting domestic research. Their initial judgment, which is social and cultural upgrading in the East, is weak. This weakness naturally causes all sorts of shocks from the West. To accept or reject the mainstream culture in the modern West has become an issue of global influence, and is related to the crucial options for national prosperity and well-being. Hence, what should be considered is the process of importing Western culture to China, which has also been a target of debate and research since the first appropriation of Western academic thoughts.

Localization of the Second Generation of Elites

The so-called "localization of the second generation of elite" refers to the tendency and attitude of the young generation of intellectual elites toward Western theories and domestic traditions. Their basic traits are as follows. First, the young intellectuals in their thirties differ much from their former generation in terms of thoughts, knowledge, and attitudes. Second, they have a more positive recognition of domestic civilization and present a passion for domestic classics, whereas their predecessors regarded Westernization as the major option. In other words, because of their distinct attitude, they do not only care about using Western theories but also affirm the significance of domestic and traditional academics and theories; thus, they integrated and combined Western and Chinese ideas.

The typical marks of "localization of the second generation of elite" are "de-Westernization" and assertion of an "indigenous culture." The former stands for the tendency of cultural development demonstrated when battling against the occupation or control from Western cultures or theories. This is characterized by the use of emotional appeal to develop and construct its own framework as the basis for cultural research and rational exploration. Meanwhile, assertion of an "indigenous culture" represents the reexamination of domestic traditional culture, and provides due emphasis and fresh judgment upon cultural heritage in order to contribute to the extant body of research on contemporary theories. In view of this aim, any behavior that denigrates the value of traditional culture signifies the researchers' lack of cultivation.

The emergence of the "localization of the second generation of elite" results from two interactive elements: (1) the remarkable achievements in the sphere of Western theories or academic research, and (2) the application of domestic theories that can eventually bring about diverse and in-depth domestic research. Moreover, localization could stimulate the researchers' confidence and pride in indigenous culture. With their increasing identification with domestic culture, they can eliminate the control from the West and gain greater independence, thus forming a trend of "de-Westernization." The course of Westernization is undoubtedly accompanied by alienation and disorder. Fierce Westernization can lead to a kind of disconnect between traditions and research status quo as well as to dissatisfaction among researchers. In turn, these could give rise to anomie and identification crises that could, in turn, contribute to the rejuvenation of domestic culture. These two factor**s** can then encourage people to examine all dimensions of Western culture and carry out local research at a higher level. The "localization of the second generation of elite" arrives and progresses rightly due to this new generation's awareness of the flaws of Western culture, their full understanding of its culture, and their strong identification with domestic traditional culture.

The Expression of Curriculum Research Localization in China:
The Conditions of Addition

For the localization of curriculum theories, it is necessary to add some conditions to foreign curriculum theories to promote its growth in our own country.

Whether or not a theory can emerge in another country depends on the level of similarities between its cultural background and that of the foreign country. At the same time, it depends on whether or not the researchers can adapt the theory to the native customs and the conventional mores of the country. Hence, adding some conditions is an important issue that researchers should focus on in the localization of curriculum theories.

Adding conditions to achieve the localization of curriculum theories is represented below.

The first one is strengthening some foreign theories by following the practice of emphasizing learning from or converting foreign curriculum theories on the basis of specific Chinese curriculum practice in China. This is apparent in the New Curriculum Reform movement. The school-based curriculum theory exemplifies the value of the New Curriculum Reform mainly because schools and teachers are marginalized, and they do not play their roles to the fullest. This requirement of practice just corresponds with the related school-based curriculum theory. Schools are required to launch related research only because this is one of the curriculum policies of the country. At present, the school-based curriculum is one of the important issues that these schools integrate in their studies. Originally, the school-based curriculum is a basic system of the national curriculum. The essential problem it needs to solve is how to show the power of the curriculum such that the teachers and schools can be encouraged to play their own roles. The introduction of this theory is obviously important to the Chinese Curriculum Reform and its practice. However, what is worth considering is that the school-based curricula of Western countries have formed systems that have gained the support of schools and teachers. In comparison, the function of schools and teachers as curriculum leaders is traditionally not well-understood in China. In other words, due to the differences among national traditions, school-based curriculum is only good in theory but not effective in practice, because this is advocated but not practiced by schools and teachers. Learning from the practice of Chinese Curriculum Reform, some elementary and secondary schools have taken school-based curricula as their own research subjects and practice school-based curricula theories. However, the fact is that some research just borrowed from foreign school-based curriculum theories, including the design of the research processing, the selection of research methods, and even the research results. Moreover, these academics have developed hundreds of school-based curriculum theories in three years. The problem is that school leaders do not comprehend the significance of school-based curricula to the schools' development. In addition, teachers do not have a comprehensive understanding of the function of school-based curricula as teaching tools; thus, the development of these curricula has become but a formality. In this way, "practical application" has become an excuse to introduce foreign curriculum theories in the local setting.

Second, curriculum theories borrowed from foreign sources and then introduced in China hardly develop, because the researchers lack sufficient background knowledge of the foreign theories. This is also one of the important reasons why curriculum theories should be localized. Throughout the history of the introduction

of curriculum theories in China, we find that most researchers do not analyze the primary texts, in terms of the background of theories, the social conditions of the time, and the cultural research tradition of other countries. Moreover, foreign theories are often introduced blindly and completely. The introduction of Taylor's course principles exemplifies this phenomenon. Nearly all works mention the course principles of Taylor and see them as the milestone of modern curriculum theories. Most studies identified four basic curriculum problems, namely, determining educational objectives, selecting learning experience, organizing learning experience, and making curriculum evaluation. Based on this finding, Chinese researchers began to evaluate the Taylor Principles in relation to Chinese curriculum research. What they did not consider were the background and the difference between foreign and Chinese cultural traditions, among others, making the direct introduction of foreign curriculum theories endemic. The deficiency lies in the creation of Tylor's evaluation theories, its meaning in education reform, and its causes, such as the Eight-Year Study and the connection between middle schools and universities. Most of the local research centered only on the meaning of the theories; thus, the Chinese evaluation and understanding of Taylor Principles focused only on the theories, ignoring the difference between its background and Chinese facts. Whatever was different about the research tradition between America and China was not accorded enough importance. America considers curriculum as the research tradition, whereas China considers teaching as the research tradition. Consequently, the analysis of the difference between the two bodies of academic research became a tradition.

Third, the Chinese Basic Education Reform in 2001 was based on the diversity of theories. The researchers thought that the diversity of theories could make up for the inadequacy of one theory only to realize that a complementary relationship must exist among these theories. However, both the prevalence of a research theory and the translation and evolution of theories did not show the complementary relationships of curriculum theories. In terms of the reform and practice of curricula, the emergence of the same pendulum phenomenon means that the complementary relationship of curriculum theories in research is merely an ideal condition or a spirit we need to pursue. In fact, it affirms that the application of a single theory is bound to produce new problems. Hence, many researchers and curriculum reform advocates apply various kinds of theories to curriculum reform and practice although the mixture does not guarantee the solution of practical problems in the curriculum.

Politicalization.   The localization of the educational curriculum in China, similar to the localization of other subjects, started from the country's political program and economy including the national power of these current social systems. This finding means that when doing research on the basic problems in the curriculum, we often take ideology as the basis and orientation of the research, thereby making national politics the purpose of the research. The research process thus became formalized and mono-cultural, because the thoughts espoused by Marxism, Leninism, and Mao Zedong served as the bases and the basic problems of the research.

During the first half of the 20th century, what saved and strengthened China's political program, economy, and national power was research on history. This fact suggests that when conducting research on curriculum localization, improving the national basic power through curriculum reform must be emphasized. The setting and the implementation of curriculum reform should also focus on how to fulfill the national aim, principle, and policy of education in order to inculcate among the students the spirit of the San-min Doctrine – a political philosophy developed by Sun Yat-sen. Through this, we can combine the ideas in the foreign curriculum with the specific practices of our country. After the liberation, the success of curriculum localization was manifested in the shift from overall Westernization to "the Soviet Union." The courses were about the Soviet Union and its system, which were copied to correspond to Chinese practices. However, because the Soviet Union at that time had not yet begun the tradition of curriculum research, China's curriculum research was neglected; in fact, it even stagnated. The original performance was still a serious political tendency, because they have just begun instituting reform and opening up. As we study the course of the phenomenon of political reflection and criticism, the tendency of turning to politics has unfortunately gone to the extreme, that is, Western theory has become the research orientation. Western theory on school curricula has come to be regarded as the highest and most advanced weapon.

The Chinese curriculum practice, since the liberation in 1949, signified ideological involvement; this resulted in the creation of curriculum policy, including the control and management of the school curriculum that embodied the powers of the national will. In general, ideology affects curriculum policy and curriculum practices mainly through the following ways. First, ideology as a belief system has confirmed the current curriculum policy in line with moral principles, because it can recognize and unite people. In a class society, the ideology often has a politicized feature. In order to implement and issue the policy of legality and legitimacy of its defense, the ruling group thus uses the set policy for the marked line with its own brand of ideology.

> "In political life, no political group takes collective action blindly or unconsciously, but guided by a specific ideology. Ideology can provide political action with rationality, such as for members of the group that ideology can make them believe that a particular political group [or] political action is not without reason, is legitimate [and] reasonable, so that they can win public sympathy, and even [public] recognition and support"

In curriculum practice in China, ideological performance mainly values the curriculum design, curriculum formulation of goals, choices of curriculum content, curriculum evaluation, and so on. Second, the ruling party possesses the political policy-making capacity, choice, and the power to make decisions. Introducing a curriculum policy is by no means an automatic, natural process but a man-made selective process. In terms of curriculum reform, the goals achieved, the kind of curriculum development policies to be adopted, the process of distributing curriculum

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resources, and so on, are manipulated mainly by state authority, which determines the course of the reform, as the country's organ of authority.

Superficialization.   In the process of localizing curriculum theory, the course of the superficial theory is manifested in the analysis or theory of the foreign copy without any modification or digestion. This is also manifested by the fact that curriculum theory is supplied in a variety of casual occasions. Curriculum practice is particularly apparent in the course of previous research. Many researchers have conducted studies on curriculum implementation. Curriculum research in constructivist theory is the theoretical foundation, in which the whole constructivist course (or teaching) introduces the theory. However, in these studies, in-depth research was not conducted on the introduction of constructivism curriculum theory. The researchers only repeated the basic ideas of constructivism without grasping the essence of constructivism. These studies did not use the constructivist theory to explain the basic teaching behavior. Instead, they only focused on explaining the tendency to teach and how effective it is. The lack of applications of constructivist theory explains why this is feasible.

In terms of curriculum theory research, the theory of reference for other subjects is also superficial. This superficiality is based mainly on the lack of understanding or analysis of the background, scope, and function of this theory. Thus, the researchers have failed to fully demonstrate the function of curriculum theory.

Operationalization.   This is the process of converting the assumptions and concepts into empirical observation with reliability and validity. The initial meaning of the term is associated with direct physical measurements. To date, it is used mainly for quantitative studies aimed at designing a satisfactory experience category by bridging the gap between concepts and indicators. Theoretical, abstract entities are better explained through these categories of measurement. In other words, operationalization is a theory with a higher level of abstraction shown in an operational way. The manifestation of the theory is a set of narratives consisting of the concept, scope, assumptions, and so on. Therefore, if the theory could guide the practice, a conversion is needed to teach people who work in the frontlines how to properly apply the theory.

Some people think that any theory should play a role in practice. This viewpoint has become the basic orientation in the development and construction of contemporary curriculum theory. However, not all theories guide the practice. Thus, the debate on the nature of curriculum theory has emerged in China in recent years. In fact, the debate on the nature of academic disciplines within curriculum theory is the essence of the controversy on the function of the latter. In other words, whether or not emphasis should be given to the function of curriculum theory to guide practice has become a basic point of contention. Through this debate, the understanding of the nature of curriculum theory is linked to the understading of curriculum theory and practice. This debate is caused by the varying recognitions of the status of curriculum theory in practice. Curriculum theory can interpret and guide curriculum practice. However, not all aspects of such theory are practice-oriented or have the

responsibility to guide practice. If these recognizations are established, curriculum theory should include some theories with the task of theoretical construction.

Many academics believe that curriculum theory should guide curriculum practice, and thus the latter is regarded as an important theoretical point for the construction of the former, leading to theoretical research being divided between theory and practice. However, theory eventually loses its essential characteristics and functions.

Operationalization is a basic orientation in curriculum theory, and the basic characteristics of this theory guide curriculum practice. The basic approach to guide practice is the operation of theory. However, the nature of theory itself desides whether or not curriculum theory could be operationalized. As mentioned above, curriculum theory is still controversial; some insist on the theoretical nature of curriculum, while others support the displinary nature of the application nature or the practice of curriculum. If we adhere to the theoretical nature of curriculum theory, the basic purpose of theory construction would not be that this theory guides practice. However, the main orientation of the development of such theory should be that it guides practice. Even if curriculum theory is regarded as a discipline-guiding practice, the discipline of curriculum theory can also be subject to division. A considerable part of curriculum theory cannot guide practice. Moreover, this kind of recognization is guided by the universal idea that the basic requirement of Western curriculum theory development in China is its operation. The fundamental viewpoint of that kind of recognization is that curriculum theory in certain forms of operation could be applied in other regions or countries. The background, the method of explaining the problem, and the narrative processes of curriculum theory are often subject to the differences in terms of tradition, history, and reality. Thus, one theory may not be applicable in another country or region. The application of curriculum theory depends primarily on whether or not these related theories can emerge in a simple or an operational way. Finally, operationalization is a program or mode in which curriculum theory can be restored to be operated in practice; furthermore, the idea implied in theory can be presented using operational steps. However, in the research on curriculum theory localization, the operationalization of curriculum theory is usually presented as *simplization*. When a certain foreign curriculum theory possesses its own operational procedures or steps, these steps cannot be changed in practice as an "imperial edict." Therefore, all those steps are copied without the slightest change, whether in their introduction or in the specific curriculum practice. As a result, curriculum research in China has become merely a validation study of foreign curriculum theory.

Variability. Research has not been done on the basic process of operation but has been done on the interpretation of theory; meanwhile some curriculum researchers in China often derive some operating procedures from the essence of theory and call it "creation." In a sense, this derivation is a "creation" process. However, many researchers ignore the fact that foreign curriculum theory is "pure theory," making transition to practice impossible. Thus, deriving the operating procedures from the existing theory is a misunderstanding of theory itself.

The application of foreign curriculum theory in the curriculum localization theory in China often emphasizes only the operability of theory and lack of concern regarding the concepts implied by these curriculum theories. As a result, the practice of curriculum theory focuses only on the use of some core vocabularies and operating procedures of such theories. From the perspective of localization, curriculum theory is the origin of universalism.

The localization of curriculum theory in China shows that we need more analysis and research on foreign curriculum theory with a methodology dissecting the latter, including analysis of the spiritual background, research methods, and reality of practice characteristics in the operation procedures of foreign curriculum theory. This research direction neither praises nor belittles research attitude toward foreign curriculum theory, and as such, it can help form an objective evaluation of foreign curriculum theory. Simultaneously, localization requires the preservation of Chinese tradition and contemporary practice. Localization seeks the best relevant balance between foreign curriculum theory and Chinese traditional and contemporary practice. However, traditional inheritance requires construction of a contemporary curriculum theory in order to determine the reasonable elements in traditional curriculum theory and practice, thus marking contemporary curriculum practice as the starting point.

The Development of Local Curriculum Research

In China, curriculum has been studied for approximately ten decades. In the past, Chinese curriculum did not automatically adopt Western curriculum theories but conducted some verification research. These include the establishment of Dewey's experimental school and the application of Dewey thought in the 1920s or 1930s, the experimental practice of Bruner's curriculum theory in the 1980s, and the practice on Su Baer thought as well as a variety of constructivist curricula, which belong to paradigms with the introduction and application of Western curriculum. In the study of curriculum localization, Chinese characteristics experience greater growth in terms of localization on Chinese curriculum studies. This local growth can simply be treated as curriculum theory construction with Chinese characteristics, and these theories are totally different from the study of Western curriculum.

Historically, Tao Xingzhi's educational theory and practice is credited for the development of localization in Chinese education research. Its education and teaching goals are typically bound to local characteristics. After this nascent stage, the priority of the curriculum experts in China became the construction of the local curriculum and its system.

According to curriculum theory, more curriculum research questions have been formed that are different from those of the West. For example, regarding the disciplinary nature of curriculum theory, when the course is in its infancy, Chinese scholars conduct research on its disciplinary nature, and the starting point is largely determined by the nature of the subject. Thus, we can recognize the course construction target (only for the theoretical construction or for the practice service), the basic content, and its

method. The discipline of curriculum theory is one important problem to study, and thus, many studies have focused on this issue and generally formed the following three points. First is "the application of practical subject," that is, the curriculum should be a very strong practical discipline rather than a purely theoretical discipline. Second is "the theory of subject," which means that the curriculum should not be limited to the descriptive or empirical range but also reflect the nature of the theoretical discipline. Third is "the combination of subject," which posits that curriculum theory is not only a theoretical subject but also an application subject. Thus, we shall pay attention to its practice and theoretical speculation. In reality, most Chinese scholars hold this view because a purely theoretical subject or application subject is too extreme.

As regards the disciplinary nature of curriculum theory in China, some problems are different from those of the West, such as the nature of the course and the construction of subject system. In these aspects, Chinese characteristics are seen in local curriculum theory, and diverse research conclusions have been formed.

The practice is mainly embodied in the curriculum reform and practice in Chinese schools. In the 1980s, the concepts of "happy teaching," "subjective teaching," "experimental teaching," and so on, have been implemented; these are based on the problems of Chinese contemporary curriculum in practice and teaching research. To date, the representatives of Dulangkou Middle School, Yangsi Middle School, and Donglu Middle School are regarded as pioneers of the "learning first" curriculum experiment. These schools provide evidence for the growth of local modern curriculum theory, which focuses on the subjective development of students and targets lack of initial problems of students in the learning process. Therefore, the main channel in the experiment is to activate learning and to free the minds of students by setting the learning objectives and content in the teaching process. In the classroom, students should first engage in auto-learning and then exhibit the problems of self-learning through group cooperation and exchange. Afterwards, team members help them solve it, and if they are not successful, teachers would solve it. As a result, we propose "learning first." In fact, in present-day China, "learning first" has greatly affected our teaching and curriculum theory based on the quality of teachers in the practice and learning situation of the students.

Thus, the development of local curriculum research is a requirement of curriculum localization and its main objectives.

THEORY STUDIES' VIEWS ON LOCALIZATION AND GLOBALIZATION

The brief analysis above provides us with a simple framework, but we still need more in-depth theoretical research. Thus, the following issues should be analyzed.

The Globalization of Curriculum Research

Based on curriculum research, developing countries (i.e., those that are mostly non-Western countries) prefer to establish their national curriculum using Western

curriculum theory as foundation. The value of Western curriculum theory is based on universal knowledge that, in turn, is built on the basis of universal value. Basically, universal values are those that are shared in most places and situations, regardless of whether they are demonstrated in all behavior. Guided by curriculum knowledge, when Western knowledge is introduced into our country, it is seen as a universal value with universal knowledge. Thus, our curriculum would be developed and put it into practice according to Western curriculum theory.

Globalization occurs in such a background. Thus, we should introduce our curriculum knowledge and apply it to gain curriculum knowledge with a sense of universal knowledge and our own characteristics through the study of our curriculum issues. If we disseminate this knowledge to the West, it will be identified, and our curriculum would spread throughout the world.

Curriculum globalization is based on the judgment and recognition of universal knowledge. The study of curriculum globalization shows two aspects that are simultaneously contradictory and interdependent. On one hand, the introduction and application of Western knowledge are regarded as parts of universal knowledge; on the other hand, we disseminate our results to the world in order to gain recognition. However, there are some problems worth pondering as discussed below.

Based on the introduction of curriculum knowledge to the non-Western countries, the kind of curriculum knowledge is not only related to the knowledge of the course itself and its appropriateness in our nation, but is also associated with our traditional culture, current research, and methods of application. We should consider the appropriateness of the Western curriculum knowledge to our own curriculum development; otherwise, advanced knowledge of curriculum would not be effectively applied in new climate. The introduction of curriculum knowledge should be thoroughly analyzed; moreover, the background, scope of application, and basis of practice should also be investigated.

Based on the production of curriculum knowledge in the non-Western countries, gaining worldwide recognition and forming some kind of universal knowledge has become a primary task. Researchers often hold that on one hand, the premise of Western academic standards makes our research correspond to Western studies in the mode of discourse, paradigm, and value orientation, ensuring that our research results can be understood by the rest of the world. On the other hand, under the influence of idea that "nationality is the world," an increasing number of researchers emphasize that our results need to be accepted in the world. The issues of nationality need to be studied when we do research on curriculum. By revealing the real problems encountered in practice and solving them in practice, we can construct our curriculum theory and knowledge as well as obtain international understanding and recognition. Therefore, the criticism-oriented or field research method has become an important aspect of our research.

In the study of curriculum globalization, our research focuses on the introduction of Western curriculum in theory research, in the curriculum reform, and even in the curriculum practice of teachers (e.g., interaction experience, construction,

and so on). Western discourse is popular in China. Moreover, many experimental studies are based on Western curriculum theories. In the study of curriculum, China seems unable to be a major player in the discourse. The reason is that research on contemporary curriculum –be it in terms of research framework, paradigm, methods, or even issues – is limited to the range of the Western research, involving no more breakthroughs.

In short, our research on curriculum globalization is conducted at the expense of our traditional academy and the curriculum areas for testing Western curriculum, and cannot be identified by the boundaries of the academe in the West.

Research on Curriculum Localization

Do curriculum localization and globalization belong to opposite ends of a spectrum? Globalization does not depend on localization; in other words, the former is not a premise in the development of the latter nor is it based on the scarification of the latter. At this point, globalization and localization have their own operation mechanisms and methods of development. As for the research on curriculum localization, we solve the following main problems: (1) the absorption of the advanced curriculum, (2) the conformity to traditional curriculum research, and (3) the solution to the problem in the national curriculum practice.

As for the research on curriculum localization, the following problems are worthy of discussion.

The perspective of localization. This section proposes to the process of solving the three basic factors and relations to be discussed by studies on curriculum localization. The section is about elements and relations among the Western curriculum theories, the traditional curriculum, and the application of contemporary curriculum. In China, we usually regard curriculum localization as Western curriculum rooted in our nation, but the foundation we emphasize is based on the inheritance and innovation toward the traditional curriculum ideas. In this problem, what we emphasize is the introduction of Western curriculum research, combination of traditional thoughts, or identification of the consistency between the Western curriculum and traditional ideas. Thus, traditional thoughts can be developed in reforming and practicing curriculum. At this point, the curriculum reform in China at the beginning of the 21st century – regardless of the curriculum target, curriculum content, and teaching material – has retained many traditional curriculum ideas. In addition, if the research results of Western curriculum are to be practiced widely in China, Chinese contemporary curriculum practice needs to be studied as well. This means that only when the Western curriculum theories can be effectively practiced in Chinese school reform can the research value of Western curriculum be truly reflected in the local context. The applications of many school reforms, such as the curriculum thought of Dewey, the structuralism curriculum view of Bruner, have been widely successful at producing some positive effects in Chinese school reforms.

The perspective of curriculum research localization is manifested as the interactive contact between Western curriculum study and tradition and contemporary curriculum reform in China, especially in terms of school reform. Those three basic elements also constitute the basic perspective of exploring the localization of curriculum study in China, thus building a framework that functions as the basic standard to determine whether or not exploring the localization of curriculum study is a success or failure.

The Problem Domain of Localization in Curriculum Study. Localization of curriculum study is the goal of most non-Western countries. Localization, which cannot be attained solely via propaganda, requires identifying the basic problem domain according to the local situation and conducting in-depth research to obtain better development of curriculum theory and practice. The problem domain of localization in curriculum study includes the issues discussed below.

Formation of local research problems. Local issues generally refer to all issues of curriculum study pointing to the local community. These issues belong to problems related to curriculum theory and practice in China. From the view of the West, these issues can be derived from the West, but local problems, especially the issues arising from local curriculum study and practice, must also be included.

Formation of the methods of local curriculum research. In terms of the research method, curriculum study in China in recent years tends to follow the Western curriculum research and use Western methods to solve related problems concerning the curriculum in China. This phenomenon can be divided into three aspects. First, the individual methods of curriculum researchers exhibit "convergence," thus showing a lack of distinct style. Second, the methodology of researcher-groups exhibits "disorder" and does not sufficiently impact schools. Third, the methodology of researchers is "obsolete," which means that it is not modernized. Thus, the curriculum study in China always acquires its own methods from other subjects or education science, but does not examine the appropriateness of the method to the research questions.

Formation of a unique mode of discourse. Discourse of any subject is the manifestation of thinking of this subject; thus, the language goes beyond its literal meaning, belonging to the broad practice of an ideology. Before the mid-1980s, the research mode led by the Soviet Union only focused on teaching content and the forms of its manifestation. The major or even sole contents of curriculum study were teaching plans, teaching programs, and textbooks. From the view of discourse, these contents possessed the typical style of the Soviet Union teaching theory. After 80 years, a number of monographs and papers about curriculum theory China were discovered. These papers and monographs became popular, comprising a field of study; thus, another kind of trend, the invasion of discourse of Western curriculum theory research, is formed. In this trend, the basic content of curriculum,

including curriculum development, curriculum orientation, curriculum design and curriculum implementation, among others, has become an important part of curriculum study, constituting the most central concept of curriculum theory. In the practice of curriculum, interaction, cooperation, and exploration have become the basic concepts of curriculum study, and the goal that teachers pursue in classroom behavior. The Westernization of the discourse method provides the possibility for China to communicate with the world. Nevertheless, the recognition of localization is difficult to obtain. With the provisions of the problem domain of the localization of curriculum study, China has thus discovered the basic path of localization and established its own curriculum objectives.

The objectives of localization of curriculum study. Chinese curriculum researchers have focused on an important issue, the purpose of localization of curriculum study. Some researchers suggest that the goal of curriculum study is original and autonomous. In the research on curriculum theory, "originality" requires the following: "to contribute something which has never [been introduced] before and even has no names to the scientific community". However, original research is defined as "the research which initially interprets the elements and development law of specific research object and firstly proposes the idea or method and model of solving the specific problem".

This explanation shows that originality actually refers to the comprehension of originality and creativity. Originality guarantees that the questions, methods, and conclusions of any research are novel, while creativity refers to the expansion of research ideas and research approach. Therefore, originality is not equivalent to novelty, because novelty can be a continuation of the research of others but may be a new area of study that can lead to the creation of new problems. However, in China, the prototypes of both research questions or research methods and conclusions are based on Tyler's curriculum theory. With the Western improvement and transformation of such theory, some studies with different approaches have been conducted. However, generally speaking, the current system and methods of curriculum study in China possess evident influence of the West.

Autonomy of curriculum study is the conclusion of an inspection, in which curriculum theory is treated as a subject. This problem comes mainly from the ideology of curriculum research in China and the lack of independent personality of intellectuals since the liberation. Solving the ideology of curriculum study is a problem related to the construction of curriculum theory as a subject, that is, the restoration of subjects and the academic institution of curriculum theory to free China's curriculum theory from the shackles of rigid ideology. The investigation of the character of intellectuals attempts to awaken the independent spirit and their personalities through the review of the ancient state of mind "into the world" of Chinese intellectuals. Autonomy means that Chinese curriculum researchers should get rid of political ideology and dependence on the Western curriculum research from the perspective of localization. They should discover and analyze the issues

of curriculum theory in China and practice independently, and then use the unique research methods of China to summarize the conclusions that can be used to solve the problems of China.

Autonomy and originality of the localization of curriculum research are two important factors that are absent in the localization of curriculum research in China. Therefore, if these two aspects are emphasized, the localization of curriculum study in China can be realized.

Relationship between Curriculum Research Localization and Globalization

Previously, we have covered the two important aspects of curriculum research, localization and globalization, and have stressed that they are two interactive parts that are dependent on each other. However, the relationship between the two is not made clear enough. Thus, the following discussions about the relationship are necessary.

The discussions are conducted under the condition of universal knowledge. Globalization with emphasis on certain curriculum knowledge embodying universal sense can be employed in any country. Thus, Western countries intend to promote and share this kind of knowledge globally. Conversely, localization asserts that non-Western countries can build knowledge of their national characteristics, which can be adopted into the global system. Does universal knowledge really exist? Which among the studies on curriculum constitutes this type of knowledge is still uncertain. Theoretically, consensus cannot be easily reached regarding universal knowledge.

Do globalization and localization exist as facts or theories? In discussing globalization, the fact that we observe is a nod to the distinct process of the non-Western countries. In the curriculum studies, on one hand, Westernization is reflected by introduction of Western curriculum to the domestic context; on the other hand, the curriculum research system built upon the Western academic criteria poses a phenomenon of global assimilation of curriculum research, but is it real globalization? Theoretically, this globalization evolves on the basis of negating the domestic traditions, while the traditional curriculum studies cannot be fractured instantly. Thus, globalization will surely invoke ferocious resistance from non-Western countries.

Another factor to be considered is the fact that most non-Western countries have conducted curriculum research concerning local issues while maintaining the Western standards and attempted to gain recognition worldwide. However, the Western countries possess hegemony over the curriculum and usually ignore those from the other countries. These facts should have some theoretical explanations, but the studies lack reasonable theoretic framework and related analysis.

The ultimate goal of curriculum localization research is to conduct a "dialogue" with Western countries. This kind of dialogue must be based on universal knowledge and surrounded by different aspects of curriculum research. Nevertheless, the two

parties in the dialogue can hardly share an equal stance, a common ideology, and a common topic due to differences in research history and various research patterns. Therefore, to make such a dialogue possible, Western countries should abandon the attitude of superiority and identify the kinds of research problems faced by the non-Western countries as well as the level of the former's research achievement.

Globalization and localization of curriculum research are global issues. Generally, Western countries emphasize globalization as a result of their preference of ideology, while non-Western countries attach importance to localization because of their urgent need to remove Western control. Both aspects are main issues of Chinese curriculum research and should be studied further.

NOTES

[*] This chapter was written on the basis of the author's personal experiences and observations in his research work in schools in Mainland China.

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6. THE NEW CURRICULUM DESIGN OF BASIC EDUCATION IN MAINLAND CHINA

INTRODUCTION

Decker F. Walker, an American curriculum scholar, summarized valuable information on curriculum design from the 1960s to the 1970s. He conducted this by large-scale tracking and description of the curriculum design process.

In the late 1960s, Walker was appointed as the evaluator of the Kettering Art Project. Over three years, he recorded the actions, arguments, and decisions of the curriculum design team. Walker stripped out the important elements of the curriculum design process by analyzing sound recordings of the meeting and data collection activities of the design team. Walker described the natural process of curriculum design and compared it with several important national curriculum designs in the United States (Marsh, 1992).

Walker explained several key concepts. "Platform" refers to belief, theory, purpose, and intended procedure. He believed that each team member must address values and beliefs in curriculum development activities. Thus, the most basic step is that everyone participates in expression, discussion, and even argumentation. Walker used his position in the project to provide a platform for future discussions. During deliberation, curriculum designers focus on certain controversial issues, present a number of possible solutions, and carefully consider the advantages and disadvantages of several options. The deliberation process is a confusing and time-consuming phase. Consideration is not inborn but is based on common faith, doctrine, purpose, and procedure as common ground. If a position cannot be chosen, "concrete evidence" should be used to explain particular views. "Design" refers to the final stage of action-oriented decision-making.

Influencing Factors in Curriculum Design

Numerous factors influence curriculum design. Clark (1988) proposed ten factors in his research: the public, political leaders, textbook publishers, examination intermediaries, media, faculty of colleges and universities, professional education groups, central government ministries, teacher groups, and individual teachers. Aside from the above human factors, social ideological trends, social changes, especially education reforms, international relations, national politics, and overall development level of social productivity are all involved in the curriculum

decision-making process directly or indirectly. Certain factors do not influence the curriculum design process but rather produce the curriculum by interacting with each other.

Clark (1988) suggested that each kind of influencing factor is conditioned by other factors and that decision makers continually influence each other. This produces an overly mutual dependence system. As a result, the final decision is far from everyone's original intention. The curriculum is therefore a political problem rather than a technical problem.

Research Questions

How is deliberation conducted in designing the Chinese national curriculum? Is deliberation similar to other procedures used in large-scale national curriculum design? Should specific principles or routines be followed? What is the effect of deliberation on the design of future Chinese curricula?

METHODS

More than 20 curriculum designers were interviewed from May 2003 to January 2004. A written record was transcribed word by word based on tape recordings of these interviews. All interviewees were core members who had experience in designing the Chinese national curriculum. Moreover, certain meeting records were collected with the help of related government departments. This chapter intends to present the structural pattern of curriculum design and the necessary and difficult points during this process based on the records and the reflection of the interviewees.

FINDINGS

Seeking the Difference: Personnel Structure of the Deliberation Team

Participants in the design of the new curriculum came from different areas, including researchers from universities, middle, and primary schools; primary and secondary school teachers; and press researchers. People from universities included subject experts and curriculum experts. The subject experts were generally subject researchers in normal universities and ordinary universities. The curriculum experts had background knowledge in pedagogy, psychology, or curriculum and were from normal universities and education research departments. Teaching-research staff and teachers from primary and secondary schools were the pillars of their respective positions; some were well-known national special-grade teachers. Publishers were present in every standard curriculum research team because of their extensive knowledge about teaching materials and past and present curricula. Establishing a clear hierarchy for the team of different experts was difficult because of their complex professional and career backgrounds. Take the mathematics research

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team for compulsory education as an example. A total of 31 team members were from 14 provinces. Of these, 29 preferred to be grouped under mathematics education, whereas the other two prefer fundamental mathematics and pedagogy, respectively. However, some experts who preferred mathematics education majored in mathematics during their undergraduate studies, and then switched to pedagogy in their graduate study. Some had work involvement in the university and had abundant teaching or management experience in primary and secondary schools. Some curriculum designers had been engaged in scientific research work in normal universities. Obviously, these designers with various and complex background held different views in dealing with the new curriculum.

A large group of people and institutions were involved in the deliberation of the new curriculum besides the core members. This group included scientists in different fields, sociologists, CPPCC (Chinese People's Political Consultative Conference) members, mass media institutions, social education testing agencies, and national and local Department of Education management personnel. In addition to the Department of Basic Education, which was the leading institution in this curriculum reform, the Department of College Student Affairs, National Educational Examinations Authority, and other departments were all involved in the coordination and formulation of new curriculum standards.

Core members:
curriculum experts,
subject experts,
teaching-research staff,
and teachers.

Supporters: scientists, noted
public figure, mass media,
nationaleducation
examination authorities etc.

Participants of the new curriculum
design
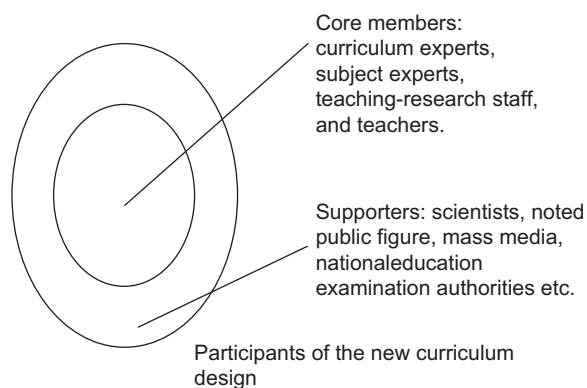
These researchers had different levels of involvement in curriculum design based on their individual knowledge structure and social status, all relevant for a team of curriculum designers. Huang (1991) demonstrated that the core members of curriculum design are curriculum experts, subject experts, and teachers. Other participants, including school administration and educational department staff, mass media experts, students, parents, and related institutions, served as consultants in curriculum design. The structure of the new curriculum design team corresponded to the findings of the two experts. With regard to the combination of experts in different

fields and officials of MEPRC (Ministry of Education of the People's Republic of China), Mr. L remarked:

> We do not guarantee that the quality of the new curriculum would be the best, however, it would not be too bad.

Seeking the Similarities: Negotiation in the Deliberation

The design team comprised different people in various research areas, social status, roles, and regions. The positive side of this team is the combination of various viewpoints; the values and interests that people hold are preconditions for the complementary blending of ideas. Establishing a team with different groups of people and demanding all of them to hold the same values and interests is counterproductive. As a result, quarrels, negotiations, compromise, persistence, and even bargaining occurred throughout the curriculum design process. The production process culture itself formed the unique design culture.

Conflict and Negotiation of Designers

The value of the new curriculum is to "boost the revival of the Chinese nation and each student's development" (Zhong, 2001). A student's innovative spirit, practical ability, and scientific and humanistic quality are supposed to be promoted in the new curriculum. The macro ideal demonstrated each team member's negotiation and argument skills. These skills were influenced by each member's profound and potential understanding of the curriculum, their thinking modes and understanding of certain subjects, their viewpoints in various academic groups, and their personal feelings on certain subjects. The different values and interests of the designers, due to their individual occupations and living places, developed the curriculum in the presence of conflict. The confrontation came from numerous directions: between teaching-research staff and university researchers, amongst subject experts, curriculum experts, and government officials, and between subject experts and curriculum experts. The communication between subject experts and curriculum experts is one example. Both groups are good with theoretical knowledge, are used to instrumental discourse in communication, and are completely confident in terms of professional knowledge. However, the supporting theoretical bases of these groups varied greatly, which resulted in a hard fusion of viewpoints. In the interviews, the groups expressed their opinions concerning the roles of other members in the design of the curriculum. Subject expert Professor Y had this to say:

> I think that some contents of curriculum theories are too idealistic to be implemented in practice. Both ideas from curriculum experts and us are to be considered. It is impractical to accept the curriculum experts' viewpoints without careful thinking because of the distinctive characteristic of each type of subject.

Curriculum expert professor C stated the following:

> I heard that some Chinese subject experts say " If Chinese people could not learn Chinese well, what would they do?" I may question them with the truth that some Chinese farmers live their happy lives although they did not learn how to read. These subject experts' viewpoints are too extreme because they did not put their focus on the curriculum standards of the compulsory educational stage. They did not consider what skills students would need if they are not to work as a Chinese expert. They only put their subject on the first place and ignore other subjects. Obviously, other subject experts are the same. Geography experts said that human beings live on the planet for their whole lives. As a result, geography is the most important subject than others. Foreign language experts said that leaders of our country had already learned the importance of foreign languages and recommended that learning foreign languages start from very young age. I think these foreign language experts' ideas are too extreme because foreign language is not too much important to some people.

The former is a subject expert of the curriculum standard design team. The standpoint of the curriculum experts is too idealistic in his view, because subject experts follow the rules of logic and regulation in addressing the subject itself. On the contrary, curriculum experts think that subject logic makes subject experts address the education of students in a paranoid manner. Therefore, subject experts and curriculum experts hold different standards in the content layout, selection, and representation of the curriculum. The curriculum program proposed by curriculum experts will be ahead of curriculum standards in terms of time and logic. Therefore, subject experts felt restricted in their confrontations with curriculum experts.

The core issue of the debate between subject experts and curriculum experts is the role of curriculum experts in curriculum design. The main causes of the arguments are the different ideals on curriculum design because of diverse theoretical backgrounds. Curriculum experts have been important, especially in the field of progressive educational practices in western countries, since the birth of the curriculum in the 20th century. However, the dominating position of curriculum experts was replaced by subject experts after the 1960s. "A variety of subject experts replaced the traditionalists in curriculum field and became decision makers and reformers. Neither private foundation nor official authority thinks curriculum experts could lead the curriculum reform" (Zhou, 2000). Curriculum study is on the verge of decline. Moreover, American curriculum reform is inadequate. The effort of subject experts in making scientific curriculum content and design processes led to the decline of student academic performance.

The subject expert Schwab recalled his painful experiences in the 1970s. He proposed practical curriculum research paradigms in which the deliberation process was placed on key positions. The importance of curriculum experts in curriculum design was again established. Furthermore, after the 1970s, American curriculum

research was involved in such a new stage that a hundred schools of thought contended the appearance of phenomenology and critical theory (Pinar, 1995). The curriculum system of our country is different from that in the United States. In addition, the development history of curriculum research between our two countries is different.

Officer L of the Ministry of Education proclaimed the following:

"In the curriculum design history of China, it is the first time that large quantities of curriculum experts took part in the work of curriculum design."

In other words, subject experts and curriculum experts cooperated for the first time during deliberation. The superior position of curriculum experts in the design team made subject experts uncomfortable. Furthermore, how do curriculum experts consider their function in the curriculum design process?

Curriculum expert professor C answered the question with the following:

"Experts played two roles in curriculum design. One is the role on conceptional level, the other is the role on technical level. Curriculum experts worried about students themselves, however, subject experts were concerned with their subject. Thus, they have to conduct dialogue and try to see the situation from respective perspectives. When subject experts stressed that certain knowledge point be covered, curriculum experts are supposed to keep clear minds and develop their functions. On the other hand, a series of technical matters such as curriculum development, design and planning could provide support for subject experts. Taking the selection of action verbs used in curriculum standards as an example, we could provide these verbs to subject experts so that they could organize subject content. This is the way that curriculum experts gain foothold in curriculum design."

Professor C divided the role of curriculum experts into conceptual and technical levels, which are also involved in the concept of curriculum design. In his view, curriculum experts develop functions in the whole process of curriculum design and provide frameworks for ideas and thinking. The roles of curriculum experts are super-ordinate in logic and are originally needed in curriculum design. Two kinds of curriculum design standpoints, caused by different professional perspectives, are apparent; these work together in the curriculum design process.

Discipline boundary is distinctively implemented in different schools of thought during this type of communication. The original cognitive structure of each participant determines the information selected and defines the standards and proportions between students and subjects. Hermeneutics states that the human cognitive structure provides a so-called "legal bias" for all designers in understanding and mastering curriculum elements. Understanding is impossible without bias. Thus, bias is the premise of knowing the world. Intellectuals are chosen to create culture because they possess this kind of particular legal bias. The bias should not be an obstacle to the cultivation and development of common culture. Debaters are willing

to listen to others and empathically understand the rationality of other biases when presenting their own biased views. Subject expert professor ZH stated the following:

'At the beginning of the compulsory educational curriculum design, it was a little uncomfortable when I confronted with those who learn education and psychology because I held the opinion that something they suggested was unrealistic. Later, I felt that their suggestions are reasonable and it is helpful to combine different ideas and improve each other. Some of the curriculum experts' ideas, such as three-dimensional educational object, are pretty good. They also put forward something that we had already been aware of and made it systematic. It is indeed a good promotion for curriculum design.'

The attitude of subject experts toward curriculum experts changed from "curriculum experts are realistic" to "curriculum experts are reasonable" and then to "curriculum experts provide good improvements". The cause of the change is that subject experts have begun to understand the ideas that curriculum experts advocate and the roles of curriculum experts in the curriculum design process. Therefore, subject experts begin to accept and even use the thinking that is logically similar to people who learned education or psychology in addressing curriculum problems. As a result, subject experts conclude, "combining different ideas in improving each other is helpful".

Decision-making Generation

A discussion mode ran through the entire process in each curriculum standard design team. How was the decision making step generated after all the conflict in communication? Various answers are provided by different researchers. Professor X, a member of the curriculum standard design team one of the curriculum standard design teams answered with the following:

At the beginning, all team members expressed their opinions actively and energetically, but gradually there would emerge a key person in the end. The reason is that there must be someone to make the final decision and responsible for the whole team. This key person in our team is working in university. For instance, when we are discussing whether the fundamental part should be included in curriculum structure, Professor A was the person insisted in setting up this part most, as it is he and we who have done the pilot studies, and we know well the current status in China. We put forward the compulsory and fundamental part, but this proposal had been rejected and navigated in the first three/four discussion meetings. Afterwards in the following meetings the only statements he had made each time was to declare the reason for it, otherwise, he would just keep silence. In our fourth or fifth team discussion meetings, all the members finally had reached a certain level consensus. All in all, suggestions and proposals of the person who had done researches in the field in depth were most likely to be adopted.

Professor Y, from another curriculum standard design team responded with the following:

> Who is the final decision maker? There is no such a person. The process is all the people discussing and arguing together, and making decisions based on most people's opinion, but not that the person in charge of the team has the final say, and that is a scientific process of decision-making. For example: about one option of one certain content, it is not that just one people can speak for all, but all people argue and demonstrate it together, repeatedly. You raised your opinion, and I put forward mine. Through this whole process of arguing, the major thought were gradually getting clear, and in the end, all the people reached a certain consensus. I think this whole process is rational, that it, one person cannot decide everything in the end, and it is the fact in our team. It is a scientific and democratic decision-making.

An obvious decision-making center is present in the former situation. This center is the authority figure that emerges during the process of discussion. The authority figure, however, is not the convener (administration executive). As the person of authority and final decision-maker, they possess two characteristics:

- Have conducted in-depth pilot research in the field of curriculum design and have put forward rational opinions or proposals.
- Insist in stating reasons with great patience and cultivates perceptions of team members to a certain consistent level.

The objectors might not hesitate to propose their opinions constantly because the person of authority and the convener are different persons. Finally, all different voices reach a consensus.

However, in the latter situation, no obvious decision-making center is present. The interviewees constantly mentioned "all the people" and "consensus". The different suggestions of the people are adopted in different issues. The removal of the administration executive's authority made all participants equal in the discussions and arguments. Therefore, conclusions are generated naturally during this process.

A person in charge from the Ministry of Education once said that they expect to abide by the *principle of evolving democratically and making decisions scientifically*. This was the reason that the convener of the Curriculum Standard Team was not appointed team leader. Group members had the courage to express their opinions, even bigotedly, and seized the principal decision authority in an administrative organization with a relatively free and comfortable atmosphere. As a sociologist once said, "Democracy is a very important characteristic in leadership authority. Only when the one values and has faith in his/her special preference, can he or she create valuable things" (Cooley, 2000). In addition, this kind of confidence and bigotry is not fanatical.

Professor X, from one of the curriculum standard design teams, stated the following:

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Before joining the Curriculum Standard Design team, we have compiled several series of senior high school textbooks, and have done empirical study topics for three years. So we felt we had the say particularly when we were stating our points. We think we have run through the whole process in the past, and we have the empirical research experience and results to based on, in addition to textbook compiling background. I think, subconsciously, all these experiences are useful and valuable for the Curriculum Standard Design.

Professor Z, from one of the curriculum standard design teams, recounted thus:

"A Taiwan professor Ou Yongsheng once asked when he gave an lecture on curriculum design that "Who has the final say in whom the curriculum reform should listen to? The answer is we listen to the person with the loudest voice. " I think this loud voice implicates that one's professional competence has been approved and acknowledged by others in the team or in this academic field. His words make sense actually, because it happened a lot in Curriculum Standard Design team. Many issues cannot be settled by everyone sticking to their own stand, and in this circumstance, the person approved and acknowledged by others were identified as authority and his or her opinions are regard as the dominant ideas."

These two professors have already begun to consider the basis of decision-making because they have experienced the process of curriculum design deliberation. They have both reflected on how to make decisions rationally. Whether based on cumulative academic research experience or based on *excellent professional competence*, their answers are consistent with those of each other.

Therefore, it seems that if we set aside human factors such as interpersonal relationships, one or more informal organized decision-making centers would emerge. This center does not defend the bureaucratically administrative organizational structure, but is generated from their convincing and persuasive point of view.

If all the members in one team reach a consensus at this point, they will determine that stating their opinions is not only their right but also their obligation and responsibility. Likewise, all members in the team need to respect knowledge, science, and reason. In this way, the decision-making center will be regarded as legal and reasonable.

Content Choice of Deliberation

Core value of subject curriculum. In terms of the factors that curriculum designers should consider in setting the standards of the curriculum, Professor H, the convener of the science curriculum group, said thus:

The purpose of science curriculum in elementary school is not to learn systematic knowledge but to inspire students' interests in science. We are

supposed to basically focus on how to carefully protect children's inherent interests in the first place and then to protect their cognitive style. Different subjects, such as philosophy, social studies, history and science vary a lot in nature. In science thinking mode, evidence is placed on the top and supernatural things are ruled out. Whatever a person says, evidence is needed. Therefore, we should make people know what elementary school science is, and then consider some specific contents.

When science curriculum experts select the elementary school science content, they assign high priority to educational significance. They see science education as a significant way of developing student interest and forming in them a scientific way of thinking, which gives precedence to evidence. These ideas will help clarify the nature of elementary school science. The designers do not know what kind of content they will choose until they are totally aware of the meaning of elementary school science. Furthermore, the implementer would understand why a particular content group was included and how to demonstrate this content to students.

The change in study content in basic education is referred to as curriculum revolution, because its guiding ideology, value, and significance are reviewed; it is not conducted simply to change the teaching outline or materials. The rationale is not to explain certain educational phenomena and make up for the deficiency but to determine a particular principle or standard against which to judge, interpret, and evaluate all relevant educational activities of a certain subject.

When Professor Z in the chemistry curriculum group was speaking about grade 7–9 chemistry, he stated thus:

When we talk about something on theory, we can tell a lot about what it is. However, when we confront with certain subject, we are supposed to reflect its core value. The educational idea of chemistry is based- on-experiment and its core concept is material, structure and energy, whose importance is not recognized before.

Professor Z is confident in the achievement of his group because he thought that he had identified the soul of chemistry, or that at least his knowledge on it had improved. A designer from another group is not as satisfied with their product, and mentioned thus:

Ideas should reflect the national overall development target and each subject is at service for the general idea. It would be appropriate and reasonable to combine subject curriculum standards with the educational goals of our country and make them adapt to each other. However, our designers focus too much on how to phrase certain concept…

Regardless of their satisfaction and dissatisfaction, both of these designers hold similar ideas on the current situation; the curriculum standard is supposed to be superior to the subject content and is supposed to reach the ideal level. However, the task is not simply to copy the general rules or to wildly accept curriculum concepts.

"Break" the traditional subject system. Although chemistry experts hold the idea that "based-on-experiment is the educational idea, and that material, construction, and energy are core concepts of the course," many possibilities arise when concepts are converted into the knowledge system.

If the traditional discipline system were more typical and systematic, we would edit the new version by its theme. We are going to break the structure of the discipline system. Differences exist between "break" and "give up," because the logical structure of the discipline will be retained. "Chemical substance living among us" has its own system, and the rigid and traditional discipline logical structure must be broken; this includes the thinking methods that science students follow. Professor Z interpreted an important concept: the meaning of "break" concerning the establishment of the knowledge system of the curriculum. The ideal of establishing a new curriculum cannot be fulfilled if people adhere to the strict knowledge system. However, the goal of "breaking" is not to destroy the logical structure of the knowledge system. The general rule is that human beings recognize the world by experiencing the actual process, such as from simple to complex and from cause to effect. Multiple choices for the style of curriculum development exist, such as straight-line and spiral, traditional system, and core theme mode.

The existence of different knowledge systems in curriculum causes different educational effects. Furthermore, these systems help students form various ways of thinking and intelligence structures. The Chinese hotly debate what knowledge structure should be given to students and what knowledge structure the educational system will change into. Regarding the consideration of different opinions on curriculum design, a professor from the physics curriculum group said thus:

> It is not infeasible to break the traditional curriculum system; however, it is definitely wrong to demand all students in China to follow the same rules. There is some sense to say that Chinese students need not learn too much knowledge about new technology because they could learn that fast in university if they grasp basic knowledge skillfully. Nevertheless, not all Chinese students could follow the mode mentioned above. There would be abundant information in different textbooks of which students could have various choices. Consequently, the general curriculum standards are supposed to be flexible. The standard in compulsory education is more flexible in comparison with the standard in the senior high school. In a word, the curriculum standard is a response to the demand of society. Whatever you choose, the flexible or the fixed curriculum standard, it is not one standard over another but providing a relaxed environment in which students could make choice by themselves and editors could make different styles of teaching materials.

Know the scale on how to select course content well. A possible scale exists between the ideal and the real course content. Different designers hold different opinions on how to achieve balance. Professor D of the information technology group said thus:

Although it is understandable to encourage technology learning in the selective course now, there is a problem about to what extent the technology learning should be. In my words, we take two steps forward for every step back. We need take a big step in theory; however, each plan of course content demands an adaptable stage in practice. We need to know the current situation such as where we are and where we are going. It takes time to know changes of course content and it is not a good time to choose information literacy as target.

Positioning course content is an inevitable puzzle to curriculum designers. One of the goals in making a curriculum standard is to have an agreeable standard for all schools in China. If the demand of the general standard were too high, conducting it in different areas would be too difficult. On the other hand, the standard would only be nominal if too low, which does not help the quality of education in the country. Therefore, "in a centralized education administrative system, a low level of curriculum standard has not appeared yet" (Huang, 1991). The distance between the ideal and the real in curriculum design follows the requirement of the guiding function of national curriculum, but this could not be applied in practice if the gap between the new course content and the old is too great. Compromise between these two types of content is necessary, albeit easier said than done (such as the compromise between different areas). A professor of foreign language described his problems in curriculum design thus:

> As to how to make the lowest content standard, people in our group argued a lot. Because we came from different areas, including Beijing, Dalian, southern cities and rural areas, we focused on the respective situation of our places to consider the standard. For example, when we decided it should be 800 English words that graduates of junior high school is supposed to grasp, teaching-research staff from Dalian thought it would be too easy for their students and experts from Jilin holding the same idea said that 2,500 words are not too much. However, experts from Mongolian area said 800 words are enough for their students. Consequently, it took us lots of time to discuss how to make the standard.

Finally, according to the average level of different areas, a graduate of junior high school is supposed to grasp the meaning and usage of 800 commonly used words in the *Standard of English Course (Experimental Draft)*, which was released in 2001.

Contrary to the capacity problem of the language course, some courses are closely related to the equipment used in class, which may cause dangers in operation. A professor from the information technology senior high school group said thus:

> If this standard is going to be carried out in 2005, what effect should it have? We can make some assumptions based on the current regulations in our country. For example, we are experiencing great risk in our curriculum and some selective courses are unable to apply. It is assumed that all facilities problems in senior high school are going to be solved in five years. The comprehensive ability of teachers in senior high school is superior to elementary school teachers

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and they have the ability to improve by themselves. With the development of teaching material, students begin to change their study style. Our course is particularly special in which teachers show the materials and students tell teachers how to deal with these stuff. Although it is unusual, the problem could be solved based on the abilities of students in the senior high school.

These assumptions reveal the designers' worries due to their considering the best human and financial resources as given. Faced with the differences between cities and rural areas, a national curriculum standard that is either too high or too low could be far from reality in a certain region.

CONCLUSION AND DISCUSSION

Curriculum Design That is Based on Deliberation Actually Meets Ou Pursuit of Practical Rationality

Deliberation is not the settlement of theoretical issues but the consideration of feasibility behavior in practice. Cognitive rationality can seek freedom from contradictions and absolutes in thinking. Therefore, theoretical issues could find a unique, correct solution to the problem. Practical issues are different from theoretical ones. A certain curriculum scheme may be an excellent solution in city schools but not in rural ones. It may be feasible in large-scale schools but not in small-scale ones. It may be the best for gifted children but not for average students. After deliberation, no solution seems correct, but one may be the best method (Schwab, 1969). The scheme draft depends on the current situation, and this kind of judgment and decision is rational intuition that is based on a profound knowledge of practical problems. For this reason, a more specific and authentic current situation results in more rational intuitional judgments that we are inclined to form.

"Fundamental Research" is the Basis of Curriculum Deliberation

During the process of new curriculum design, each team conducted a current situation investigation, comparative study, investigation of social needs, research on subject development, and research on student psychological development. All these investigations and research are the summary and reorganization of existing theoretical research, as well as a comprehensive grasp of the current state of the curriculum.

This step is the foundation of curriculum deliberation, because all this knowledge and information is the basis for judgment and decision-making. The researchers in deliberation require this kind of basic consensus platform.

Deliberation Process is Decentering; it Repels Authority But also Relies on It

Deliberation makes sense and develops only when it relies on each member's initiative and various interpretations. However, the deliberation process always

involves many different voices persistently adhering to their own stand, as the scheme has not yet been tested in practice, and the theory alone cannot judge and estimate the validity and rationality of the scheme. Therefore, suggestions from the "acknowledged" and "approved" person with high-level theoretical attainment and comprehensive knowledge of current curriculum practice will influence others.

Fusion of Horizons is A Difficult Course, Requiring Tolerance, Patience, and Even A Bargaining Strategy

All kinds of viewpoints during deliberation are not fused and integrated easily. Curriculum standard designers have different experiential backgrounds, ways of thinking, and decision-making principles, which are covered by seemingly the same curriculum value. Only by the exploring, judging, and decision-making of a specific issue can these differences be revealed. The success of deliberation requires that all participants engage in certain principles or expectations. These principles and expectations include listening attentively to others' opinions and the discussion; accepting or objecting cautiously to different points of view, instead of saying yes or no without thinking or hesitation; compromising in the process of "negativizing" part of oneself and approving the value in another's point of view; and accepting the final curriculum standards after deliberation. Dogmatic and non-cooperative people cannot achieve these practices (Short, 2000).

The Generation of Decision-making in Deliberation is not a Unidirectional Linear Mode but a Bidirectional Multi-interactive Way

No one can be capable of or has the authority to pre-assume a fixed result. The nature and significance of deliberation is to be balanced with multiple feasible optional schemes and to create new ideas.

> *The Conflict of Content Choice in Course Deliberations (such as logical sequence and psychological order, policy making and practical implementation, the consistency of curriculum standard and the unbalanced development of different areas) Must be Confronted.*

Course design should find a proper place between the ideal and reality, which are not two separate polar points but a continuous belt. Each designer has to make a choice on a certain point of the belt. No rules are required; mere ranking values are needed for a particular problem.

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PART III

CURRICULUM DEVELOPMENT AND INNOVATIONS
IN SCHOOLS

LV SHIHU, YE BEIBEI & CAO CHUNYAN

7. IMPLEMENTATION OF THE NEW MATHEMATICS CURRICULUM FOR COMPULSORY EDUCATION IN MAINLAND CHINA

INTRODUCTION

In 1997, the Ministry of Education of the People's Republic of China evaluated the implementation of its compulsory education curriculum. A report on the nine-year implementation status of the compulsory education curriculum project (1997 Report) was submitted, which eventually became an important reference for developing the new compulsory education curriculum. This new mathematics curriculum has been in place for the past ten years. When *The Full-time Obligatory Education Mathematics Curriculum Standards (Experimental Version)* (also referred to as simply *The Standards*) were promulgated in 2001, mathematics education researchers in mainland China began a longitudinal study on the implementation of the new mathematics curriculum. These researchers initially focused on the interpretation of *The Standards* (Liu Jian & Sun Xiao-tian, 2002), the role of teachers (Liu Qian-fang, 2004), the existing problems in the teaching practice (Sun Xiao-tian, 2003; Dai Li-jun, Lv, & Ting-ting, 2003), and the implementation of exploratory teaching (Xu Yan-hui, 2002). As the new curriculum developed, researchers began to investigate and analyze key factors of *The Standards* (Yi Hong-ju & Li Zi-jian, 2004; Jing Min & Xie Hui, 2005) that could possibly affect its implementation. They studied the adaptation of teachers to the new mathematics curriculum in the teaching and learning aspects (Gong Zi-kun & Li Zhong-ru, 2005; Li Fu-jin, 2005), the challenges facing mathematics teachers (Chang, Guo-liang, 2005), and the changes that students had undergone in learning (Sun Mingfu & Wen Jianhong, 2004), among others.

Mainland China's mathematics curriculum reform began to draw international attention in 2005, when more studies were conducted by researchers from China and other countries. These researchers were interested in the development of, and changes in, student scores (Wang & Lin, 2009; Liu, Zhang, & Luo, 2010; Ni, Qiong, Li, & Zhang, 2011), as well as in the interactions and changes in teachers' teaching and students' learning (Li, 2007; Correa, Perry, Sims, Miller, & Fang, 2008; Cai, & Ni, 2011). In-depth studies of the changes brought about by the new mathematics curriculum were conducted using questionnaires, literature reviews, and other methods (Ma, Lam, & Wong, 2006; Zhou & Bao, 2009; Li, Zhang & Ma, 2009; Xu, 2010; Cai & Ni, 2011; Cai, Ni, Frank, 2011).

After 2008, researchers expressed concern over the status, effects, problems, and implementation strategies of the new curriculum. Investigations and reviews were

made from different angles (Lv & Guo, 2008; Gong, 2008; Yang & Yu, 2008; Huang & Long, 2008; Luo, Chang & Fan, 2008; Zhang, 2008; Xu, 2010).

Analysis of the new mathematics curriculum of compulsory education includes many perspectives that enable better understanding of the new mathematics curriculum. The current paper investigates the implementation of the new mathematics in mainland China.

In 2007, the current research team conducted a survey in Gansu province on the implementation of the new mathematics curriculum in Grades 7 to 9. This survey gauged the status implementation of the new mathematics curriculum based on the following criteria: (1) opinions of teachers regarding the new mathematics textbooks and curriculum, (2) teaching concepts and methods, (3) learning methods, (4) evaluation system, and (5) disadvantages of the new curriculum, among others. As of writing, three years have since passed since this survey.

What has changed in teaching and learning in the ten years that the new mathematics curriculum has been implemented? The author of the current study conducted a new survey to address this question. This survey involved 300 mathematics teachers and 1,360 students of compulsory education in Gansu province, and its findings were compared with those of the 1997 report and the 2007 survey reported in Lv & Guo, 2008. The author intends to collect (1) the opinions of teachers and students regarding the new mathematics curriculum, (2) their conceptions of mathematics teaching and learning, and (3) their opinions on the evaluation of the mathematics curriculum, so as to reflect the implementation of the new mathematics curriculum in mainland China.

RESEARCH PROCEDURES

The questionnaires used in this study were based on those of several previous studies. Only primary and middle schools in county towns in Gansu province, mainland China were investigated. Both teachers and students were surveyed via questionnaires and interviews. After the questionnaires were administered, teachers and students were interviewed individually to further discover their opinions.

Participants

The participants were randomly selected from county primary and middle schools. Researchers randomly selected the schools, picked a number of classes, and included all of the mathematics teachers in the selected schools. The participants in this survey are as follows:

- Mathematics teachers teaching Grades One to Nine in Gansu province (160 from primary schools and 140 from middle schools).
- A sample of 1,360 students from 20 secondary schools in Gansu province. All students were in Grades Seven to Nine.

Survey Tools and Methods

Survey tools This study used a self-made teacher questionnaire on the implementation of the new mathematics curriculum for compulsory education in Gansu province. This questionnaire adopted most of the questions in the 1997 report and 2007 survey to maintain consistency; a number of new questions were added. The questionnaire focused on the opinions of teachers regarding the mathematics curriculum, its current evaluation system, teachers' teaching behavior, students' learning styles, and so on. The questionnaire included 27 questions consisting of 16 single choice, 8 multiple choice, and 3 open questions. The survey tools referred to those that were used in the 2007 survey (Lv & Guo, 2008)**.**

A self-made student questionnaire and interview guideline were used to survey the implementation of the new mathematics curriculum in middle schools. This questionnaire covered the same topics as the first questionnaire, except for the part concerning teachers' understanding and application of *The Standards*. The questions concerned the students' perspective, including such topics as their emotions and attitudes toward mathematics and mathematics learning, their learning styles and study burdens, and their opinions and expectations regarding mathematics teaching. The questionnaire contained a total of 41 questions, consisting of 35 single choice questions, 5 multiple choice questions, and 1 open question.

After being administered to 30 teachers, 60 primary school students, and 60 secondary school students, the questionnaires were improved using feedback from the testers. The questionnaires were finalized after tests analysis and consultation with mathematics curriculum experts. The author and the consulted experts were satisfied with the credibility and effectiveness of the final questionnaires.

Methods

Questionnaires and interviews were both used in this survey. Three hundred questionnaires for teachers were sent out, and 287 valid ones were retrieved, which translates to an effective rate of 95.7%. One thousand three hundred sixty questionnaires for students were sent out, and 1,302 valid ones were retrieved, which translates to an effective rate of 95.7%. Forty-three students were selected for interview based on their answers to the questionnaires.

RESULTS AND ANALYSIS

Views of Teachers on the New Mathematics Curriculum

Understanding and application of The Standards by teachers. The survey results show that 74.2% of the teachers have been using the new mathematics curriculum for more than three years. By contrast, 6.6% of the teachers have never read *The Standards*, an improvement over the 43% recorded during the 2007 survey. The teachers' understanding and utilization of *The Standards* are shown in Table 1.

Table 1. Understanding and utilization of The Standards by teachers (%)

Understanding of The Standards	Completely understand	Understand	Barely understand	Do not understand
Percentage	8.6%	69.6%	19.5%	2.3%
Utilization of *The Standards*	Often	Sometimes	Occasionally	Never
Percentage	20.3%	60.2%	17.5%	2.0%

Among the teachers surveyed, 78.2% replied that they either "understood" or "completely understood" *The Standards*. Furthermore, 80.5% claimed to utilize *The Standards* "often" or "sometimes." These statistics have changed greatly since the 2007 survey**.** In the 2007 survey**,** the responses "completely understand," "understand," "barely understand," and "do not understand" garnered 2.5%, 57.3%, 33%, and 7.2%, respectively, and the replies "often," "sometimes," "occasionally," and "never" garnered 11.9%, 46.2%, 33%, and 89%, respectively. Comparing these numbers with those from the 2007 survey shows that utilization of *The Standard*s is increasing. Most of today's teachers understand *The Standard*s better and use it as a teaching guideline. Despite this, however, teachers that "completely understood" (8.6%) and "often" (20.3%) utilized *The Standards* were few, as shown in Table 1. Thus, the understanding and utilization of *The Standards* by teachers are fundamental and require focused guidance.

Teachers Approve of the Ideas of the New Mathematics Curriculum

As shown in Table 2, 99.6% of the teachers chose "full support" or "support," whereas only 0.4% of the teachers did not identify toward the conception of the new mathematics curriculum. In contrast, the 2007 survey showed that 23% of the teachers did not identify toward the conception of the new mathematics curriculum. Thus, more teachers have agreed with the new curriculum conception.

As to the question of whether the ideas and targets of the new curriculum can be realized, 7.8% of the teachers replied with "fully realized," 51.8% replied with "conditionally realized," and 38.5% replied with "partially realized." However, 1.9% of the teachers considered the new curriculum too idealistic to be realized. These numbers are similar to those obtained in the 2007 survey, whose corresponding percentages were 2.9%, 42.1%, 50.3%, and 4.7%. Thus, teachers generally supported the new curriculum's ideas but were not optimistic toward the full realization of its targets.

Emotional experiences of students of the new mathematics curriculum. Students' emotional experiences under the new mathematics curriculum can be shown by their feelings towards learning mathematics. How students felt about mathematics after experiencing the new mathematics curriculum is shown in Table 3.

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Table 2. Teachers approve of the ideas of the new mathematics curriculum (%)

Item	Full Support	Support	No Support
Percentage	22.2%	77.4%	0.4%

Table 3. Experience of students learning mathematics (multiple choice) (%)

Experience	Easy	Hard	Very interesting	Uninteresting
Percentage	32.0%	44.0%	66.5%	13.5%

Table 4. Attitude of students toward mathematics (%)

Attitude	Favorite	Like	Dislike	Hate
Percentage	45.8%	45.2%	7.9%	1.1%

Table 3 shows that 32.0% of the students think mathematics is "easy" to learn, 44% consider it "hard," 66.5% think it is "very interesting," and 13.5% think it is "uninteresting."

Students' attitudes toward mathematics can also be shown by how much they like it.

As seen in Table 4, most students liked mathematics (91%), whereas 9% of the students disliked or hated it.

Regarding the students' confidence in learning mathematics well, 73.6% of them believed that they could get good marks if they exerted effort, 7.9% were confident in learning mathematics and believed that they could get good marks without difficulty, 13% believed that they could achieve only mediocre performance despite great effort, and 5.5% did not think would do well at all no matter how hard they tried.

The above findings indicate that most students experiencing the new mathematics curriculum like mathematics, find it interesting, and are confident in learning it. However, 44% of the students still consider mathematics "hard" to learn, and 13.5% find it "uninteresting." The goal of the new mathematics curriculum, "Everyone finds the value of mathematics, everyone finds mathematics necessary, and different people have different development in mathematics," is far from being fully realized.

Views of Teachers and Students Regarding Teaching Activities Used in the New Mathematics Curriculum

Teaching-related topics that teachers often discuss with colleagues. According to the data in Table 5, the topics that teachers discussed most often were "problem-solving skills" (83.3%) and "knowledge and skills" (65.4%). Other topics included "intellectual development" (47.9%), "creativity" (36.2%), "personality development" (32.7%), and "emotional attitude" (27.6%). In the 2007 survey, the percentages of these six topics were 70.1%, 67.3%, 41.8%, 34.7%, 27.4%, and 30.2%, respectively.

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Table 5. Teaching-related topics that teachers often discuss with colleagues (%)

Topics	Knowledge and skills	Problem-solving skills	Intelligence development	Creativity	Emotion and attitude	Personality development
Percentage	65.4%	83.3%	47.9%	36.2%	27.6%	32.7%

Apparently, teaching-related topics often discussed among teachers have changed since the 2007 survey. The popularity of discussing "knowledge and skills" decreased to 4.7%, whereas that of discussing "problem-solving skills" increased to 16%, a much higher number than in the 1997 report. The most often-discussed topic changed from "knowledge and skills" to "problem-solving skills," which indicates that teachers care about examination marks most of all. Hardly any changes were observed in the popularity of "creativity," "emotion and attitude," and "personality development" compared with the 2007 survey. However, the percentages of the six topics in the 1997 report were 60% (knowledge and skills),50%(problem-solving skills), 33% (intelligencedevelopment), 22%(creativity), 15% (emotion and attitude), and 13%(personality development), which indicate that teachers are increasingly concerned with regard to emotion and attitude, creativity, and personality development.

Workload of Teachers

In answer to the question, "How have teachers' workloads changed after the new curriculum was implemented?" 77.5% of the teachers thought that their workloads "increased" or "increased substantially," 19.8% of teachers noted "no changes," and 2.7% thought that the workload was "reduced." Compared with the 2007 survey, those who replied with "increased" and" "increased substantially" decreased by 9.3%, while those who replied with "no changes" increased by 7.5%.

The data show that teachers need to spend time studying the new curriculum and creating teaching methods and classes accordingly. However, given increasing adaptation to the new curriculum, teachers may find their workload declining. Regarding the question, "What did you learn from the new curriculum," most teachers admitted that they had become learners and researchers of the new curriculum.

Teaching Methods and Student Participation in the Classroom

The teaching methods and student participation in the classroom are important indexes that reflect the classroom teaching activities. The survey of teaching methods is shown in Table 6 below.

Table 6 shows that 81.9% and 38.5% of teachers adopted "teacher-student Interaction" and "group cooperative learning" methods, respectively, 46.9% of students noted the use of the "lecture method," and 7.8% replied that teachers

Table 6. Classroom teaching methods pointed out by students (Multiple choice) (%)

Teaching methods	Lecture method	Teacher-Student interaction	Group cooperative learning	Student self-study
Percentage	46.9%	81.9%	38.5%	7.8%

adopted "student self-study." Those that replied with "group cooperative learning" increased by 12.7% compared with the 2007 survey, and no significant changes were noted regarding all other teaching methods.

In answer to the question, "Do you think students' active exploration and cooperation that are advocated by the new curriculum will be carried out in actual teaching?" 5.5% of the teachers answered "completely," and 70.6% agreed with "generally," while teachers who replied "not for now" and "never" made up 22.7% and 1.2%, respectively. Some changes can be found when the current findings are compared with those of the 2007 survey, which reported percentages of 2.2%, 57.5%, 37.1%, and 3.2%, respectively. The proportion of "completely" and "generally" increased by 16.4%, whereas those of "not for now" and "never" dropped by 16.4%. These changes show that teaching methods have changed toward the new curriculum and students have experienced these changes.

Student participation in the classroom can be reflected in three aspects: (1) whether students experience the learning activity of finding information and collective discussion, (2) whether the students have the opportunity to express their ideas, and (3) students' answers to teachers' questions.

The first question was, "Whether the students have experienced the learning activities of finding information and collective discussion," to which 77.2% of the students replied with "never" or "rarely," and 22.8% of the students replied with "often." Students who chose "often" increased by 12.8% compared with the 1997 survey (the percentages of "never," "seldom," and "often" were 56%, 34%, and 10%, respectively).

The second question was, "Whether students have the opportunity to bring out different ideas than teachers." Students who answered "rarely" and "no" constituted 54.5% and 22.3% respectively, while 23.2% of the students replied with "often." The percentage of "often" dropped by 19.8% compared with the 1997 report (the percentages of "no," "rarely," and "often" were 9%, 48%, and 43%, respectively).

The third question was, "What will you do when you are not sure to have correct answers to the teacher's questions?" 56.9% of the students chose "want to answer, but worry about mistakes," and 6.4% chose "never want to answer," while the responses "answer sometimes" and "answer all the time" garnered 28.1% and 8.6%, respectively. Compared with the 1997 report (wherein the percentages of "want to answer, but worry about mistakes" and "never want to answer" were 54% and 15%, respectively), those who replied with, "never want to answer" decreased by 8.6%.

Table 7. Teaching support in the new curriculum practice (%)

Support and Assistance	Training in new curriculum text book	Training in "curriculum standard"	Teaching and researching activities	Expert guidance
Percentage	68.5%	38.5%	77.4%	25.7%

The above numbers indicate that teaching methods have been changing from traditional "teaching only" to multiple methods like group cooperative study and exploration between teachers and students, among others. Teachers themselves have also been transforming from lecturers to motivators and guides to the students, and the change is taking place in daily teaching. However, no significant changes were observed in students' initiative and in the democratic atmosphere in the classroom. Students, despite being the most important component of the classroom, have not actively participated in class.

Support and Assistance to Teaching According to the New Curriculum Practice

Table 7 shows that the most teacher support and assistance is given through "teaching and researching activities," followed by "training in new curriculum text book." Teachers who chose "training in 'curriculum standard'" and "expert guidance" made up 38.5% and 25.7%, respectively. Remarkable changes are observed when compared with the 2007 survey, wherein "training in new curriculum text book," "training in 'curriculum standard'," "teaching and research activities," and "expert guidance" garnered 64.5%, 61.3%, 56.9%, and 16.0%, respectively. The percentage of "training in 'curriculum standard'" decreased dramatically, whereas that of "teaching and researching activities" increased significantly. The findings show that teachers initially relied heavily on training of curriculum standards. As the new curriculum was increasingly implemented, the training in curriculum standards gradually decreased, and teaching and research activities increased. Teachers then felt that the assistance they received regarding the two activities also changed. In the latest survey's open question item, most teachers expressed that they scarcely had any opportunities to meet with experts. They also expressed the hope that more experts will visit middle schools and offer guidance to rural schools on how to increase the interaction between teachers and experts. The findings show that teachers expect more support and assistance from professional experts.

Expectations of Students Regarding Teaching

The expectations of students regarding teaching can reflect their expectations regarding the teaching of the new mathematics curriculum. For the open question, "What would you like your teacher to do in mathematics class," 55.9% of the students wanted "more questions, less speaking and more practice so as to leave time for independent learning." 50.5% of the students expected the adoption of group

cooperative learning to increase communication between students and teachers. Furthermore, 28.3% of the students expected "teachers to motivate students' initiative and act as guides to help students express their own ideas before explanation," 23.1% expected teachers "to be sparkling in discourse, amiable, humorous, and smiling, and not to be irascible or to practice the physical punishment of students." The students also expected "the class to be pleasant, interesting and lively, and teachers to pique students' interest with stories, games and jokes" (17.7%), "teachers to treat every student equally, including problem students" (9.6%), and "to find more application of mathematics in real life" (8%).

These findings show that students expect teachers to act as organizers and guides in class, and that most students have adapted to independent learning and cooperative learning. However, students do not have much expectation regarding exploratory learning because they lack the relevant experience.

Views of Teachers and Students on Learning Activities
in the New Mathematics Curriculum

Students' learning methods   The learning methods of students are important bases for implementing the new mathematics curriculum. The learning methods espoused by the new curriculum are independent learning, cooperative learning, and explorative learning. Do students accept these learning methods? How well do students participate? The following are the findings gathered from both teachers and students.

Mathematics teachers rank students' learning methods as such: acceptance learning, followed by cooperative and exploratory learning, and lastly, mechanical learning. This order is similar to the one reported in the 2007 survey (the percentages of acceptance learning, cooperative and explorative learning, and mechanical learning were 69.5%, 24.5%, and 6.0%, respectively). However, teachers' identification of cooperative and exploratory learning in the latest survey was twice that of the 2007 survey.

Regarding student participation in class, 5.1% of teachers answered "very good," 90.2% chose "good" or "general," whereas 4.3% and 0.4% of teachers chose "bad" and "very bad," respectively. These findings are similar to those of the 2007 survey, wherein the percentages were 4.4%, 87.5%, 7.5%, and 0.6%, respectively.

The above numbers show that teachers think that cooperative and exploratory learning have been gradually accepted by students, and students participate more actively compared with three years ago. However, teachers still consider acceptance learning the students' main learning method. Moreover, teachers think that students could be better at exploratory and cooperative learning and need to engage in more interaction with teachers.

Overall, more than 75% of the students chose "listening carefully in class, making notes and doing exercises," "preparing before class and reviewing after class," and "discussing with classmates or asking teachers when having problems." Approximately 40% of the students chose "thinking independently when encountering

Table 8. Mathematical learning methods of students (Multiple choice) (%)

Learning methods	Listening carefully in class, making notes and doing exercises	Preparing before class and reviewing after class	Discussing with classmates or asking teachers when having problems	Thinking independently when having problems
Percentage	75.0%	78.9%	75.1%	42.6%

problems" as their learning method. Regarding preparation and review time, 87.6% of the students claimed to need half an hour to two hours, while 29.1% required less than half an hour, and 3.3% required more than two hours.

The above numbers show that students are becoming more adept at exploratory and cooperative learning. They are not restricted to traditional methods such as listening in class, making notes, and doing exercises, but have also adapted to preparing before class, reviewing after class, and independent thinking, which are the skills that the new mathematics curriculum intended to impart from the beginning (see table 8).

The students improved significantly in initiative learning, cooperative learning, and exploratory learning after implementation of the new curriculum, and teachers recognize this improvement. At the same time, teachers and students are positive toward acceptance learning. Mathematics teachers also think that the changing learning methods need to improve the students' ability to learn instead of merely following a certain structure.

Study Burdens of Students

When asked. "How do you feel about the burden in learning mathematics,?" 9.7% of the students replied with, "very heavy," 47.7% answered "heavy," 34.1% answered "OK," and 8.5% chose "easy." These findings show that more than half of the students consider mathematics is a heavy burden.

The survey uncovered a number of problems. Mathematics teachers often gave additional classes and exceeded the regular class schedule, with 45% of the students indicating that teachers continued teaching after class time was over or added an additional class if they did not finish the lesson in time. Students took a long time to finish mathematics homework, with 56.2% taking half an hour to one hour to finish homework and 9.9% taking more than one hour to do so. The weekly hours of mathematics classes are too many, with eight to nine or even more mathematics classes scheduled in a single week. Schools hold additional classes in the evening and on Saturday mornings. Grade 9 students sometimes had classes on Sundays.

These findings indicate that students think that mathematics schoolwork is very heavy, and that too much time is spent in mathematics class and on homework. Therefore, class schedule and time spent being taught in school are the main reasons that students consider mathematics a heavy burden.

Table 9. The types of mathematics homework teachers often assign (Multiple choice) (%)

Homework	Written exercises	Reading the textbook	Hands-on activities	Reading extracurricular books	Social practice
Percentage	95.7%	38.5%	62.6%	25.7%	22.2%

Views of Teachers and Students on Mathematics Homework

The types of mathematics homework that teachers often assign to students is illustrated in Table 9. "written exercises" is the first choice of teachers (95.7%), followed by "hands-on activities" (62.6%), "reading the textbook" (38.5%), "reading extracurricular books" (25.7%), and "social practice" (22.2%). Some changes were observed compared with the 2007 survey findings, wherein the percentages of "written exercises," "reading the textbook," "hands-on activities," "reading extracurricular books," and "social practice" were 92.1%, 43.7%, 36.0%, 24.2%, and 7.5%, respectively. "Written exercises" increased slightly, "reading the textbook" decreased slightly, "hands-on activities" increased 26.6%, and "social practice" increased 14.7%.

The survey given to students about the types of homework assigned by teachers show that 93.5% of the students selected "written exercises." The percentages for "reading the textbook," both "hands-on activities" and "social practice" are 27.7% and 39.9%, respectively. Compared with the findings of the 1997 report (wherein the percentages of "written exercises," "reading the textbook," both "hands-on activities" and " social practice" were 56%, 67%, and 18%, respectively), "written exercise" increased by 37.5%, both "hands-on activities" and "social practice" increased by 21.9%, and "reading the textbook" decreased by 39.3%.

The above numbers indicate that teachers have realized the importance of hands-on activities to students, and that social practice has also become widely acknowledged. However, teachers' preference for written exercises has increased significantly compared with the 1997 report (56%). This finding shows that the teachers' main concern remains students' ability to solve problems and tackle exams, which is consistent with earlier findings.

Views of Teachers and Students on Curriculum Evaluation

The basis for teaching evaluation   When asked about "The primary criterion for schools to evaluate teachers' teaching," 96.1% of the teachers answered "students' exam marks" as the primary criterion, followed by "daily performance" (55.3%), "leader's assessment" (46.3%), "students' assessment" (28.8%), "parents' assessment" (18.3%), and "colleagues' assessment" (17.1%). In the 2007 survey, 66.8% of the teachers chose "students' exam marks" as the primary criterion. Thus, preference for "students' exam marks" as the main evaluation criterion increased by 30% from 2007.

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Table 10. Student expectations of teachers' mathematics learning evaluation criteria (Multiple choice) (%)

Basis	Exam marks	Learning enthusiasm and initiative	Diligence in study	Questions and thinking	Homework
Percentage	54.9%	78.6%	52.7%	20.2%	41.2%

When asked about "the primary criterion for teachers to evaluate students," 89.1% of the teachers choose "exam marks," followed by "learning enthusiasm and initiative" (71.2%), "homework" (66.9%), "questions and thinking" (45.9%), and "diligence in study" (38.5%). In the 2007 survey, 43.2% of the teachers chose "exam marks" as the primary criterion. Therefore, the said finding increased by 45.9% from 2007.

The criteria by which students expected to be evaluated by teachers is shown in Table 10.

As seen above, 78.6% of the students expected teachers to evaluate their mathematics learning based on the former's "enthusiasm and initiative," followed by "exam marks," "diligence in study," "homework," and "questions and thinking."

In response to the question, "Whether teachers evaluate students' learning via practices such as observation, manufacturing, experiments, consulting data and social surveys," 75.6% of the students replied with "no," or "only one or two times."

The above findings show that the students' expectations of evaluation are very different from those of the teachers. Teachers are most concerned with exam marks, which relate closely to the basis of teachers' evaluations, and which explains why teachers pay so much attention to students' problem-solving abilities.

The Effects of the Existing Evaluation System on Teaching

When asked "Whether the conception of the new curriculum was reflected in the exams," 10.9% of the teachers chose "reflected," 68.0% chose "partially reflected," and 21.1% chose "does not reflect."

When asked "Whether the current county-, district-, and school-level evaluation systems for teachers and students are helpful to the implementation of the new mathematics curriculum," 15.2% of the teachers chose "helpful," 63.7% chose "not helpful," and 21.1% chose "not sure." These findings are similar to those of the 2007 survey, wherein the three percentages were 9.1%, 68.3%, and 22.6%, respectively. The current findings show that teachers do not agree with the current evaluation system.

When asked whether "High exam marks represent successful teaching," 2.4% of the teachers replied, "totally agree," 39.6% replied, "agree," and 58% replied with "disagree." In the 2007 survey, only 16.7% of the teachers replied with "agree." These findings once again indicate that more teachers tend to place great significance on exam marks.

When asked "Whether the multiple evaluation system of the new mathematics curriculum can be realized," only 3.9% of the teachers chose "totally realize," whereas 76.9% chose "partially realize," and 19.2% chose "too ideal to realize." These findings are similar to those of the 2007 survey, wherein the percentages were 3.4%, 75.5%, and 21.2%, respectively). The current findings show that most mathematics teachers are not optimistic of the multiple evaluation system.

In summary, teachers have realized that evaluating students' mathematics learning based on exam marks only is incorrect. They also clearly understand the malpractice of evaluating teachers' teaching and students' learning using only exam marks. Mathematics teachers think that no significant changes occurred in the evaluation system after the new mathematics curriculum was implemented, and that this non-progress has become a great obstacle to the realization of the multiple evaluation system proposed by the new mathematics curriculum.

Utilization of Evaluation by Teachers and Feelings of Students

This survey shows that 45% of the students claimed that "teachers often or always announce exam marks in class," and that 47.5% of the students believe that "teachers often or always rank students in order of exam marks." These numbers decreased slightly compared with the 1997 report (wherein these two percentages were 60% and over 50%, respectively). The current findings show that teachers have made changes in terms of announcing exam marks in class and ranking students in order of exam marks since the new mathematics curriculum was implemented. However, nearly 50% of the teachers did not change at all. This result may be related to the fact that teachers prefer exam marks as basis on which to evaluate students.

In addition, the current survey shows that 88.3% of the students were nervous about, afraid of, or hate teachers announcing exam marks in class and ranking them by exam marks; only 11.7% of the students agreed with the practice. Compared with the 1997 report (wherein 70% of the students felt nervous about, afraid of, or hated exam marks being announced in public, and only a few students liked it), the percentage of "nervous, afraid or hate" increased. This finding indicates that the negative influence on students exerted by announcing exam marks in public and ranking by exam marks has increased.

The above findings show that mathematics teachers have certain motives regarding evaluation, because their teaching is mostly evaluated based on their students' exam marks. A number of mathematics teachers often announce the exam marks of students in class and rank students based on these marks. This practice has created more negative effects on students than ever. Fortunately, given the implementation of the new mathematics curriculum, mathematics teachers have accepted the conception of multiple evaluation, and the practice of announcing students' exam marks in class and ranking students by exam marks decreased by 10% to 20%, respectively.

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CONCLUSIONS AND SUGGESTIONS

After comparing the 1997 report and the 2007 survey, the following conclusions were reached.

There is an increase in teachers using *The Standards* as a guide to daily teaching. They generally adopt the concepts of the new curriculum. However, some teachers have not completely understood *The Standards* and require in-depth training. Most students with experience in the new curriculum show their interest and confidence in mathematics, although some still consider mathematics boring and difficult to learn. Therefore, teachers and students in general have a positive attitude towards the new mathematics curriculum. With the implementation of the new curriculum, teachers have begun to initiate changes in teaching concepts and activities. However, the experiences of teachers and students regarding the new curriculum show that there is still a long way to go before the goals of the new curriculum are realized.

The new curriculum created positive changes in teaching activities. Teachers have gradually adapted to the new curriculum. Teaching focuses on the capability of knowledge and on solving problems. Different teaching methods, particularly cooperative learning, exploratory learning, and independent learning, are being used by teachers and acknowledged by students. Students participate more actively in the class, consult data, study with cooperation and communication, and start discussions with teachers. Students expect the teaching and learning to be more independent and cooperative. Teachers receive the most support and assistance from new curriculum training and from teaching and researching activities. Teachers expect more professional guidance from experts. Teachers also hope to improve students' capabilities in independent and cooperative learning, and to eventually improve their learning methods.

Positive changes have taken place in learning activities based on the new curriculum. Both teachers and students agree with independent learning and cooperative learning. However, acceptance learning still plays a dominant role in teaching practice. Students can actively participate in classroom activities, but are also under heavy learning burdens due to long hours of mathematics classes and homework. Teachers believe students are capable of more independent exploration and cooperative communication. Teachers pay more attention to the hands-on capacity of students, which was the second choice of teachers when assigning homework, next to written exercises.

Students' marks remain the primary tool for teachers to evaluate students and for schools to evaluate teachers. Teachers' evaluation of students is not only based on their practice, but students expect teachers to also evaluate them based on other factors such as enthusiasm, initiative, diligence, homework, and thinking. More teachers agreed with the idea that high marks represent successful teaching. Teachers utilize the evaluation by announcing exam marks in class and ranking students based on those marks, a practice that students mostly fear, hate, or are nervous about. Because of the influence of exam marks, teachers are not optimistic about the effects of the multiple evaluating systems implemented by the new curriculum. Teachers

have recognized errors in the current evaluation system, which have had negative effects on students. However, both teachers and students are willing to continue using exam marks for evaluation. The evaluation system of the new curriculum has not been widely implemented.

Based on the above, the researchers have found that the teachers' professionalism improve as they use multiple teaching methods and pay attention to the individual differences and concerns of students in order to cultivate their confidence, indicating initiative in teacher professional development. Simultaneously, students have positive mathematic learning attitude and high learning interest; they accept independent and cooperative learning. Hence, they have become sure in their individuality and their creativity has begun to flourish. However, there is a lack of guidance for professional teacher development, the means of evaluation remains single and not multiple, students lack exploratory experiences, and there remains heavy learning pressure on students. These problems need to be addressed in the future.

First, the new curriculum should offer more training classes for teachers, and teaching can be improved through school-based teaching and research with professional guidance. Studies have shown that training classes in the new curriculum and school-based teaching and research can provide important support and assistance in teaching the new curriculum. A number of teachers lack in-depth understanding of the new curriculum. Thus, the author suggests increasing the number of training classes for the new curriculum so that teachers would have opportunity to be trained. Teaching and research activities with the guidance of experts are also necessary. Mathematics education experts need to carry out targeted training in daily teaching and research. Proper training would help teachers understand and use *The Standards* and the new curriculum, correctly comprehend their conception, increase their confidence in implementing them, and generally improve teaching practice.

Second, teachers should utilize different teaching methods to pique students' interest in actively participating in mathematics learning. This survey discovered that although teaching methods such as cooperation, communication, independence, and exploration are being used in teaching, teachers still believe that acceptance learning plays the dominant role in practice. Most of the students rarely or never had the opportunity to express personal opinions that differed from those of the teacher. Therefore, the author believes teaching in most mainland China mathematics classes is still done through lectures. Students are not considered the subjects in the class. There are too many students per class and they rarely have the opportunity to express their different ideas and communicate with teachers. It is necessary for teachers to allow students to express their understanding of mathematics and communicate with teachers by using multiple teaching methods such as lectures, discussions, dialogues, and group work. At the same time, it is also necessary for teachers to help students with different individualities experience a great number of mathematical activities through multiple teaching methods.

Third, a multi-resource curriculum platform should be built for students to facilitate cooperative communication, mathematics exploration, and individual development. The survey showed that students could be better at independent learning, cooperative communication, and exploratory learning, especially students that lack exploratory experiences. It is therefore necessary for schools to establish multi-resource curriculum platforms for students, particularly those involving communication of learning experience and informational resources.

The platform for communication of learning experience aims to improve students' capabilities for independent learning, cooperation, and communication, and to develop their individualities to learn mathematics. Opportunities need to be created for students to cooperate and communicate with each other during teaching or extracurricular activities. For example, group study should be encouraged to make independent learning, cooperation, and communication possible. In addition, different channels are needed to foster communication among students as well as between students and teachers. These channels can be established through free internet platforms such as email, QQ groups, and BLOGs, or via class and study group websites. Mathematics communication between schools would also help students communicate with peers in different schools in the community, city, and country, and help them to exchange and share experiences in learning mathematics.

The platform of informational resources aims to create opportunities for students to learn mathematics and develop individuality in learning mathematics. In mainland China, the limited application of information technology, as well as poor informational curriculum resources, have restricted most teachers to using multimedia devices to display only mathematics graphs and formulas. The exploratory and individual learning functions in mathematics for various informational devices and mathematics software such as Geometric Drawing Board and MATHEMATICS have yet to be developed. The development of this software would be of great help to the exploratory and individual experiences of students in learning mathematics, and needs to be considered as a very important factor in establishing platforms of informational resources.

Finally, it is necessary to develop a practical multiple evaluation system. The survey showed that students' exam marks are the schools' primary basis for evaluating teachers' teaching and teachers' primary basis for evaluating students' learning. The multiple evaluation system endorsed by the new curriculum has not been implemented. Teachers often announce exam marks in class, making students nervous, afraid, or even sick**.** There has yet been no decision on how to conduct multiple evaluations, such as oral tests, activity reports, and portfolios. *The Standards* for evaluation have not been prepared, causing difficulties for schools and teachers during its application. It has to be noted that evaluation by exam marks continues to grow and poses challenges to the new evaluation system. Therefore, education authorities in mainland China should develop a feasible multiple evaluation program for the new curriculum in order to assist its implementation.

In general, 10 years after the implementation of the new mathematics curriculum, mathematics teachers have become more professional, teaching methods have

become diversified, student individuality continues to grow, teachers continue to work toward building students' confidence in learning mathematics, and teachers have become more professional in their initiatives. For their part, students have become more active and more interested in mathematics. They are also gradually adapting to exploratory learning and cooperative learning. Students are considered the subjects in class and their creativity is encouraged. However, a number of problems have to be corrected. For instance, there is insufficient professional guidance regarding the professionalization of teachers. Evaluation methods for teaching and learning are too simple. Students lack experience in exploratory learning, and suffer heavy study burdens. Therefore, the authors propose that additional guidance from professional experts is needed to improve the professionalization of teachers. In teaching the new curriculum, closure problems need to be reduced and open problems need to be increased in order to transform learning and teaching methods into independent, cooperative, and exploratory methods, and also to make multiple evaluation possible.

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8. ARTS CURRICULUM REFORM AND RESEARCH IN TAIWAN

INTRODUCTION

Art curriculum reform in Taiwan[1] often progresses along with research in the same field. In most cases, changes in curriculum policies are followed by related reforms. This paper examines the history of art curriculum reform in Taiwan and investigates art curriculum research by discussing its characteristics and problems in order to propose suggestions for future study.

HISTORY OF ART CURRICULUM REFORM IN TAIWAN

This paper examines the important changes in art curriculum after the nine-year compulsory education program was implemented in 1968. That year marked a major change in compulsory education from six to nine years. Three periods are delineated to investigate the characteristics of art curriculum reform in each period of time: 1968 to 1986, 1987 to 1997, and 1998 to present.

Characteristics of Art Curriculum Reform: 1968 to 1986

The nine-year compulsory education program was implemented in 1968, with the aim of promoting nationwide level of knowledge and quality of human resources to establish the foundation for national, social, and economic progress and for national independence. The program includes six years of elementary school education and three years of junior-high school education, with an integrated nine-year curriculum design characterized by its consistency (Department of Elementary Education, Ministry of Education, 1968). The Ministry of Education (hereafter referred to as the MOE) subsequently promulgated "Curriculum Standards for Junior-High School" and "Curriculum Standards for Elementary School" in 1971 and 1975, respectively.

Under the 1968 provisional curriculum standards for elementary schools, "art" and "handicraft" courses were designed for students enrolled in the third to sixth grades, and "craft" courses were for the first and second graders. These separate courses were integrated into "art and handicraft" in 1975 under a "children-centered" guideline. The aim was to encourage students to participate in "art" and "handicraft" activities that cultivate creativity and promote dexterity and balanced mental development (Department of Elementary Education, Ministry of Education, 1975). Thus, "art and handicraft" was the result of the integration of arts, crafts, and household chores, and

served as the bases for courses taught in junior high school (Chen & Hwang, 2002). Music courses were mandatory in both elementary and junior high schools. Music courses for first and second graders were combined with physical education under the "music and games" course. The two courses were taught separately in higher grades. In 1975, revisions were made in the music curriculum standards. The advent of local music movements required the new curriculum to include a minimum of 50% folk music in the curriculum of fifth and sixth grade music courses (Department of Elementary Education, Ministry of Education, 1975). In addition, more emphasis was placed on Western music history instruction and on promoting familiarization with different schools and styles in Western music (Xu, 2008). In drama education, the "Provisional Curriculum Standards for Elementary School" implemented in 1968 designated group-entertainment activities into the category of group activity course, which were to be guided by the teacher in groups. Following the 1976 release of "Directions for Children's Drama Exhibition in Elementary School and Junior-High School" by the MOE, 11 consecutive children's theater competitions were held between 1976 and 1987, representing a major achievement in the history of art curriculum (Chang, 2009).

One of the significant events in the history of education during this period was the "Compulsory Education Act" promulgated in 1979. The first article states: "Under Article 158 of the R.O.C. Constitution, elementary education is implemented with the aim of cultivating in the citizens five key aspects of education, namely, morality, knowledge, physique, cooperation, and aesthetics." This officially gave art education a legal basis. In 1980, the MOE promulgated "Directions for Enhancing Aesthetic Instruction in Elementary School and Junior-High School" in accompaniment of the "Compulsory Education Act," which accentuated the function of art education, that is, to promote balanced development in the aspects of morality, knowledge, physique, and cooperation as well as to elevate and enrich students.

Characteristics of Art Curriculum Reform: 1987 to 1997

The lifting of Martial Law and the restrictions placed on party political activities and newspaper articles in 1987 paved the way for a democratic society characterized by party politics and freedom of speech. Rapid economic growth further accelerated the changes in social structures, gradually resulting in the following social features: 1) lower population growth rate and an older population structure, 2) decreased number of family members and increased divorce rate, 3) the awakening of feminine consciousness and the tendency towards gender equality, 4) replacement of old social values and traditions by new ones, 5) frequent international communications and the formation of the global village, and 6) rapid technological advances and the prevalence of computer and telecommunication technologies (Hwang, You & Chang, 1993). Transformation of the political system, changes in social structure, and the awakening of campus democracy all contributed to changes in education. Among the positive changes are: 1) education is now informed by democratic tendency, openness, and

diversity; 2) revisions in laws and regulations that reflect the social needs of the time; 3) more attention given to socially-disadvantaged groups; 4) emphasis on indigenous education; 5) the increasing influence of teachers and parents on school administrative affairs; 6) decreased number of students in elementary and junior high schools; and 7) more consideration given to the basic needs of students (Wu, 1998: 271–273). Among these changes, the awakening of indigenous consciousness has been reflected in art education policies. In 1991, the MOE promulgated "Directions for Promoting Traditional Arts Education in Elementary School and Junior-High School" in an effort to encourage folk arts education, which covered traditional theater, traditional music and story-telling, traditional dancing, traditional crafts, traditional acrobatics, and children's folk games. Since then, both the 7th National Education Conference in 1994 and subsequent curriculum revisions had included folk arts and activities.

With respect to the curriculum standards in elementary education, the MOE promulgated new curriculum standards for elementary and junior-high schools between 1993 and 1995 in order to meet the challenges posed by the new century and the changes in Taiwan's democratic society. The general principles of the 1993 Curriculum Standards for Elementary School stated: "Elementary education is to be based on life education and moral education, oriented towards cultivating energetic children and healthy citizens who have balanced developments in morality, knowledge, physique, cooperation, and aesthetics" (Ministry of Education, 1993). As evidenced in the general principles, educational concern at this time shifted from national and ethnic concerns to a student-based emphasis on life and morality education guided by democracy, relevancy, consistency, integration, and flexibility (Wu & Lin, 1995). Revisions in "Arts Curriculum Standards for Elementary School" made in 1993, which were categorized as "art and handicraft" courses under the broader area of "visual arts," indicated that "art and handicraft" were no longer confined to the acquisition of skills, but were rather positioned in fostering aesthetics and artistic conceptions, with art and handicraft being the bases of visual arts. The general goals were categorized into expressive, appreciative and realization, which differed from the 1975 version wherein the revision put more emphasis on sensitivity and appreciation of art (Ministry of Education, 1993; Chen & Hwang, 2002).

In addition, "folk art activities" was added to elementary education (1993) and junior high school education (1994). The objective was to foster a better and more systematic understanding of Taiwan's folk music and arts as well as to promote interest and ability in appreciating art, so students can, apart from learning about Chinese and international music and arts, develop and sustain love and concern for their native land. In elementary education, "folk art activities" included painting, calligraphy, seal cutting, handicraft, architecture, and indigenous music. More categories were included in junior high school education, such as folk holidays, folk customs, indigenous rituals and ceremonies, graphic art, three-dimensional art, indigenous art, local folk songs, story-telling with music, folk instruments, folk theater and drama, traditional dances, and indigenous performing arts. As evidenced by the contents, "performing arts" was added to the curriculum, in addition to "art" and "music."

The major educational trend of this period can be traced back to the 1980s when Professor Wang Hsiu-Hsiung taught works by E. W. Eisner at the National Taiwan Normal University, and F. R. Liu completed his master's thesis entitled "A Study of Eisner's Art Education Theory." Subsequently, scholars in art education who studied in the United States, such as C. S. Kuo, R. L. Hwang and Ju-I Yuan, eventually returned to Taiwan and promoted "discipline-based art education" (hereafter referred to as DBAE), which became a major trend in Taiwan. Although no revisions were made in art education curriculum standards, revision drafts of curriculum standards began in 1991, which was promulgated in 1993 and enacted in 1996. In the revised Curriculum Standards for Elementary School of 1993, art and handicraft courses were designed on the basis of DBAE (Hwang, Chang & Shi, 2002).

In music education, the revised music curriculum standards for elementary school in 1993 were characterized by an inclusion of both local and world traditional music. This feature is evident in its second and fifth general objectives: "teaching the children to learn about, appreciate, and study traditional music" and "cultivating in the children abilities in cooperation, ardor in doing services for the society, and love for their home, land, nation, and the world," respectively (Lai, 2011). In terms of course subject, the 1993 Curriculum Standards for Elementary School separated "music and games" into "music" and "physical education" for first and second graders. This resulted in a more consistent music education curriculum from first to sixth grade, while terminating the existence of "music and games" courses. In addition, this was the first time that the music curriculum's objectives were established to "cultivate intuitive aesthetic experience" ("Music Curriculum Standards for Junior-High School," Goal 5, Ministry of Education, 1994) and "enlighten children's mind and foster the ability to appreciate art" ("Music Curriculum Standards for elementary School," Goal 3, Lai, 2011). Worthy of mention here is the fact that the Kodály Method can best realize folk music goals and was, therefore, most frequently adopted in authorized textbooks (Xu, 2008; Ministry of Education, 1993; Cheng, 2003).

Drama education in the 1990s relatively lacked drama exhibitions. However, Taiwanese scholars gradually introduced related teaching methods and workshops, thus familiarizing junior high and elementary school teachers with general drama teaching methods and their application. This contributed to the development of drama education theory and practice in Taiwan (Chang, 2009).

In terms of policies, the MOE devised the "Five-Year Plan of Developing and Improving Arts Education" in 1993, which focused on the following seven objectives: 1) establish the Department of Art Education, which would be responsible for the design of the art education system; 2) improve the channels for art students to pursue higher education; 3) strengthen the training of art education teachers; 4) devise art education curriculum and teaching materials; 5) fund teaching equipment in school for art subjects; 6) promote public art education; and 7) promote research and academic exchange in art education. This plan was to become a crucial guideline for subsequent art education developments (Hwang, 2002).

The "Art Education Act" of 1997 was directly related to Taiwan's art education reform. The Act was promulgated on March 12, 1997 and designated the MOE as the educational administration authority for art education. The Act classified art education into three categories: 1) professional art education and 2) general art education at school and 3) public art education. Implementing general art education at school aimed to cultivate the artistic knowledge and ability of students, promote appreciative capability, incite joy in life, and inspire artistic potential. This category made artistic appreciation courses mandatory for students in senior high schools, thus giving legal basis for the "arts and humanities" learning area in the Grades 1 to 9 Curriculum Guidelines. In addition, the same Act integrated performing arts into art education[2] and set a milestone for art education in elementary education. This further anticipated the inclusion of "visual arts," "music," and "performing arts" in "arts and humanities" learning area in the 1998 "General Guidelines of Grades 1 to 9 Curriculum for Elementary and Junior-High School Education" (Chang, 2009).

Characteristic of Arts Curriculum Reform: 1998 to Present

In response to the challenges posed by the end-of-century condition and anticipations for new-century educational visions, the MOE promulgated "Provisional General Guidelines of Grades 1 to 9 Curriculum for Elementary and Junior-High School Education" in 1998 in an effort to reflect global trends and social changes (Ministry of Education, 1998). This reform was characterized by its views against centralization, subject-and-knowledge-based learning, and elitism. This feature was manifested in such changes as replacing curriculum standards with curriculum guidelines, proposing a school-based curriculum and a focus on daily life, emphasizing development appropriateness, and paying attention to every student (Chang, 2001). This reform also saw the integration of visual arts, music, and performing arts into the "arts and humanities" learning area, thereby including performing arts in the official curriculum of Taiwan's junior high and elementary schools for the first time. This educational reform was the first instance in Asia, following the practice in the United Kingdom and the United States (Chang, 2009).

In terms of visual arts, multicultural-, community-, and global-based art curriculum designs received respectable attention due to the trends in postmodernist art education (Lee, 2002). Multicultural-based art education is based on the ideology of social reconstruction; it aims to acquaint students with the functions of visual arts in culture and to contemplate differences in democracy. This approach seeks to overturn the inequality inherent in the center-periphery dichotomy and then reconstruct new cultural democracy myths. Two main issues are involved in this approach: 1) the peripheral culture neglected in the curriculum in order to meet the needs of students who come from minority cultures and 2) the cultivation of a tolerant and appreciative attitude towards the "differences" among students, especially those from the main culture. Under such designation, issues related to religion, ethnicity, socioeconomic status, gender, age, and students' mental and physical conditions can

all be included in the curriculum (Davenport, 2000; McFee, 1995; Stuhr, 1995). Next, community-based art education traces its origin in multicultural education and emphasizes respect for the individual backgrounds and abilities of students. This became the foundation for art curriculum development. Based on this concept, the school utilizes and incorporates community resources to promote and implement multicultural and community-culture art education. In seeking diverse viewpoints in culture and art and in establishing mutual understanding and respect, a better understanding can be achieved from the relationship between regional art/culture and daily life (Kuo, 2001; Liu, 2001; Davenport, 2000; McFee, 1995; Neperud, 1995). Finally, global-based art education is implemented by examining the politics, economics, technology, and ecology in the global system through investigation of issues in the areas of human rights, peace, and the environment. It also aims to gain an understanding of the complexities involved in the international network and their influences and impacts on their own communities. This concept encourages the possibility of reconstructive acts through empathy and appreciation of the differences and diversity in this world.

Four major trends can be discerned in global music education towards the 21st century (Xu, 2008), 1) emphasis on lifelong music education, 2) proposal of diversified music education, 3) heterogeneity in the nature of music education, and 4) multi-dimensional learning environments. Diversified methods in teaching are employed at the same time, and a higher proportion of popular music and lowered proportion of classical works was introduced (Lai, 2011). Performing arts mainly include dance and drama education.

In terms of policies, the MOE published the "White Paper of Art Education Policy" (Ministry of Education, 2003), which proposed a blueprint for art education development spanning four years (2006 to 2009). The White Paper was stimulated by changes in global art education trends, developments in art education in other countries, and art education developments in Taiwan. Likewise, it also represented efforts to cultivate professionals with aesthetic competence and competitiveness as well as foster a sense of aesthetics and broadened vision. Such efforts were meant to enhance the interactive applications between art and other disciplines, promote distinct features of Taiwanese art, and facilitate further cooperation among the industry, government, academia, museums, and schools. The White Paper benefits drama education in terms of providing solid resources, including teacher training, teaching materials, learning hours, funding, facilities, and other resources. Drama teaching has also become an important index in general school education evaluation and accreditation (Chang, 2011).

TRENDS IN ART CURRICULUM REFORM IN RECENT YEARS

The most expansive reform on the national scale, since the implementation of the nine-year compulsory education program in Taiwan, came courtesy of the "General Guidelines of Grades 1 to 9 Curriculum for Elementary and Junior-High School

Education." This reform was stimulated by calls for education reform from various sectors of society after Martial Law was lifted, suggestions from the Education Reform Committee (1996), counsel from education profession organizations, and requests from textbook publishers. Consensus was reached in such context, and can be divided into the following seven aspects: 1) conduct research into curriculum consistency and integration from kindergarten through elementary school, junior high school, to senior high school; 2) replace traditional subject-divisions with broader learning areas; 3) appropriately reduce the number of required subjects in junior high and elementary schools and increase that of optional courses; 4) establish "Basic Academic Attainment Indicators" in each educational phase as the basis for setting curriculum standards, designing teaching materials, and evaluating education performance; 5) establish a system of examination, selection, and evaluation of textbooks; 6) establish a National Academy for Educational Research, which would be in charge of curriculum research, development, evaluation, and counseling services; and 7) improve the system for senior high school and college entrance examinations and establish multiple channels for higher education (Chang, 2001). In this reform, visual arts, music, and performing arts were integrated into the learning area of "arts and humanities." For the first time as well, performing arts was included in the official curriculum of Taiwan's junior-high and elementary schools (Chang, 2009).

The background for revisions to the "General Guidelines of Grades 1 to 9 Curriculum for Elementary and Junior High School Education" was the encroachment of the 21st century and education reform in other countries. This approach was also carried out to meet the needs of national development and respond to social anticipation for school education reform. The Elementary and Junior High School Curriculum Development Project Team was established in April 1997. September 1998 marked the release of the general guidelines, which confirmed the establishment of the curriculum system that connects junior high and elementary school education. These guidelines were officially enacted in 2004. Subsequently, standing committees were established on two administrative levels, namely, the "junior-high and elementary school curriculum guideline examination committee" and the "junior-high and elementary school curriculum guideline research and development committee." An incremental development methodology in curriculum revision was also adopted to conduct timely evaluations, research, or adjustments in response to any possible problem (Ministry of Education, 2003).

The Guidelines for the general curriculum for Grades 1 to 9 went through several revisions. The learning area of "arts and humanities" was promulgated in 2008 after the latest adjustment and was enacted in 2011. The learning area of "arts and humanities" in the general Grades 1 to 9 curriculum refers to "artistic learning and humanistic cultivation; specifically, it refers to the artistic learning courses that cultivate humanistic consciousness through the appreciation of art." The objectives of the curriculum include three aspects: exploration and expression, appreciation and understanding, and practice and application.

The curriculum plan and implementation guidelines in the learning area of "arts and humanities" specified principles on curriculum design, teaching material selection, instruction design, instruction method, and instruction evaluation. It must be noted that, here, the espoused principles of "school-based curriculum" and "integrated curriculum" both depart from the previous curriculum design. The term "school-based curriculum" already appeared in the General Guidelines for the Grades 1 to 9 curriculum, which states: "[the] curriculum development committee of the school should take the condition of the school, community characteristics, parental expectations, students' needs, and other related aspects into full consideration, integrating the faculty and community resources in order to develop 'school-based curriculum,' and carefully design curriculum plan for the school." Such spirit, when realized in the learning area of "arts and humanities," states that the school should establish a "curriculum research team in the learning area of arts and humanities." It is responsible for the yearly curriculum plan based on the curriculum objectives of this learning area, sectioned competency indicators, mindful of the condition of the school, community characteristics, parental expectations, student needs, and so on.

"Integrated curriculum" represents another characteristic of curriculum design. Over the years, subject-division used to be the common and the only system in school education, which is knowledge-based and characterized by too much emphasis on the priority and coverage of knowledge. This resulted in the existence of multiple subject divisions and fragmented learning experiences. There is already a substantial amount of research done and proposed viewpoints concerning integrated curriculum (Hwang, 2001; Chen, 2001; Ou, 2000; Fang, 2000; Beane, 1997; Jacobs, 1989; Ulbricht, 1998). Generally, the curriculum covers the integration of disciplinary knowledge, experience, social values, resources, people, and curriculum design. The present study pays special attention to three aspects of integrated curriculum in the learning area of "arts and humanities." First, courses can either be designed based on the respective characteristics of visual arts, music and performing arts, or on the integrated learning of these three categories. The principle of integration can be applied through identical aesthetic concepts, shared subject matter, identical process, shared objectives, complimentary relation, and phase developments in the process. These can then be connected and integrated into structured study units with aesthetic educational meanings. In addition, the incorporation of "exploration and expression, appreciation and understanding, and practice and application" into the curriculum also relies on the principle of integration. Second, curriculum integration can be realized in broad unit instruction design, project instruction design, theme-based instruction design, action-research instruction design, independent research instruction design, etc.(Ministry of Education, 2003). Art curriculum and its instruction should accordingly incorporate ocean education, indigenous education, life education, and environmental and aesthetic education; furthermore, art curriculum should encourage information technology that employs media instruction. In other words, analysis shows three functions of integrated art curriculum: 1) the application of integrated art curriculum for teachers enables them to fully demonstrate their

professional knowledge and ability, allowing them to establish an atmosphere informed by cooperation; 2) the application of art curriculum integration for students positively influences their learning attitude, cultivating in them an integrated sense of knowledge and thinking (critical thinking, creativity); and 3) as art functions to create meanings and understand the world, the curriculum itself becomes one of the most suitable resources for curriculum integration. Indeed, integrated curriculum itself is advantageous for the introduction of major issues (Lee, 2002).

EMPIRICAL RESEARCH IN ART CURRICULUM IN TAIWAN

This study employs content analysis. The sample range was restricted to doctoral and master dissertations as well as academic journal articles published between the promulgation of the "Provisional General Guidelines of Grades 1 to 9 Curriculum for Elementary and Junior-High School Education" and the present time (i.e., from 1998 to 2011). Keywords used include, "arts and humanities," "visual arts education," "visual arts," "art education," "music," "music education," "music teaching," "music appreciation," "performing arts," "dance education," "drama education," and "aesthetic education." Repetitions and concepts not related to elementary education were excluded.

The analytical categories used in this study were based on the results from the literature review, including the following: subject-related research in art curriculum (Chen, 2006; Chen & Chiu, 2011; Lai, 2011; Chang, 2011), analysis of Taiwan's art education reform (Lin, 2000; Hwang ed., 2002), observations of general curriculum reforms (Chang, 2001; Ou, 2000; Hwang, 1999), research in general curriculum (Gao & Hsiu, 2005; Hwang & Chang, 2004), and so on. The analytical structure consists of two levels. The first level uses "contents of the learning area" as analytical category, including "visual arts," "music," "performing arts," "arts and humanities" (which contain "visual arts," "music," and "performing arts," or at least two of these areas), and "aesthetic education." Based on the five structures in the first level, the second level analyzes the "levels of curriculum decision making" (central government, local government, schools) and "research topic" (art education theory, history of art education, practice of art education).

An Overview of Research in Art Education

This study examines academic journal articles as well as doctoral and master dissertations on art education on a yearly basis. An almost continuous growth in the number of research (i.e., academic journal articles and doctoral and master dissertations) has occurred on the subject of art education (Table 1). The numbers peaked at 2005 and 2006. A look at the yearly figure also reveals that both categories (journal and dissertation) experienced considerable growth during 2002 and 2003. This may be attributed to the enactment of the Grades 1 to 9 Curriculum Guideline in 2001 and the subsequent research in art curriculum reform that have been initiated.

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Table 1. Proportion of journal articles and dissertations on art education (by year)

Year	Journal		Dissertation	
	Frequency	Percent	Frequency	Percent
1998	2	1.47	1	0.22
1999	2	1.47	1	0.22
2000	3	2.21	1	0.22
2001	6	4.41	6	1.35
2002	9	6.62	16	3.60
2003	18	13.24	33	7.42
2004	15	11.03	41	9.21
2005	22	16.18	56	12.58
2006	10	7.35	58	13.03
2007	6	4.41	62	13.93
2008	8	5.88	38	8.54
2009	11	8.09	43	9.66
2010	12	8.82	48	10.79
2011	12	8.82	40	8.99
2012	0	0	1	0
Total	136	100	445	100

"Contents of learning area" analysis in art curriculum is shown in Table 2. The largest category in journal articles is "arts and humanities" (30.88%), followed by "visual arts" (27.21%), "music" (25%), "performing arts" (13.24%), and "aesthetic education" (3.68%). The largest category in doctoral and master dissertations is "visual arts" (41.35%), followed by "music" (21.35%), "arts and humanities" (21.12%), "performing arts" (12.36%), and "aesthetic education" (3.82%).

Table 3 shows the "levels of curriculum decision making" analysis in each learning area. The result demonstrates that research interest in both journal articles and dissertations tends to concentrate on "schools," whereas "local government" commands the smallest proportion. This reveals that less attention has been paid to the task of the local government in promoting art education (such as the promotion of art curriculum evaluation), the learning area in "arts and humanities," and the assistance provided by visiting compulsory education advisory groups on campus.

Table 4 shows the "research topic" analysis in each learning area. The result demonstrates that art education research in Taiwan in recent years has focused on the "practice of art education," with approximately 70% of journal articles and dissertations concentrated on this aspect. This result is similar to those of previous studies conducted by Gao and Hsiu, 2005. Moreover, only less than 2% of the

*Table 2. Proportion of journal articles and dissertations on art education
(by contents of learning area)*

Contents of learning area	Journal		Dissertation	
	Frequency	Percent	Frequency	Percent
Visual arts	37	27.21	184	41.35
Music	34	25.00	95	21.35
Performing arts	18	13.24	55	12.36
Arts and humanities	42	30.88	94	21.12
Aesthetic education	5	3.68	17	3.82
Total	136	100	445	100

*Table 3. Proportion of journal articles and dissertations on art education (by levels of
curriculum decision making in the contents of learning area)*

Contents/Levels	Journal		Dissertation	
	Frequency	Percent	Frequency	Percent
Visual arts				
Central government	8	21.62	8	4.35
Local government	0	0	0	0
Schools	29	78.38	176	95.65
Music				
Central government	1	2.94	19	20.00
Local government	0	0	1	1.05
Schools	33	97.06	75	78.95
Performing arts				
Central government	3	16.67	2	3.64
Local government	0	0	0	0
Schools	15	83.33	53	96.36
Arts and humanities				
Central government	5	11.90	8	8.51
Local government	0	0	2	2.13
Schools	37	88.10	84	89.36
Aesthetic education				
Central government	0	0	0	0
Local government	0	0	0	0
Schools	5	100	17	100

Table 4. Proportion of journal articles and dissertations on art education (by research topic in the contents of learning area)

Contents/Research topic	Journal		Dissertation	
	Frequency	*Percent*	*Frequency*	*Percent*
Visual arts				
Arts education theory	6	16.22	1	0.54
History of arts education	5	13.51	1	0.54
Practice of arts education				
Major issues infused	6	16.22	42	22.83
School-based curriculum	1	2.70	0	0
Textbook	1	2.70	5	2.72
Teaching methods/ Practices	14	37.84	112	60.87
Teaching evaluation/ Testing	3	10.81	9	4.89
Teacher professional development	1	2.70	14	7.61
Music				
Arts education theory	4	11.76	0	0
History of arts education	1	2.94	1	1.05
Practice of arts education				
Major issues infused	3	8.82	6	6.32
School-based curriculum	1	2.94	2	2.11
Textbook	0	0	15	15.79
Teaching methods/ Practices	13	38.24	44	46.32
Teaching evaluation/ Testing	8	23.53	17	17.89
Teacher professional development	4	11.76	10	10.53
Performing arts				
Arts education theory	3	16.67	0	0
History of arts education	2	11.11	0	0
Practice of arts education				
Major issues infused	2	11.11	3	5.45
School-based curriculum	0	0	2	3.64
Textbook	0	0	3	5.45
Teaching methods/ Practices	7	38.89	38	69.09
Teaching evaluation/ Testing	3	16.67	4	7.27
Teacher professional development	1	5.56	5	9.09

(*Continued*)

Table 4. Proportion of journal articles and dissertations on art education (by research topic in the contents of learning area) (continued)

Contents/Research topic	Journal		Dissertation	
	Frequency	*Percent*	*Frequency*	*Percent*
Arts and humanities				
Arts education theory	13	30.95	0	0
History of arts education	0	0	0	0
Practice of arts education				
Major issues infused	7	16.67	17	18.09
School-based curriculum	3	7.14	3	3.19
Textbook	0	0	7	7.45
Teaching methods/ Practices	12	28.57	60	63.83
Teaching evaluation/ Testing	3	7.14	1	1.06
Teacher professional development	4	9.52	6	6.38
Aesthetic education				
Arts education theory	1	20.00	0	0
History of arts education	0	0	0	0
Practice of arts education				
Major issues infused	0	0	3	17.65
School-based curriculum	0	0	0	0
Textbook	0	0	0	0
Teaching methods/ Practices	4	80.00	8	47.06
Teaching evaluation/ Testing	0	0	3	17.65
Teacher professional development	0	0	3	17.65

dissertations focused on "art education theory" and "history of art education." For a better understanding of the research distribution in the "practice of art education," six sub-categories were devised. "Teaching methods and practices" comprised the largest group among these sub-categories, while other aspects such as "school-based curriculum," "textbook," "teaching evaluation and testing," and "teacher professional development" received comparatively little research interest.

In terms of incorporating major issues into art education under the category of "practice of art education" (as shown in Tables 5 and 6), "information technology education" comprised the largest part, followed by "environmental education," "gender education," and "ocean education." On one hand, no entry can be found on "home economics education," "human rights education," and "career development education." On the other hand, one entry can be found on "life education," but this topic has been excluded from the major issues classified in the Grades 1 to 9 Curriculum Guidelines.

Table 5. Proportion of journal articles and dissertations on arts education (by major issues infused into each learning area content)

Contents/Major issues infused	Journal		Dissertation	
	Frequency	*Percent*	*Frequency*	*Percent*
Visual arts				
Information technology education	5	83.33	29	69.05
Gender education	1	16.67	3	7.14
Environmental education	0	0	8	19.05
Ocean education	0	0	2	4.76
home economics education	0	0	0	0
human rights education	0	0	0	0
career development education	0	0	0	0
Music				
Information technology education	3	100	6	100
Gender education	0	0	0	0
Environmental education	0	0	0	0
Ocean education	0	0	0	0
home economics education	0	0	0	0
human rights education	0	0	0	0
career development education	0	0	0	0
Performing arts				
Information technology education	2	100	1	33.33
Gender education	0	0	2	66.67
Environmental education	0	0	0	0
Ocean education	0	0	0	0
home economics education	0	0	0	0
human rights education	0	0	0	0
career development education	0	0	0	0
Arts and humanities				
Information technology education	6	100	12	70.59
Gender education	0	0	1	5.88
Environmental education	0	0	4	23.53
Ocean education	0	0	0	0
home economics education	0	0	0	0
human rights education	0	0	0	0
career development education	0	0	0	0
Aesthetic education				
Information technology education	0	0	1	33.33
Gender education	0	0	0	0
Environmental education	0	0	2	66.67
Ocean education	0	0	0	0
home economics education	0	0	0	0
human rights education	0	0	0	0
career development education	0	0	0	0

Table 6. Proportion of journal and dissertation in arts education (by major issues infused into the learning area content)

Major issues	Journal		Dissertation	
	Frequency	*Percent*	*Frequency*	*Percent*
Information technology education	16	94.00	49	69.01
Gender education	1	6.00	6	8.45
Environmental education	0	0	14	19.72
Ocean education	0	0	2	2.82
home economics education	0	0	0	0
human rights education	0	0	0	0
career development education	0	0	0	0

DISCUSSION

Art curriculum reforms in Taiwan were instigated by prevailing sociopolitical atmosphere and conditions as well as the emerging popularity of Western notions of art education. These reforms also sprang from internal disciplinary crises, such as the large-scale reform in Grades 1 to 9 Curriculum Guidelines, which was partly a result of the demands of various interest groups and the influence of international education trends. In recent years, educational curricula have become reflective of social changes, and reforms in art curriculum also influenced the trend in academic art research. The promulgation of the Grades 1 to 9 Curriculum Guidelines represents one of the major reforms in art curriculum in recent years, which brought about changes in curriculum structure. Among these changes are the replacement of single subjects such as "art and handicraft" and "music" with the principle of integration manifested in the new learning area of "arts and humanities." The Guideline also included "performing arts" into the realm of official curriculum. These reforms have increased the number of studies on integration research, such as "art and humanities" category and performing arts. Academic research represents the cultivation of human resource research or the improvement in teacher quality; such research also guides research interest in curriculum-related topics.

"Central government" research in the "levels of curriculum decision making" in each art course is comparatively few when considered alongside with "school" research, while there is scarcely any research conducted by "local governments." This could imply that local governments may have overlooked their roles and functions in promoting a better art curriculum.

In terms of "research topic" in each art course, more studies on "practice of art education" than "art education theory" and "history of art education" have been conducted. Reforms in art curriculum have also contributed to increased research interest in "practice of art education," especially those on "teaching methods and

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practices," while numbers in the other categories are lower. Reforms in art curriculum also require corresponding policies. However, in existing dissertations and journal articles, such research topics remain unexplored. For instance, "teacher professional development," "teaching evaluation and testing," and performing arts are all newly emerging courses included in the official curriculum design, but research on these topics remains few, thereby indicating the inadequate efforts to study these areas. In other words, it is necessary to reconsider the following questions when promoting art curriculum reform. First, how well do the students perform in terms of basic knowledge and ability after they have finished the art curriculum as designed in the nine-year elementary education program? More studies on this subject are needed in order to answer this question. This entails another related question: Does the curriculum reform exist for the curriculum itself or for the students? Second, the teachers who are in direct contact with the students are the key factors determining the success of curriculum reforms. However, insufficient research attention seemed to have been directed towards profession-cultivation and development of art teachers.

An artistic trend popular at a particular period of time has often dominated Taiwan's art curriculum reforms, which more often than not, has became the only option. For instance, the idea of "integration" was once a popular new concept in the Grades 1 to 9 Curriculum Guidelines, as evidenced by the statistical number presented in Table 2 (i.e., it is the largest category in journal article in the "contents of learning area" in each art course, and the second-largest in dissertations, only exceeded by "visual arts"). This could lead to the possible marginalization of other principles. Moreover, while a large proportion of studies are centered on this concept, difficulties still exist in actual practice, which is partly the reason why subject division remains the main trend in practice.

CONCLUSIONS

This study draws the conclusions below regarding art curriculum policy, research in art education, and art curriculum practice.

1. Taiwan is highly responsive to international trends in art curriculum reform and is quick to learn from others' experience in hopes of implementing the ideas locally. Thus, the Taiwan experience can contribute to the international community.
2. Taiwan has successfully included art curriculum into official curriculum design; while art curriculum is not granted many hours, the contents gradually encompass broader issues and dimensions. For instance, art curriculum has changed from skill-oriented teaching to a new focus on developing appreciative abilities and enforcing daily application; the previous emphasis on international trend has shifted more toward local considerations, including instruction and research. The shift is also represented by curriculum reform and research informed by subject division to inter-disciplinary exploration (e.g., the incorporation of major social issues into art curriculum, such as "international technology education"). If every

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school implements the policy and guidelines thoroughly, every student in Taiwan shall certainly benefit from it and gain better opportunities for artistic cultivation.

3. More research efforts have been made possible by the prevalence of graduate school education. It is also common for elementary and junior-high school teachers to pursue master or doctoral degrees. This phenomenon results in the increase in research ability, thus broadening the foundation for the research and reform in levels of curriculum decision making in "schools" or "teaching methods and practices.

Based on These Conclusions, This Study Proposes the Suggestions Below

1. The areas that require future research are: 1) localized research in art curriculum, including "art education theory," "history of art education," or "practice of art education;" 2) normalization of art curriculum against the pressure of entrance examinations; and 3) art instruction with emphasis on artistic and humanistic cultivation. The inadequate research on performing arts points to the need for balanced development in the reform and research in each aspect of art curriculum. In addition to "information technology education," the incorporation of major issues into art curriculum requires more research on issues, such as "home economic education," "human rights education," "career development education," "environmental education," gender education," and "ocean education," in order to understand the actual implementation condition.

2. Conducting more research before implementing art curriculum reforms is advised. More studies on the implementation and performance of reformative changes are also needed so as to establish practical connections between reform and research. Discrepancies among art curriculum policies, research in art curriculum, and actual implementation of the curriculum may prompt us to reconsider whether or not the introduction of art curriculum trends from abroad into the Taiwanese educational system is suitable for the existing curriculum structure when, in reality, more research and experiment are required before actual implementation. At present, most curriculum reforms in Taiwan are first heralded by policy, followed by research and implementation of art curriculum changes that often forcibly fit the art curriculum to the policy. As Kliebard (2002) once noted, curriculum reform must suit the existing system if any success is to be achieved; otherwise, good intentions and sound theories will come to nothing.

3. Taiwan is now on the road to a 12-year national education program. Thus, it is advised that more comprehensive research be conducted on art curriculum reform, such as experimenting with different levels of schools and systems and establishing a curriculum reform policy that truly suits Taiwan's current educational structure, and at the same time, working with central and local governments to devise required accompanying policies. Well-managed and comprehensive procedures and research efforts can also facilitate the realization of Taiwan's art curriculum reform.

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NOTES

1   In this paper, arts curriculum refers only to visual arts, music, and performing arts.
2   Article 2 of the Art Education Act: Categories in art education include the following: 1) teaching of performing arts, 2) visual art education, 3) audio-visual art education, 4) art administration education, and 5) other related art education.

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9. VERBAL INTERACTION BETWEEN TEACHERS AND STUDENTS IN PRIMARY AND SECONDARY CLASSROOMS

INTRODUCTION

Classroom instruction is a complex cultural activity. Teaching experience and strategies are tacit knowledge, which are always hidden in educational practice. Tacit knowledge, in contrast to explicit knowledge that can be articulated, is difficult to abstract and write into books for wide acceptance. Thus, teaching experience and strategies should be acquired in context (Chen, 2004). In recent years, researchers in the field of education have started using visual case studies to examine problems in the classroom. The interaction analysis on verbal behavior of teachers and students in classrooms (IAVBTSC) is the most representative research method.

The research object of IAVBTSC is the verbal behavior of teachers and students in classrooms. By collecting, systematically analyzing, and processing verbal information, we can study the teaching mode, structure, and interactive level of classroom instruction.

Nearly eight years (2002 to 2010) after the author's research into the interaction analysis of the verbal behavior of teachers and students in primary and secondary classrooms in mainland China, the author has revealed an important finding. Aside from using data or diagram to describe the classroom instructional activities and their modes, the IAVBTSC can also reveal and remedy problems in classroom instruction and improve teachers' instructional and reflective abilities, thus promoting their professional development.

By combining the research cases accumulated over a period of eight years and the software systems designed and developed by the author and her research team, this chapter introduces the application of analytical methods on the verbal behavior of teachers and students, such as the S-T and Flanders Interaction Analysis System, in the analysis of the teaching mode and level of classroom interaction. The chapter also discusses how these analytical tools were used in the practicing community to promote the professional development of teachers.

LITERATURE REVIEW ON CLASSROOM TEACHING BEHAVIORS

Definition of Classroom Teaching Behaviors

Teachers' professional skills can be directly reflected in the classroom. The research focus on teachers' classroom teaching behaviors in China has changed with the thorough development of educational reform since the 1960s. However, the general

trend is from macroscopic to microscopic, extrinsic to intrinsic, group-focused to individual-focused, teacher-focused to student-focused, and quantitative research to a mixture of quantitative and qualitative research.

Prof. Cai maintains that teachers' classroom teaching behaviors, as part of classroom instructional activities, determine instructional quality (Cai & Che, 2008). In terms of classroom instructional practices, when superficial factors such as teachers' instructional methods and approaches have been improved, teachers' classroom teaching behaviors will be improved, driven by less superficial factors such as teaching philosophy, educational beliefs, and instructional ideas. Thus, improving classroom teaching behaviors is key to increasing educational efficiency in class.

Classification of Classroom Teaching Behaviors

According to pattern and function, teachers' classroom teaching behaviors can be classified into major teaching behaviors, supplementary teaching behaviors, and classroom management behaviors. According to form, classroom teaching behaviors are categorized as extrinsic or intrinsic, as shown in Table 1 below.

Table 1. Classification of classroom teaching behaviors (built on Cai & Che, 2008; Zhang, 2004)

Classification	Criteria	Behavior Description
According to the pattern and function of teachers' classroom teaching behaviors	Major teaching behaviors	Teachers' major behaviors in the class, such as presentation, dialogue, and guidance
		This kind of behavior is goal – or content-oriented. Effective major teaching behaviors are based on teachers' solid professional knowledge and skills.
	Supplementary teaching behaviors	They are teachers' classroom behaviors, which intend to help major teaching behaviors produce a better teaching effect.
		They are student – or concrete instructional context-oriented, which include developing and triggering students' motivation, effective communication, and reinforcement skills, as well as teachers' positive expectation.
	Classroom management behaviors	Pertain to a dispensable kind of behavior to ensure the operation of instruction; these behaviors mainly relate to the management of classroom behaviors and the allocation of time.
		Effective classroom management behaviors are closely related to teachers' classroom experience and professional attainment.
According to the form of classroom teaching behaviors	Extrinsic teaching behaviors	Teachers' and students' visible behaviors, such as verbal or physical behaviors
	Intrinsic teaching behaviors	Thoughts and ideas exist in one's brain to guide the action.

Research on Classroom Teaching Behaviors

Recording method on classroom teaching behaviors. The teaching process is an interaction of teaching and learning, and teaching information is constantly changing, because teachers need to choose specific teaching behaviors according to the specific teaching context in the class. Thus, teachers' classroom teaching behaviors are complex and variable (Cai & Che, 2008). To record and analyze the complex and variable teaching and learning behaviors in the classroom, the use of classroom teaching videos is credited by many researchers as an effective tool for assessing teachers' knowledge (Ball & Cohen, 1999; Little et al., 2003).

Ball and his colleagues used classroom teaching videos to evaluate teachers' classroom behaviors, and how they reflect and represent teachers' knowledge (Ball & Bass, 2000). This research provided us with a new method and perspective to examine classroom teaching behaviors. Ball and his colleagues found possible evidence to determine teachers' knowledge using teaching videos, and created a method for evaluating teachers' knowledge, which is helpful in understanding effective instruction (Hill et al., 2004).

Classroom teaching videos are believed to have become more popular, and have been playing a vital role in teachers' professional development (Kazemi & Franke, 2004; Borko et al., 2008; Borko et al., 2011). They can be used as a tool for gathering the daily experiences of teachers and students, and they can improve teachers' interest in classroom practices, or aid teachers in constructing substantial questions. They can help teachers examine others' instructional strategies and their impact on student learning, which stimulates discussion among teachers and may help teachers collect suggestions on classroom practices. Classroom teaching videos can be used for teachers' professional learning after class, especially for providing a basis for examining and analyzing instructional practices. Moreover, objectively, this kind of tool can help educators build new practical knowledge in teaching (Desjardins, 2001).

Analyzing methods for assessing classroom teaching behaviors. Classroom teaching is an educational activity, with teachers and students serving as dialogue subjects, with verbal communication as the primary means of communication, and individuals' free and conscious development as the ultimate goal (Qiu & Zhang, 2006). Verbal behavior is the main teaching behavior in the classroom, accounting for 80% of all teaching behaviors (Moore, 2000). Thus, to a large extent, verbal behaviors are representative samples of teaching behavior in an entire class (Wang & Liu, 2008). Moreover, the verbal activities of teachers and students are explicit, which facilitate the objective recording for evaluators. In general, two kinds of class dialogues are known: public and personal. Public dialogue is the dialogue everyone in the classroom can hear, whereas personal dialogue is between the teacher and specific students. The analysis of and research on classroom teaching behaviors can be conducted through an in-depth study of the public dialogues in class, to

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find and discover the teaching and learning principles in the teaching process. By doing this, we can find a way to improve teachers' teaching skills and efficiency, make teaching a more purposeful and conscious activity, motivate teachers to improve their teaching practices, and finally help improve students' scores and their comprehensive development.

Classroom observation method is the main approach used to analyze teachers' teaching behaviors in the classroom. By comprehensively, systematically, and objectively recording teachers' classroom teaching behaviors during the observation, we can conclude the characteristics of effective teaching behaviors. This method focuses on extrinsic teaching behaviors (Cai & Che, 2008). At present, two common analyzing methods on teaching behaviors are used: coding system analysis and semiotic system analysis.

Coding system analysis is an analysis method based on classroom observation, which codes the public dialogues in classroom teaching videos according to cognitive theories, teaches theories and professional curriculum information to externalize intrinsic knowledge, and uses the results to analyze the teaching process. In general, the coding system has two goals: (1) to describe the teaching quality, which is directly related to the curriculum criteria, and (2) to effectively reflect the actual classroom teaching situation. Thus, a coding system codes not only the structure, but also the instruction process.

Semiotic system analysis is similar to the content analysis method. It is an analysis method that lists the possible behaviors to be observed into a semiotic system observation form in advance, and the observer records the frequency of each behavior and analyzes the results.

Both coding system and semiotic system analyses are observation-based qualitative research on the class. Researchers mainly use time or event sampling to disassemble the structure of a class into categories and factors, which will be used to develop an observation tool for collecting factual qualitative resources for value judgment (Gao, 2007). Through further statistical analysis and qualitative treatment, we can draw a conclusion regarding the characteristics of teaching behaviors and the relations between factors of an instruction, discover the teaching and learning principles in the teaching process, and provide various information and evidence for teachers' reflection and improvement of teaching practices. Classroom teaching behavior analysis as a performance evaluation method can focus more on teachers' classroom teaching practices, and support both researchers and teachers to reflect the teachers' classroom teaching behaviors, which will promote deep communication between them.

Observation method is the main research technique for evaluating teachers' teaching behaviors in the classroom. This method focuses on the teachers' external teaching behaviors. By comprehensively, systematically, and objectively recording teachers' classroom teaching behaviors during the observation, we can conclude the characteristics of effective teaching behaviors. With the development of research in this field, the use of the questionnaire method, inductive method, and lecture method has started. However, these methods lack objectivity, validity, credibility, or

empirical evidence. Further research on teachers' teaching behaviors can be based on critical theory, learning theories, and cultural anthropology to strengthen the theoretical basis of the research. On the other hand, researchers should focus more on the teaching practices in the classroom, and study and reflect on them with the teachers. Research methods are suggested, such as action methodology, ethnographic method, and deep description.

CLASSROOM TEACHING MODEL ANALYSIS METHOD

Teaching method is a tied relationship among teacher-student relationship, content, and process, and it includes their structures. These three structures are interrelated and constitute an entire instructional structure (Huang & Wang, 1995).

   Until now, research on various models has contributed to the form of "model methodology." Model theory, an important branch of modern scientific methodologies, has become a critical research method. A major characteristic of model methodology is its focus on an object's essential or special parts other than the unessential or normal ones. Model methodology highlights an object's major factors, relations, status, and process, which facilitate people to investigate, simulate, measure, and conduct experiments or theoretical analyses. From the perspective of model methodology, quantitative modeling and qualitative modeling are the two types. Qualitative modeling has been used in most research, especially on instructional modeling.

   The classroom instructional model analysis method discussed in this chapter is a combination of quantitative and qualitative modeling, which is based on the collection, analysis, and processing of classroom information. This method requires researchers to (1) observe classroom instructional activities; (2) record all activities during the whole period using certain recording skills such as videotaping skills; (3) code and collect data of a video using a specific time gap; and (4) process data and decide whether the class instructional mode will be categorized as lecture, practice, dialogue, or blended model. (Fu & Zhang, 2001).

Case 1: Using the S-T Analysis Method to Analyze Four Types
of Instructional Models

Background introduction of this case L is a high school math teacher in Beijing, with 10 years of teaching experience and is at the professional maturity stage. As a math teacher, L thinks that knowledge and skills gained through recreation is easier to comprehend and retain than those acquired passively; thus, math instruction should be a procedural instruction of mathematical activities. Information technology environment firmly supports students' effective recreation within a limited class period. The math instructional model should include a relatively stable instructional process and operational instructional activities in which a teacher, aided by academic concepts, instructional theories, and learning theories, guides students to gain

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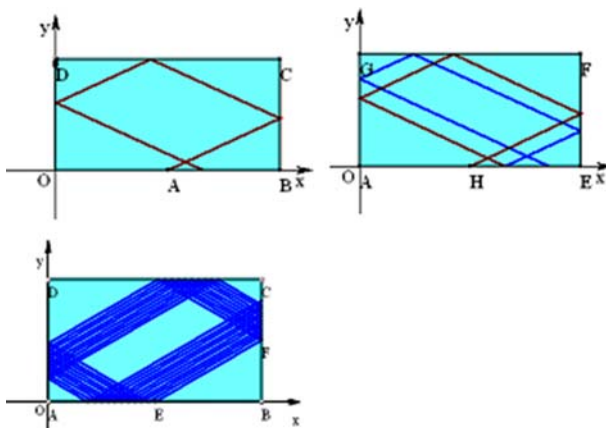
Figure 1. Key images used in the PowerPoint presentation. A. One-round reflection B. Two-round reflection C. Multiple-round reflection.

knowledge and skills by recreating, and achieves specific mathematical instructional objectives in an information technology environment.

Applying this teaching concept, after years of practice and exploration, teacher L has developed a unique instructional model. We will first introduce a Math course on the billiard table, which was designed and taught by teacher L based on a math learning software, Z + Z. The instructional design of this course is shown in Table 2.

[Appendix 1] Key images used in the PowerPoint presentation.

[Appendix 2] 2003 National College Entrance Examination.

Suppose four points of a rectangle are A (0,0), B (2,0), C (2,1), and D (0,1). A ball sets off from the middle point of side AB, Po. The angle between its direction and side AB is Θ. The ball was reflected by sides CD, DA, and AB on points P2, P3, and P4, respectively (angle of incidence = angle of reflection). Suppose P4 (X4, 0), and 1 < X4 < 2. What is the value range of tg?

$$\text{A. } \left(\frac{1}{3}, 1\right) \quad \text{B. } \left(\frac{1}{3}, \frac{2}{3}\right) \quad \text{C. } \left(\frac{2}{5}, \frac{1}{2}\right) \quad \text{D. } \left(\frac{2}{5}, \frac{2}{3}\right)$$

Teacher's reflection after class: In this class, the computer as a pure instructional tool can be used flexibly, which makes computer-assisted instruction more natural and relative. During the instructional activities, students are subjects of understanding. Subjectivity is the core and soul of modern math instruction. Being active is the specific representation of subjectivity, and a core composition of a new instructional model. In this course, the teacher always creates scenarios with questions, and students can continue testing their conjectures by PowerPoint visualization to solve problems. This process focuses on the students' subjectivity and their re-creation of questions, which effectively promote students to further

Table 2. Instructional design of Math on the billiard table

Module	Teacher's Guide	Students' Learning	Activity Objective
Create a scenario and motivate students to engage themselves in the activities.	Scenario: For a billiard board with length: width = 2:1, if a ball sets out from the middle of a length (point A), and will be reflected by the three other sides once, respectively, on what condition will it return to point B? Prepare a PowerPoint presentation to help visualize the scenario.	Use what students have learned to explore, guess, and solve the problem.	Create a problem scenario and motivate student curiosity.
Explore and conduct a group discussion	Join students' discussion. Focus on the group that has a problem with conducting discussions, and provide appropriate guides, with emphasis on the evaluation of students' thinking characteristics reflected in their methods for solving the problem.	Prioritize independent thinking, followed by group discussion. Determine points for critical thinking: analytic geometry, building coordinate system, gradient, and symmetry.	Combine independent thinking and group study.
Cooperate and communicate. Solve the problem.	Students and the teacher evaluate together the abstract subject matter and solutions.	Every group presents its representative solution, and other groups evaluate it. [Conclusion] When $k = 2/5$, the ball will be back to point B.	Communicate between groups. Students and the teacher make an evaluation together.
Construct new knowledge. Analyze the problem.	1. Derivation: If a ball sets out from the middle of a length (point A), and is reflected by three other sides once, respectively, on what condition will it return to side AB (the entire side)? Prepare a PowerPoint presentation, which facilitates students to find the law directly. (Refer to Appendix 1.) Encourage students to ask questions. What other questions can they come up with?	Explore the solution. You can consider extreme values or regular points. Conclusion: k is between $2/5$ and $2/3$.	Students explore independently, and communicate with each other.
	2. Second derivation: If the ball can be reflected again, what are its coordinates when it returns to side AB? Prepare a PowerPoint presentation, which facilitates students to find the law directly. (Refer to Appendix 1.)	Ask the question: Into what range will the ball fall? This is to be answered by other groups.	Present a new question, which promotes the integration and application of new knowledge.

(*Continued*)

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Table 2. Instructional design of Math on the billiard table (Continued)

Module	Teacher's Guide	Students' Learning	Activity Objective
	3. Continue exploring: If the ball continues to be reflected, what are its coordinates when it returns to side AB the third time? What about the fourth time? Can you form a certain rule/law summarizing this behavior? (Refer to Appendix 1) Suppose that after one reflection, the ball returns to point A_1 on side AB, point A_2 after two reflections, and so on, determine the law that relates A_1, A_2, …, A_n.	Suppose after one reflection, the ball returns to point A_1 on side AB, point A_2 after two reflections, and so on. Determine the law that relates A_1, A_2, …, A_n. Students may use different methods to study. Some may attempt to determine the law by several calculations; others may assume a normal point at the start.	Determine the dialectical relationship between normality and specialty.
Cooperate during the exploration. Form conclusions.	Lead, help, and explore together. Provide timely and effective help to the team having difficulty with the research.	Discover the rule, and test the assumption. Evaluate the result : x-coordinates are in an arithmetic sequence. Analyze the result.	Help students develop themselves.
Explore independently. Develop innovative skills.	What other questions do you have? Show the PowerPoint presentation. Give students a chance to observe further the reflection rule. Motivate students to think and speak freely, without consideration of whether their conclusions are correct or not.	Think and speak freely. Contribute valuable ideas.	Promote divergent thinking. Develop students' abilities to formulate insightful questions.
Reflect and conclude.	Conclude on the knowledge and methods used in this course, and write a short essay about the billiards question. Everyone should choose a topic based on the questions explored in class, and write a short essay on it. Deadline: A week later.	Expand what the students have learned after class. Continue the research.	Develop a new learning method. Encourage students to explore science.

understand the developmental process of math content knowledge. According to modern educational theories, most students' knowledge is not acquired from teachers. Instead, such knowledge is meaningfully constructed under a certain condition with the help of others using necessary learning materials, which is in line with Socrates' idea of birth-assistantship. Famous math educators Karl Weierstrass and George Polya have successfully applied this idea in math education. Polya's idea is that teachers should provide students with "appropriate" help. The instructional design of this course reflects this rule: Students should discover and improve themselves through various discovery activities, such as observing, analyzing, analogizing, conjecturing, and summarizing, to develop their expansive thinking and creative skills. The educational idea that modern information technology and math instruction should be integrated is popular. Information technology-assisted instruction has been widely used as a new educational model. However, technology is an insufficient solution. We cannot merely focus on the animation and sound functions of computers without understanding the nature of mathematics. When we integrate information technology with a traditional instructional model, traditional pen-and-paper operation, deduction, drawing, and the application of information technology should be balanced. At times, students cannot use computers to solve problems. This phenomenon represents a kind of frustration, which makes students appreciate the importance of mathematical logic, and thus, improve their own math literacy.

Research Topic

We conducted the instructional model research on teacher L's class, Math on the billiard table.

Introduction on the S-T Analysis Method

Principal idea. The S-T analysis method, which is used to analyze instruction, can present instructional mood directly. It can also analyze and evaluate an instructional process qualitatively and quantitatively, to define the instructional mood and gain uniform and objective information (Fu & Zhang, 2001). In the S-T analysis method, only teacher's activities (T) and students' activities (S) are included, which can reduce the ambiguity of the classified narration of instructional activities and improve its objectivity and reliability, and thus are beneficial for teachers to gradually comprehend and improve teaching, and promote their professional development using this method.

Definition of activity types. Activity T is defined as teachers' visual and audio information transition activity, and other activities are classified as S. In a normal instructional process, activity T mainly includes teacher's speaking (audio) and blackboard writing or presentation (visual). These activities include explanation,

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Figure 2. S-T data record card.

presentation, blackboard writing, multimedia-based presentation, inquiring, calling the roll, as well as evaluation and feedback.

Activity S includes all activities except activity T, mostly consisting of students' thinking, speaking, calculating, note taking, conducting experiments, completing assignments, and monitoring order in class.

Data collection method.   This method is carried out by sampling and coding a class (by observation or video) with a specific time gap, recording the result on an S-T record card, after which an S-T data sequence (or an S-T data for short) can be obtained

If the S-T data are created manually, the observation results may be added to an S-T data record card, as shown in Figure 2.

Analysis of instructional model.   We can present the instructional model in two ways. One is through the S-T diagram, which shows the changes in activity S and activity T through time. Another way is through the Rt-Ch diagram, which shows a class' instructional model, especially its instructional mood and type.

Diagram S-T should be drawn on a separate drawing sheet. In general, a coordinate paper is used. The vertical axis S and the horizontal axis T present the time that activity S and activity T occurred, respectively. The origin is the start of a class. The observed data of activity S and activity T until class dismissal are displayed on axes S and T, as shown in Figure 3.

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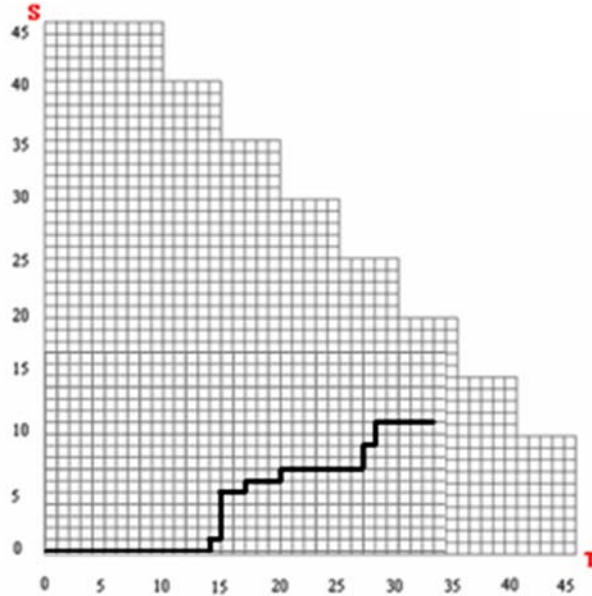
Figure 3. S-T diagram.

In Figure 3, Rt and Ch are defined as the rate of activity T and the frequency of activity-switching, respectively, which are important in describing the instructional model and analyzing the instructional process.

Rt = NT/N. N is the total number of sampled activities, and NT is the total number of T activities. Rt ranges from 0 to 1. The larger the Rt, the larger is the ratio of activity T to all sampled activities, which indicates a larger ratio of teacher's activity in the entire instructional process.

Ch = (g-1)/N. N is the total of sampled activities. g is defined as the number of times a continuous sequence of the same activity occurs. For example, suppose a sampled S-T data sequence is TTSSTSSTTT, then five continuous sequences are present: TT, SS, T, SS, and TTT, and g = 5.

The Rt–Ch diagram is a two-dimensional diagram with the horizontal axis Rt and the vertical axis Ch, as shown in Figure 4.

A class can be located in the Rt-Ch diagram. The shaded area in Figure 4 is the logic range of point (Rt, Ch). In the Rt-Ch diagram, Rt and Ch are defined as the rate of activity T and the number of times of activity-switching, respectively. Thus, they can be used to distinguish four kinds of instructional models: a practical instructional model is student-centered, and has a low rate of student-teacher activity-switching; a lecture model is teacher-centered, and has a low rate of student-teacher activity-switching; a dialogue model has a balanced teacher-student ratio and a high rate of student-teacher activity-switching; and a blended model has a balanced teacher-student ratio and a low rate of student-teacher activity-switching. Figure 3 displays
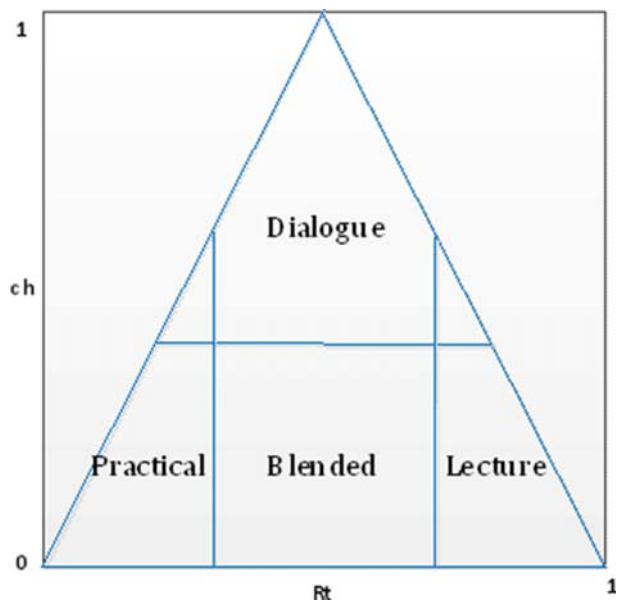
Figure 4. Rt-Ch diagram.

an instructional process, which lasted 50 minutes, and was sampled for 30 seconds. Rt and Ch are used to distinguish instructional models.

The Rt-Ch diagram can distinguish four types of instructional models effectively. Thus, the diagram can also describe the instructional mood. In addition to defining the instructional model of a class, the Rt-Ch diagram can compare the instructional models of various instructions. For example, the diagram can be used to compare a class to a teacher's former class, and compare the instructional model of an intern teacher's class to that of an experienced teacher's. Thus, the Rt-Ch diagram can be employed to conduct various research studies on instructional models.

Research process and method

Based on the introduction above, the S-T analysis method can be inferred to consider only the T and S, which reduces the ambiguity of the activity classification of instructional activities and improves its objectivity. This visualized method presenting an instructional process by figures requires no complex calculation. Thus, this method can be easily promoted and applied in instructional research. Nevertheless, conducting S-T analysis (for example, drawing S-T and Rt-Ch diagrams manually) is time – and labor-consuming. Thus, our research team has developed an S-T analysis software in C language, as shown in Figure 5, to reduce the researcher's burden and increase research accuracy. Using this software only
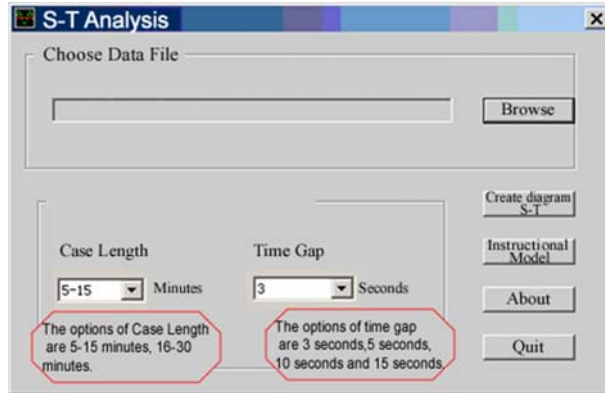
Figure 5. A window from the S-T analysis software.

Table 3. Instructional models and their standard conditions

Instructional models	Standard conditions
Practical	$Rt \leq 0.3$
Lecture	$Rt \geq 0.7$
Dialogue	$Ch \geq 0.4$
Blended	$0.3 < Rt < 0.7, Ch < 0.4$

requires the researcher to perform the sampling and add the S-T sequence to a specific Excel form, after which, the software can complete the work on its own.

The method for using the S-T analysis software is as follows:

– *Step 1: Data collection.* The time gap of sampling depends on the length of a class. In Table 3, the cut-offs of the four instructional models are for a class that lasts 50 minutes, with a sampling time gap of 30 seconds. We recommend the sampling time gap of 30 seconds for a 45-minute class. For a 15-minute class, we recommend 10 seconds, whereas for a less than 15-minute class, we recommend 5 seconds. From the statistics perspective, the shorter the sampling time gap, the more samples represent the entire condition. However, if the sampling time gap is extremely short, sampling becomes increasingly difficult. Thus, the sampling time gap should be no longer than three seconds.

In most cases when researchers watch videos, videos can be temporarily stopped for the manual or automatic sampling time gap. For example, if we select the sampling time gap as five seconds, the video will be paused on the fifth, tenth, and fifteenth seconds, which will define if the activity is for the teacher or for the student. We can then enter the data in an Excel form, as shown as Figure 6. This process repeats until an entire S-T sequence has been formed.

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Figure 6. S-T data file in Excel.

For the data analysis conducted by the S-T analysis software by reading an Excel file, an S-T sequence is entered in Excel to process the operation. To enter and check the data easily, we typically use an entire row to record all the data within one minute. For example, in Figure 6, the first row includes all the data collected during the first minute. Considering that the sampling time gap of the case in Figure 6 is 5 seconds, 12 kinds of data can be collected within one minute.

– *Step 2: S-T analysis.* Click the "Browse" button in Figure 5, and then choose the data file for the S-T analysis. A window will subsequently appear, as shown in Figure 7. Click the pop-up menus for "Case Length" and "Time Gap," and select case length and time gap, respectively. For example, in the class on Math on the billiard table, its length is 45 minutes, and we select "31–45 minutes" and "10 s."

If you click the "Create diagram S-T" button, as shown in Figure 7, a pop-up named "Diagram S-T" appears. When you select "Create" on the right upper side, a diagram such as Figure 8 will pop up. Aside from drawing S-T diagrams, the software can also list some basic information of the case on the right, such as length, sampling time gap, and number of S and T activities. Researchers can use a professional screenshot software, such as "SnagIt," to capture and save the picture for further use.

After capturing the screen, you can click "Exit" button to return to the window shown in Figure 7. If you click "Instructional Model," a new window named "Instructional Model Analysis" will appear, and by clicking "Show" at the bottom of the window, a picture like Figure 9 will pop up.

The class on Math on the billiard table is illustrated in Figure 9. On the right side of the figure, the S-T analysis software automatically lists the rate of switching (Ch), rate of activity T (Rt), rate of activity S (Rs) and instructional
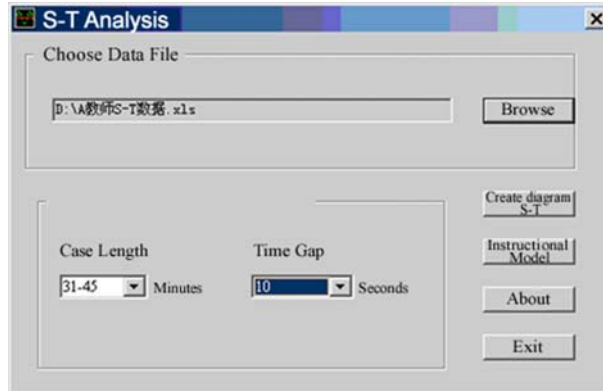
Figure 7. A window from the S-T analysis software for the analysis of Math on the billiard table.
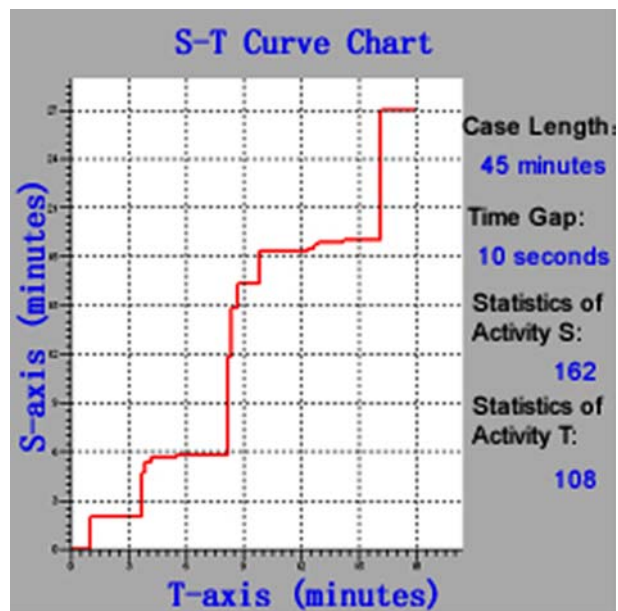
Figure 8. S-T diagram.

model. The class has 40% Rt, 60% Rs, and 10% Ch, which means that the class has a blended instructional model.

– *Step 3: Analysis of the results.* After the S-T analysis on the class on Math on the billiard table, as concluded by Wang (2004), four durations for student activities (four vertical lines) are evident, which means that the teacher has given
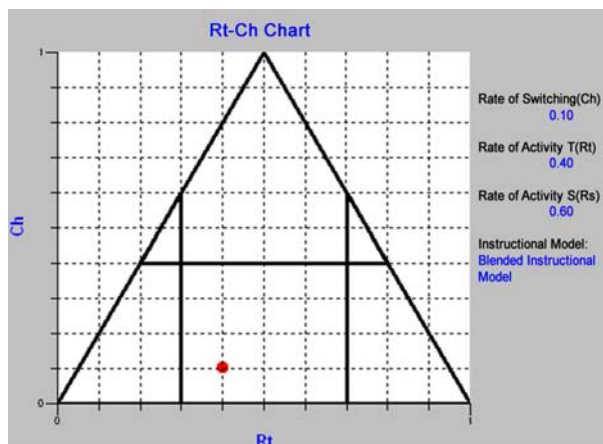
Figure 9. St-Ch diagram.

students enough room to participate in activities and think independently. The rate of students' activities is 60%, which reflects that the teacher has dropped the instructional model "pouring all through a class," and achieved the instructional goal of creating a student-centered class. Moreover, although the rate of student activity is 60%, the rate of activity switching is only 10%, indicating that the activity-switching between the teacher and the students seldom takes place during the four outstanding durations of the student activity. Therefore, when students conduct the activities, the teacher gives them little guidance.

Case Review

The S-T analysis method is easy to use, and has visual as well as objective results. The method is especially convenient for teachers to introduce reflections after class. However, given that the S-T analysis method only classifies instructional activities into teacher or student activity, the information obtained is very vague, and researchers have no idea on the actual meanings of both the teacher activity and the student activity. Thus, the S-T analysis method is only better used to distinguish the four kinds of instructional models, and get an overview of the instructional process. If more precise and diagnostic analysis results are desired, combining the S-T analysis method with other methods may be necessary.

ANALYSIS METHOD ON THE QUALITY OF CLASSROOM INTERACTION

Classroom interaction is a process in which relatively independent individuals help improve each other during an instructional process, and the teacher and the students can exchange their thoughts and feelings, deliver information, and ultimately influence each other. Nowadays, the idea of classroom interaction is deeply rooted in the minds of many teachers who apply it in practice. However, low interaction quality is still

a problem, such as monotonous interaction form, numerous interactions between the teacher and a group of students, very few interactions between the teacher and a single student, numerous interactions between a student and a group of students, very few interactions between students, numerous low-level interactions, very few high-level interactions, and so on. Although classes have become increasingly alive since teachers emphasized classroom interaction, the interaction quality has not been improved (Wang, 2005). Thus, logical and scientific evaluation on the quality of classroom interaction has become a key topic in the field of educational research.

Evaluating the quality of classroom interaction requires a scientific method and meticulous classroom observation. With the rapid development of information technologies, recording technologies such as audio and video recording technologies have immensely improved. This chapter introduces a method for analyzing the quality of classroom interaction, which is based on classroom observation and video recording, and focuses on verbal communication between the teacher and the students.

Case 2: Flanders Interaction Analysis Method

Background introduction of this case. In 2003, District A of Beijing had a district-level instructional design competition. This event intended to promote the instructional design skills of teachers. The attending works should have high-quality classroom interactions supported by information technologies. By improving the quality of classroom interaction, the class will become more enjoyable, have effective instructional methods, can motivate students to learn, and improve the self-learning abilities of students.

Thus, the committee of this competition invited the author's research group to conduct the classroom interaction quality analysis on instructional plans as well as the use of classroom videos, which went through the first round of evaluations. Our group should identify problems and solutions for specific cases. Thus, we adopted the Flanders interaction analysis method to analyze the classroom videos.

Research topic. By analyzing the instructional plans and classroom videos provided by the competition committee, our group can identify problems and solutions for the attending works.

Introduction on the Flanders Interaction Analysis System (FIAS) For the quantitative analysis of classroom activities, a mature analysis method was proposed by American scholar Ned Flanders in 1970, which was called the Flanders Interaction Analysis System (FIAS). According to Flanders, recording everything that occurs in the classroom is impossible and unnecessary for researchers. Researchers should be selective regarding the aspects to observe. Considering that most instructional activities are verbal, which account for around 80% of all activities, they can largely represent or define the instructional activities of an entire class. Moreover, verbal activities are explicit and easy for evaluators to record. Thus, FIAS focuses on the verbal activities of the teacher and students.

How to Use FIAS? The elements of FIAS include the dialogues of the teacher and students in a class. This method records verbal interactions between the teacher and the students using a coding system and specifically analyzes them. FIAS has three steps: (1) a coding system to describe the interaction activities in a class, (2) a set of criteria about observation and code recoding, and (3) a matrix form for displaying data, analyzing, and realizing research goals.

– Coding system FIAS classifies verbal activities in a class into three categories and 10 subcategories, as shown in Table 4. Categories one to seven are for teachers talking to their students, whereas categories eight and nine are for students talking to their teachers. Category 10 is for silence or confusion.
– Criteria for observing and recording codes

FIAS requires researchers to do the sampling every three seconds, and formulate the code for a specific period by referring to the coding system. Thus, for a normal 45-minute class, around 900 codes are generated. These symbols represent a series

Table 4. FIAS coding system

Categories		Teacher/Student/Other Behaviors Observed	Code
Teacher Talk	Indirect Influence	1. Expresses feeling: Accepting and clarifying the feeling tone of students in a nonthreatening manner	1
		2. Praises or encourages: Praising or encouraging students to engage in proper action or behavior	2
		3. Accepts or uses ideas: Clarifying, building, or developing ideas suggested by a student	3
		4. Asks questions: Asking a question about content or procedure for the student to answer	4
	Direct Influence	5. Lectures: Giving facts or opinions about content or procedures; expressing the teacher's own ideas and asking rhetorical questions	5
		6. Gives directions: Providing directions, commands, or orders with which a student is expected to comply	6
		7. Criticizes or justifies authority: Making statements that intend to change the unacceptable behavior of the student and make it acceptable	7
Student discourse		8. Responds: Students talking in response to the teacher	8
		9. Initiates: Students initiating communication or response	9
Invalid		10. Silence or confusion: Pauses, short periods of silence, and periods of confusion that cannot be understood by the observer	10

of events chronologically occurring in a class. These events are lined up as a timeline, which provides highly accurate information about the class. Researchers consequently achieve a highly accurate evaluation of the instructional structure, the activity mode, and the interaction quality of the class by analyzing these codes.

Analysis matrix.   After collecting the coded data, FIAS requires researchers to create an analysis matrix based on the obtained data. This matrix is symmetrical in most cases. The rows and columns in the matrix represent 10 activities previously defined in the coding system. When creating the analysis matrix, researchers should combine every two pieces of data next to each other as a coordinate. The first data serve as the row number, the second one as the column number, and the corresponding cell in the matrix is added with 1. For example, the sequence 4, 5, 6, 2, 3, 6, and 9 is combined as coordinates, namely, 4-5, 5-6, 6-2, 2-3, 3-6, and 6-9. Coordinate 4-5 represents the matrix cell in row 4 and column 5 is added with 1, coordinate 5-6 represents the matrix cell in row 5 and column 6 is added with 1, and so on. Researchers ultimately acquire the analysis matrix for the entire class, which is shown in Figure 10.

By calculating the ratio of teacher talk and student discourse, researchers can describe how the ratios of teacher talk and student discourse change, as well as the diagnosis prescriptions.

We can calculate the number of occurrences of each verbal activity and the ratio and structure of each verbal activity among all other activities. These occurrences are measured as Teacher Talk Percentage, Student Discourse Percentage, Ratio of Teacher Indirect and Direct Talk, Ratio of Student Inactive and Active Discourse, the Ratio of Positive Reinforcement (categories 1 to 3), and Negative Reinforcement

		Teacher Talk							*Student Discourse*		*Invalid*	
		(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*SUM*
Teacher Talk	(1)	2	0	0	2	0	1	0	1	0	0	6
	(2)	0	0	0	3	1	4	0	0	0	1	9
	(3)	0	1	3	7	3	1	0	3	0	0	18
	(4)	1	2	0	64	12	16	0	42	8	6	151
	(5)	0	1	0	17	69	12	0	0	0	0	99
	(6)	1	1	1	18	9	54	0	14	11	6	115
	(7)	0	0	0	0	0	0	0	0	0	0	0
Student Discourse	(8)	0	2	13	29	3	14	0	92	0	1	154
	(9)	0	1	0	8	0	10	0	0	278	1	298
Invalid	(10)	2	1	1	3	2	3	0	2	1	36	51
	SUM	6	9	18	151	99	115	0	154	298	51	901

Figure 10. FIAS matrix.

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(categories 6 and 7). The data show that: (1) the general structure and characteristics of a class, (2) the power, atmosphere of a class, and students' degree of participation, (3) teacher-centered or student-centered teaching style of a class, (4) deductive or inductive class, (5) restrictive or free students, (6) dull or active class, and (7) students who are active or passive to learning.

Aside from getting the general information of each category, we can also obtain the detailed information about the activities in specific categories. For example, the matrix cell (5-5) represents the continuous talking of the teacher, whereas (8-8) + (9-9) represents continuous discourse of the students. Reclassifying these special activities can provide totally new information. For example, the intersection areas of rows 1 to 3 and columns 1 to 3 reflect if the teacher and students are getting along well with each other, and the degree of active integration of the class.

The FIAS matrix reports not only the quality of the classroom interaction, but also the flow chart of a class. Therefore, after assessing the quality of classroom interaction, as shown in Figure 11, a recommendation can be given.

To use FIAS to diagnose the interaction quality of a class, the biggest number A in row 3 or 4 is first identified, followed by the second biggest number B in that row, the biggest number C in column B, and then the second biggest number D in row C. Finally, the biggest or the second biggest number in row D is checked if it is A or not. If the rectangle ABCD (if it can be one) falls into the rectangle formed by (4-4), (4-8), (8-8), and (8-4), the class has a drill pattern, in which the teacher-student interaction flow is formed by "teacher asks-students answer-teacher asks again." If the rectangle ABCD (if it can be one) falls into the rectangle formed by (3-3), (3-9), (9-9), and (9-3),

Figure 11. FIAS flow chart.

the class has a creative inquiry pattern, in which the teacher-student interaction flow is formed by "teacher accepts students' ideas and develops the curriculum-students actively express their ideas-teacher accepts students' ideas again." Through this method, we can deeply examine and analyze the quality of teacher-student interaction.

In addition to analyzing the matrix, we can describe how the rates of teacher talk and student discourse change, and how the interactions in a class evolve. By referring to the changing rates of teacher talk and student discourse, we can have a general idea of how teacher-student interaction changes.

The advantages of using FIAS to diagnose classroom interaction quality are as follows:

– FIAS categories reflect the interaction between the teacher and students, and give an operational definition for each kind of verbal activity, which is easier for observers to recognize and categorize in a class.
– FIAS uses a "code" to record the events occurring in a class as well as the time frame. These codes can generally reflect the characteristics of a class, which prepares a solid basis for later evaluation, thereby overcoming the subjectivity of traditional classroom evaluation method and improving the objectivity and scientific nature of the evaluation method.
– Regarding the data processing method, FIAS translates complex classroom events into simple math problems using the analysis matrix and diagram to achieve certain mathematical conclusions. Subsequently, mathematical conclusions can be translated into instructional conclusions that can reflect instructional problems and help us find ways to improve them. FIAS proves to be a very useful diagnosis method.

FIAS, on the other hand, has the following limitations:

– FIAS only reflects the verbal activities in a class and ignores many other important factors, thus affecting the quality of classroom instruction such as body language, instructional content, and board writing. FIAS ignores highly useful information; hence, the evaluation conclusion will not be comprehensive.
– FIAS focuses on the activities of the teacher (total of seven categories) in a classroom instruction, but ignores activities of the students (total of two categories), thus creating difficulty for researchers in comprehensively learning about the student activities.
– As an important part of classroom instruction, information technology should frequently interact with the teacher and the students. However, FIAS cannot reflect this kind of interaction.
– FIAS has high requirements for evaluators. Evaluators must not only remember the operational definition and code of each verbal activity, but also possess excellent ability to identify and be sensitive to time issues.

Enhancement of FIAS Revision of FIAS

With the development of the new curriculum reform of basic education, many schools have equipped their classrooms with information technology. Teachers hope

to use electronic materials and technologies to support the learning of learners and improve instructional quality and educational interest. In an information technology-supported classroom, the normal scenes involve "teachers using multimedia technologies such as computer to create various scenarios" and "students using various materials in the computer laboratory to explore by themselves." In these scenarios, no verbal interaction occurs between the teacher and students. Thus, FIAS cannot be used to analyze these classes. For this reason, FIAS has been continuously revised and improved over the years. In 2003, Xinli Zhou proposed to add the 11th code, media (application activity of the information technology tool) to the coding system in her master's degree dissertation. In 2004, Xiaoqing Gu and Wei Wang proposed a new coding system based on FIAS called Information Technology-based Interaction Analysis System (ITIAS), which is shown in Table 5.

– Improved Data Processing Method
  Gu (2000) from the Shanghai Institute for Educational Research interpreted FIAS from another angle, which is shown in Table 6. He used the frequency statistics method to determine the dominant method of instruction.

Table 5. Information Technology-based Interaction Analysis System (ITIAS)

Categories		Code	Reference
Teacher Talk	Indirect Influence	1	Accepting the feelings of students
		2	Giving praise or encouragement to students
		3	Accepts ideas from students
		4	Asking an opening question
		5	Asking a closed question
	Direct Influence	6	Lectures
		7	Giving directions
		8	Criticizing
Student Discourse		9	Responding passively
		10	Responding actively
		11	Actively asking questions
		12	Discussing with partners
		13	Having confusion unrelated with instruction
Silence		14	Thinking
		15	Taking exercises
Technology		16	Teacher applying technology
		17	Students applying technology
		18	Technology for students

Through the revised FIAS presented in Figure 6, researchers can collect the data every three seconds, and calculate the frequencies of each code. Afterward, the frequencies and rates of "teacher dominates" (code 5–8), "students dominate" (code 1–3, 9), and "neutral" (code 4, 10) can be obtained. As a result, the conclusion about the dominant actor during the instruction is achieved. Table 7 provides an example.
Table 7 verifies that:

– Teacher-dominated instruction is prevalent
– If the class instruction is teacher-dominated (code 5, 6, 7), students will be forced to give a rapid and timely reply to the teacher (code 8). However, this kind of interaction has a certain form, which limits the answers of students.
– Student-dominated instruction is rare (code 1, 2, 3, accounting for 4.3%), which means that students are currently restricted in thinking independently, and teachers do not allow students to express their ideas (code 9, accounting for 0%).

Research Process and Method According to the introduction on FIAS, although FIAS can objectively evaluate verbal actions in a classroom, the short sampling gap (three seconds), various verbal action categories, and complex data processing

Table 6. Alternative interpretation of FIAS

Category	Code	Teacher/Student/Other Behaviors Observed
	Responses	1. Accepts students' feelings
		2. Praises students' actions
Teacher Talk		3. Accepts students' ideas
	Neutral	4. Asks students questions
	Initiates	5. Lectures
		6. Instructs or commands
		7. Criticizes or justifies authority
Student	Responses	8. Answers teacher's question, or responds to the teacher
discourse	Initiates	9. Students initiate the response, or ask the teacher questions
Silence	Neutral	10. Pauses, short periods of silence, and periods of confusion, which cannot be understood by the observer

Table 7. Frequency statistics of verbal interaction (Total observation duration: 682)

Item	Student-dominated Instruction				Neutral		Teacher-dominated Instruction			
Code	1,2	3	9	Total	10	4	8	5	6,7	Total
Frequency	10	19	0	29	48	189	216	145	55	416
Percentage	1.5	2.8	0	4.3	34.8		31.712	21.3	8.1	61.0

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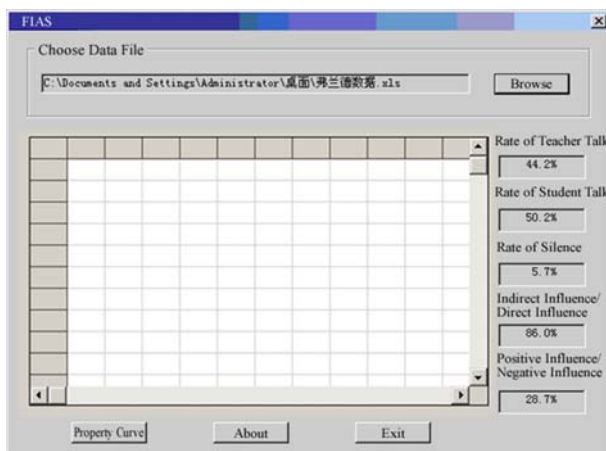
Figure 12. FIAS software interface.

promote difficulty in implementing FIAS. To simplify the data processing of FIAS, our research group developed a software program for FIAS based on the C programming language, as shown in Figure 12. With the FIAS software program, teachers only need to collect raw data and input them into an Excel form. The software program can automatically generate an analysis matrix, the rates of each kind of talk, and the dynamic property curves that describe the corresponding changes.

– How to use the FIAS software

Step 1: Data collection. The student is asked to watch an educational video, which is automatically or manually paused every three seconds. The student then decides what kind of action occurred, records the corresponding code, and inputs the result into the Excel form provided by the software program (Figure 13).

Step 2: Tentative data analysis. After opening the software, the "Browse" button, as shown in Figure 12, is selected, and the data file for analysis is chosen. The results are then automatically calculated by the software program, as shown in Figure 14. The results include the analysis matrix and the rates of teacher talk, student talk, silence, indirect influence, direct influence, positive influence, and negative influence. Subsequently, users can use SnagIt, a screen-capture software program, to capture the results page for future reference.

Step 3: Drawing the dynamic property curves to describe the changes of each talk. Upon selection of the "Property Curve" button, a new window named "Dynamic Property Curve" pops up, as shown in Figure 15. In the figure, the dark bold curve is the dynamic property curve of the rate of the teacher talk, whereas the light curve is for the student discourse. The horizontal axis is the timeline, whereas the vertical axis is the number of teacher (student) talks in one minute.

Step 4: *Generation of the prescription.* According to the prescription generated by method of classroom interaction quality, the class illustrated in Figure 14 falls
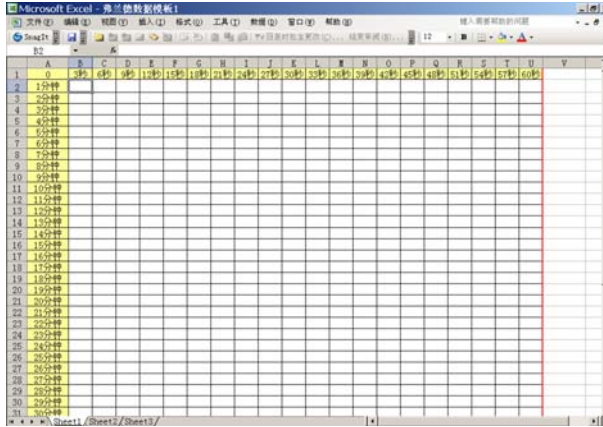
Figure 13. FIAS data recording template.
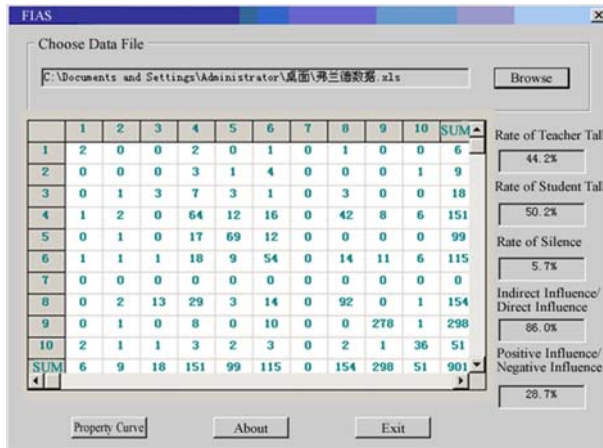
Figure 14. FIAS matrix and ratios of talks.

into the rectangle formed by point (4, 4), (4-8), (8-8), and (8-4), which means that this class has a typical Instruct-Practice mode. Its teacher-student interaction cycle is "teacher asks-students answer-teacher asks again..." as demonstrated in Figure 16. The mode of this class is not Explore-Create, because the teacher has no nine actions, indicating that he or she seldom guides or facilitates the class based on the ideas of the students.

Figure 16 infers that the maximum of all data is 9-9 action, referring to the active talking of students. In the classroom, the teacher divided the students into groups and then assigned them work activities. The students were able to express their ideas

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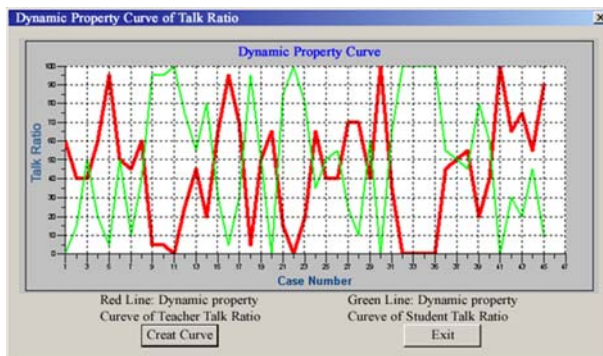
Figure 15. FIAS dynamic property curves of the talk ratios.
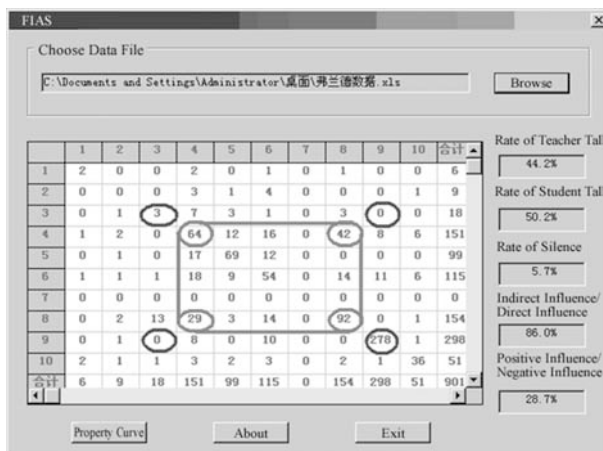
Figure 16. Diagnosis of the FIAS matrix.

actively during the activities, and communicated with each other. Thus, the data recorded "students talk actively."

Figure 16 also shows that the frequencies of the teacher asking, explaining, and instructing, while the students respond are high. The reason is that in this class, the teacher was not giving instructions all the time. She provided the students with opportunities to explore in the form of questions and tasks. The teacher also often asked students or groups several questions, and gave customized hints and instruction during group work. The silence rate in this class is likewise very high (5.7%). The teacher allowed students to think or to calculate, thus resulting in the high incidence of silence in the class. Confusion, on the other hand, is rare. This kind of silence can be accounted as the students' valid action.

Case Review

FIAS is the most popular classroom data sampling analysis system. FIAS is based on verbal actions in a class. Researchers can accurately record the actions and analyze the entire class through the data obtained. The case study emphasized that it is very important for teachers to improve their instructional design and teaching quality. However, this method should be used based on our research needs. In other words, we can customize our research plan by adopting the usefulness of FIAS to various projects. Consequently, we can weaken the limits of FIAS.

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10. THE INTEGRATED SCIENCE CURRICULUM IN MAINLAND CHINA

The development of the integrated science course follows the history track of international science curriculum development. Although the integrated (comprehensive) science course is regarded as an undisputable fact in all countries, it presents different characteristics and implementation degree in courses because each country pays differing attention to integrated science curriculum owing to different teaching resources, instruction content, and teaching methods, among others. From the 1980s, the integrated science curriculum reform in China started from high school attached to Northeast Normal University, and then parts of schools in Shanghai carried on science course experiment. At the end of the 1980s, Zhejiang province started the integrated science curriculum reform. With the national eighth-time curriculum reform of 2001, integrated science curriculum has already formally become important part of national education course system. Science curriculum standards of compulsory education, which are the bases of science curriculum implementation, were compiled. However, the implementation of integrated science curriculum did not receive extensive favor in the reform. Against 38 national experimental areas in 27 provinces (e.g., the autonomous region, direct jurisdiction city) under the reform, only 7 regions chose the integrated curriculum. Only two million students have used the science curriculum consistently until 2006, after which several experimental schools withdrew from its implementation. Because of the withdrawal of the science course in Wuhan City, Hubei, in 2009, how to make the integrated science experiment successful in practice became the focus of attention. The integrated curriculum reform of Zhejiang in the last 20 years has become the example of an integrated science curriculum. Thus, its study can not only provide data regarding its successful implementation of the program, but also shed light into how to adapt implementation of the program to other areas and make nationwide implementation possible.

INTRODUCTION

Integrated Science

Although science curriculum is more widely known as an integrated curriculum, it holds different titles and designs in different times and different regions, such as "Science," "Nature," "Natural Science," and "the Physical Sciences." No matter the title, integrated science curriculum is a comprehensive curriculum form designed

to span the physical, chemical, biological, and geographical fields. The content of integrated science curriculum is systematically selected and organized, which helps to break the boundaries between disciplines.

Beginning with the new curriculum reform and compilation of science curriculum standards, integrated science curriculum has become an important part of national basic education curriculum. The study of integrated science covers a wide range of concerns, including the publications related to integrated science curriculum, such as "Science Curriculum,"(Yu, 2002) "From the Traditional to the Modern: The Development of Integrated Science Curriculum," (Guo, 2002) "Paradigm Development of Science Curriculum," (Zhou, 2010) and "Integrated Science Curriculum Design." (Yu, 2011) In addition, several doctoral theses, such as "From Division to Comprehension: On Science Curriculum Setting," (Pan, 2004) "Culture Interpretation and Construction of Science Curriculum," (Yu, 2003) and "Content Integration of Mainland Integrated Science Curriculum," (Sun, 2010) all theoretically explain the problems of science curriculum, such as its features and its implementation, as well as the setting and the ideal design.

Implementation of Science Curriculum

Fullan (1991) proposes that curriculum implementation is the process of putting the reform into practice, which concerns the extent and factors of real reform. Thus, the implementation of science curriculum reform in science curriculum is the most prominent and most difficult issue to resolve in curriculum reform, and is main measure of whether the science curriculum reform is a success. As to the implementation of integrated science, some researchers and science teachers have conducted a study to explore its theory and practice, such as methods of organization, strategies of implementation, and academic assessment. However, these studies are not systematic; thus, the regional and empirical study of integrated science curriculum and its implementation cannot be summarized to guide the effective implementation of the integrated science curriculum in other provinces.

RESEARCH DESIGN – CONTENT AND METHOD

Research Questions

Our main research goal is to determine the implementation status of integrated science in Zhejiang. To achieve this goal, we decompose our issue into a series of questions:

- How did the integrated science curriculum of Zhejiang province develop? Is it similar to the process experienced in other provinces?
- How were we able to implement that integrated science curriculum when other provinces (such as Wuhan) have been forced to revert to the subdivided curriculum?

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- How was the integrated science curriculum carried out currently in Zhejiang? Is there are any worthy of success and experience for other provinces to follow?
- What are the issues encountered during the implementation of the integrated science curriculum? What are the effects of these issues on the implementation?

This study attempts to answer the above questions by analyzing the related literature, and performing surveys and in-depth interviews. It contains three steps:

First, we will review the history of science curriculum in the mainland by showing the process of "the natural science" experiment, by following the change from "the natural science" to "science" curriculum, and by analyzing the related literature, combined with the interviews of seal reformers.

Second, we will compile Likert questionnaires on the implementation of the integrated science curriculum. Some science teachers will be asked to complete the questionnaire, and their answers will be analyzed using frequency statistical analysis. Because the science curriculum attempts to promote the scientific literacy of students and because the nature of science is the core meaning of science literacy, we will further develop a Likert questionnaire survey for science teachers to study their understanding the nature of science.

Finally, based on "comprehensive, independent, cooperation, exploration, and difference," as advocated by the science curriculum standards, we consider integrated science curriculum construction from several viewpoints: the nature of subject and its teaching, reform and innovation of pedagogical content, internal mechanism, and characteristics of learning, instruction design that embodies students' development, teaching strategies, and effective teaching evaluation. We will design an interview outline following four progressive dimensions: awareness, understanding and application, and self-reflection. Several science teachers from different cities and areas will be interviewed and several teaching videos will be taken for classroom observation to further analyze the pros and cons of implementation in order to determine the current state and effectiveness of the integrated science curriculum.

Instruments

In this study, we use questionnaire of "the status quo of integrated science curriculum implement,"and "understanding of the nature of science," which we compiled ourselves. Multi-dimensional and multi-level interviews are conducted, and several classroom-teaching videos are taken. As to the questionnaires compiled, we not only consult the relevant literature regarding the integrated science curriculum implementation and the nature of science locally and abroad, but also consider the continental characteristics of science curriculum reform. The interview outline comprises three levels and seven parts. The videos taken contain science classroom teaching for public and the regular classroom teaching as well.

Methods

In this study, we used questionnaires, interviews, and classroom observations, as well as the extant literature, to understand the status of the integrated science curriculum and its related issues.

Literature.　We consulted science curriculum reform documents nationwide and from Zhejiang Province, including research reports and documents on the science curriculum reform and its implementation.

Questionnaires.　We handed out approximately 500 questionnaires among science teachers of different areas and cities (such as Ningbo, Shaoxing, Hangzhou, Jiaxing, and Wenzhou) in Zhejiang, as well as 200 science teachers from Yuhuan of Taizhou and Jinhua. After receiving the filled-out questionnaires, we used SPSS 16.0 for statistical analysis.

Interviews.　We used the "one-to-many" form to interview approximately 100 science teachers in four main regions: Wenzhou Lucheng, Wuyi, Shaoxing, and Hangzhou Bingjiang. The content mainly paid attention to the attitudes of these science teachers to the science curriculum reform and the problems and difficulties of its implementation.

Classroom observation.　By means of video recording, we used the observation scale of Cui for classroom observation and analysis in order to understand the bright spots and shortcomings of science teaching, specifically with regards to scientific inquiry, cooperative learning, and scientific experiments in science teaching practice.

Objects

1. We mainly took science teachers as our investigation objects, combined with text analysis and classroom teaching to determine the understanding of science teachers of scientific literacy and the nature of science, which crucial for science curriculum implementation.
2. As to the sampling of investigation object, we considered economy and the culture differences among the cities. In addition to stressing the samples from different cities of Zhejiang Province, we lay particular emphasis on a comparison of the two areas.

THE HISTORICAL EVOLUTION OF THE SCIENCE CURRICULUM

The purpose of integrated science curriculum in our country is based on the criticism of the subdivided curriculum. In other words, the integrated curriculum and the subdivision of courses are regarded as opposing sides, which not only

denies the existence of the reasonableness of the subdivision of courses, but also destroys the relationship between integrated science curriculum and the subdivision of courses. For examples, regardless of high school integrated science curriculum reform attached to Northeast Normal University or the reform and practice from "natural science" to science in Zhejiang Province, integrated science courses are considered the opposition side, rather than as a continuous reform of the subdivision of courses (such as into physics, chemistry, biology, etc.). "Ingram,1985", the current integrated science curriculum, which has gone from "natural science" courses to the science curriculum and then incorporated into the national science curriculum, has mainly been implemented only in Zhejiang Province.

"National Science" Curriculum Reform in Zhejiang

After the high school attached to Northeast Normal University and Shanghai Education Bureau, Teaching Research Office carried out the first small-scale integrated junior high school science curriculum experiment in 1980s. Research and development of science integrated science curriculum have been carried out in Zhejiang in response to the policies of national basic education. Specifically, the process of "Natural Science" curriculum reform is based on the following:

1. Investigation and analysis of the development of international science curriculum. According to Hongjia Wang's book "New Education Crisis of China," some researchers went to Hong Kong for their integrated "science" curriculum and its variety of textbooks, whereas other researchers went to Taiwan and the United Kingdom and other countries to conduct research and analysis.
2. Reflection of the problems from the subdivision of courses (physics, chemistry, and biology). For instance, no study has been conducted regarding the what and how of teaching in the junior high school science curriculum, such as whether the scientific content is too difficult for compulsory education students to learn, possibly resulting in a high rate of dropouts, and whether students can be cultivated to meet the requirement of social, technological, and economic development.

"Natural Science" Curriculum Reform Process

As to the development of integrated science curriculum, the Education Commission of compulsory education with the Teaching and Research Section used competition-motivation method to determine its main design. On November 29, 1989, the chief editor, sub-editors, and other members for science textbook development were chosen. Ziqiang Yu was chosen to be the chief editor, Xingxin Yan and Yiping Zhu were chosen to be the as sub-editors (later Shangen Yu in place of Yiping Zhu), and the members comprised Yiquan Cheng, Xiaozheng Chen, Wenqing Wu, Hongfeng Fang, and so on.

The development process of "Natural Science" was not only to absorb the experience and lessons of reform in the high school attached to Northeast Normal University, but

also included in-depth analysis and research on the characteristics of international integrated science curriculum, especially the integrated science of Britain, Hong Kong, Taiwan, Japan, and so on. Combined with philosophy and practice, the development of science textbooks was based on an analysis of national standards (outline) and teaching materials, study and analysis of curriculum objectives, structure, content, organization, degree of comprehensive, and so on. According to the investigation of science teachers of Zhejiang Province, two-thirds are young teachers; therefore, the government decided to begin implementation here because of their high adaptability.

In September 1991, three experiment areas, namely, Guancheng in Cixi, Keqiao in Shaoxing, and Zhuji carried out the integrated science curriculum reform recognized by the leaders of state educational committee. Five thousand Grade One junior school students were involved in the experiment.

In February 1992, the experiment was expanded to 24 counties (including Xiaoshan, Longyou, and Qingyuan). Approximately 40,000 Grade One junior school students were involved in the experiment. We built "the instructional plan of compulsory education," which reduced primary subjects from 11 to 8, decreasing the total hours from 5,100 to 4,760, and reduced the required subjects in junior high school from 14 to 12, decreasing the total hours from 3,066 to 2,648. Approximately 388 elective subjects, activities, and social practices were added.

When implementation of "Natural Science" was attempted in the whole province, it suffered opposition from secondary school teachers, principals, university teachers, and academicians. These parties submitted proposals to National People's Congress (NPC) and Committee of the Chinese People's Political Consultative Conference (CPPCC) through letters and petitions, applying great pressure for the implementation of integrated science curriculum. According to Zhongjie Shao, the editor of Education Commission, "…I can own nothing, but the reform of integrated curriculum cannot give up." The integrated curriculum thus was persisted in.

Because the experiment was expanded to the whole province in 1993, whether the science teachers were suited to the comprehensive of "Natural Science" textbook was considered. In 1994, the comprehensive degree of textbook was reduced to maintain the direction of integrated science curriculum.

In 1995, academicians and educators put forward their different views about the integrated science curriculum. Fortunately, the integrated science curriculum was supported by Zhichun Xu, the vice governor of Zhejiang Province. Bing Liu correctly set the direction of integrated science curriculum, which enabled the integrated curriculum in Zhejiang to survive.

In February 1998, the seminar on "Integrated Curriculum of Basic Education" was jointly held in Hangzhou by former Basic Education Department of State Education Commission and Zhejiang Province Education Commission. Experts from eight universities and educational institutions (such as People's Education Press, North China Normal University) attended and expressed high regard for the integrated science curriculum reform. The important reform achievement was also reported by CCTV News Broadcasting.

"Natural Science" Curriculum and Teaching Materials

The design of any kind of curriculum should be based on knowledge, the students, and society. The integrated science curriculum in the junior high school of Zhejiang Province is also based on certain social background, science and technology development, and students' learning. The content selection of "Natural Science" considers three aspects: improving peoples' science literacy via the integrated STS curriculum, scientific methods training, and patriotism. Thus, the content of science curriculum includes biology (approximately 30%), physics (approximately 25%), chemistry (approximately 20%), geography (approximately 10%) and integrated topics (approximately 10%). Its features are embodied in the following contents:

1. Energy conversion and conservation, mass conservation, biological evolution, ecological balance and other basic principles and laws of nature;
2. Plants, animals, micro organisms, humans, the earth, molecules and atoms, elements and their compounds, physical movement and chemical reactions, and organisms and environments;
3. Training of scientific methods, such as observation, experiment, investigation, logical reasoning, exploration, and so on; and
4. Scientific achievements and scientists.

As to the curriculum structure, different ways to organize exist, such as the integrated science curriculum centered on concepts, scientific research methods and process, science topics, life experience, and social issues and so on (Fan, 1998). Considering that the theme-centered style cannot be adapted to China's actual conditions, we adopted the "step-by-step placement strategy" (Yan, 1991) to organize "Natural Science" curriculum. Using this strategy, the content of curriculum falls into three parts within six volumes. "Understanding the nature," the first part, includes the richness and color of nature (the nature around us, observation and measurement, animals, plants, and the earth). Volumes II, III, and IV belong to the second part, "exploring nature, which covers the (1) physics and life, which consists of physical characteristics and the basic units of life, and covers plant nutrition, exercise and senses, the history and continuation of life; (2) material and movement, which consist of the composition and changes of material electromagnetic motion, body's motion and metabolism, regulation of human activities; and (3) matter and energy, which are composed of force, power and mechanical energy, thermal and chemical energy, and electrical energy. The third part is "the relationship between human and nature," which includes ionic solutions, raw materials, and the environment and its protection.

One characteristic embodied in "Natural Science" content its focus on inquiry learning through three steps: (1) design a number of exploratory experiments and practice, such as campus observation and practice in Volume I, observation and collection of protozoa and algae in Volume II, installation of a door bell in Volume III, and investigation of the population growth and environmental conditions in Volume

VI; (2) provide an open forum for discussion, such as the topics of "biotic and abiotic" and "the evolution of nervous system; and (3) design a variety of scientific exploration activities for one topic, such as design four scientific inquiry activities(Is there starch in soil? Leaves without ultraviolet ray? Green leaves with light? What condition does photosynthesis produce?) for photosynthesis in Volume II.

Another characteristic of the "Natural Science" curriculum development is the introduction of STS curriculum, which is specifically related to five aspects: (Yu,1996) (1) the relationship between science and technology, covering technologies and technical achievement when introducing scientific facts, concepts and principles; (2) science, technology and social issues seminars on population, energy, resources, ecology, and the environment; (3) the personals trait and social responsibilities of scientists, which introduces ten Chinese scientists (Shizheng Li, Xuesheng Qian, Yingxing Song, Longping Yuan, and so on) and six foreign scientists and their achievements and role in economy, culture, and society; (4) the social nature of science, wherein we attempt to summarize science knowledge from historical and social point of view; and (5) the characteristics of science, which focus on the scientific method, attitude and spirit, topics of observation, analogy, classification, scientific experiments, mathematical methods, and so on. In addition, "Nature Science" strives to guide students to participate and explore practical issues to understand how science research is conducted.

Teachers' Professional Development in "Natural Science" Curriculum Reform

The success of any curriculum reform is inseparable from the professional development of teachers and the "Natural Science" curriculum reform as well. Since the three experiment areas started the reform in September 1991, the Working Groups of Natural Science frequently went to experimental areas for specific guidance to determine whether science teachers could adapt to integrated science teaching. They suggested science teachers should attend one-month specific training courses. The teachers would not only learn educational theory and become familiar with the materials and teaching guidelines, but also gain in-depth understanding of the intention, structure, and system of the science textbooks. A series of measures were adopted, which are as follows:

1. The integrated science teaching and research group was composed of teachers of physics, chemistry, and biology. School-, township-, and district-level science education research networks were formed to facilitate discussion and conduct research activities.
2. Science teachers were recruited and categorized by their academic background (biology for Grade One, physics for Grade Two, and chemistry for Grade three) and research experience.
3. Collaborative preparation for classes were held every Friday, which all science teachers should attend to discuss the research activities of integrated science in order to prepare for the next week's science teaching.

As to the difficulties from science teachers, two effective measures were adopted. On one side, the content and degree of integration was adjusted, and variety of teaching organization was extended. On the other side, strategies to promote science teacher adaption were put forward, such as the establishment of teaching and research groups are collaborative preparation and the need for full-time integrated science teachers. The science teachers aged under 35 were required to teach "Natural Science" independently. Additional laboratory equipment was needed, as well as full-time laboratory assistants. In addition, science teachers were asked to improve their implementation capacity by attending teaching methods, research, and other various types of training, such as group discussions.

From "Natural Science" to "Science"

A large-scale survey on curriculum implementation of compulsory education was carried out by Basic Education Department of Ministry of Education in 1996. The survey covered the achievement of the curriculum objectives, suitability content, evaluation issues, and so on. The subjects for this investigation were students, teachers, and principals. An investigation report was submitted at the end of 1997. In January 1999, experts from the working group of Basic Education Curriculum Reform, after more than 100 seminars, "released the outline of Basic Education Curriculum Reform (Trial),"signalling the new start of basic education curriculum reform that was formally promulgated in June 2001. It put forward the combination of the subdivided curriculum and integrated curriculum for junior high school, and actively initiated the choosing of the integrated curriculum. In April 2000, "Science (Grades 7–9) Curriculum Standards (trial version)," which emphasized that "for all students, based on the students development, embody the nature of science, stress scientific inquiry, and reflect contemporary scientific achievements" and aimed to enhance all students' scientific literacy, was launched. According to this document, scientific inquiry and relation of science, technology, and society are most crucial content, as well as physics, life sciences, and aeronautical sciences. Four textbooks were compiled based on the curriculum standards. In the autumn of 2001, science curriculum was initiated in 38 experiment areas in 27 provinces (autonomous regions and municipalities) Nanshan in Shenzhen, Kaifu in Changsham, Lingwu in Ningxia, Quwo in Shanxi, Wuhai in Inner Mongolia, Jinzhou in Dalian, and Gaomi of Shandong were among the first science curriculum experiment areas (later on, Gaomi in Shandong and Jingzhou in Dalian withdrew from the experiment). Zhejiang conducted the experiment in batches; three experiment areas in 2002, the number of 52 in 2003, and the whole province in 2004, "Natural Science" curriculum ended its historical mission and was replaced by the "Science" curriculum.

1. Development and revision of science textbooks based on science curriculum standards. Two kinds of science textbooks exist: one version is published by the East China Normal University Publishing House, whereas the other version is

published by Zhejiang Educational Publishing House, which further developed the "Natural Science" textbook used by most areas of Zhejiang Province. The "Science" textbooks are based on "Science Curriculum Standards" and take "the Existing Nature–the Evolution Nature–Nature and Humanity" as clues to comply, shifting from a static to a dynamic nature, and focusing on fundamental issues, namely, the relationship between human beings and nature. Based on "material, movement, energy, information, systems, structure, evolution, balance, conservation" unified concepts and principles, seven topics (the level of material systems, movement and change, interaction, structure and function, transformation and balance, evolution, development and harmony) are established in the science textbooks. According to the editors, the "Science" textbooks strive to embody two characteristics: (Fang, 2006) (1) discipline based on the utility of knowledge, process, and culture and (2) discipline based on the utility of nature of science and nature of education with an emphasis on students' thinking and their cultural background, stressing on the students' experiences to determine their understanding of the nature of science).

Professional development of science teachers. The "Science" curriculum emphasized the scientific inquiry theme and STS topics, which put forward the new requirements of inquiry, problem-solving, and application abilities for science teachers. Specifically, for the topics of "science, technology, and society" and "the earth, the universe and space science," not only did different disciplines of knowledge need to be integrated, but teachers also had to go beyond the boundaries of their discipline, needing the facility to connect different disciplines of knowledge and skills to enable students to understand the relationship of science, technology and society, and then enhance their understanding of the nature of science and scientific literacy. The interdisciplinary and integrated nature of the "Science" curriculum required science teachers to own a broader academic background and wider adaptation skills, which also affected the science education major of normal universities.

Science teachers are mainly physics, chemistry, or biology majors; thus, many were unable to adapt to the implementation of science curriculum. Fortunately, the problem was gradually solved with the attendance of Universities of Zhejiang Province during the new round of science curriculum reform. As to cultivation of science teacher, we should refer to the major of science education created by Zhejiang Normal University, Ningbo University, and Shanxing College in 2003. Hangzhou Normal University, HuZhou Normal College, and Taizhou College also established this major in 2004. Science education refers to the training of science teachers, comprising a variety of training programs (such as leadership project or provincial/municipal training) for the professional development of science teachers.

STATUS QUO AND REFLECTION OF SCIECNE CURRICULUM IN ZHEJIANG

The integrated science curriculum of Zhejiang, from "Natural Science" to "Science," is nearly two decades old; however, systematic evaluation of the scientific literacy

of students has not been conducted. The investigation of students' scientific literacy, covering the basic understanding of scientific and technical terms and concepts, scientific research and its methods and impact of science on society, was conducted in 1997. The survey results showed no significant difference of students' scientific literacy between experimental areas and non-experiment areas of "Natural Science."In short, the students' understanding of scientific literacy was not weakened because of the implementation of "Natural Science" with the science teachers who could not adjust to integrated science teaching.

Several surveys were carried out after the new "science" curriculum implemented after 2002. One survey, "Investigation and Analysis Of Science Curriculum Implementation for the Junior High School of Wen Zhou" was conducted by the Wen Zhou Research Institute in October 2004 (Lin, 2004). The results showed that the feature "Science" curriculum can be distinguished from "Natural Science" by the "students' autonomy" emphasized in the instructional design, but also by the classroom behavior and research of science teachers. Another survey done in September 2006 investigated a third-year graduate students' scientific literacy. (Zhang, 2007) The research results showed that the students' scientific literacy, embodied in the students' understanding of problem-solving methods, scientific attitude and values, and the relationship of science, technology, and society, were significantly different among students from the experiment areas and those from the non-experiment areas.

"Shall we go on integrated science curriculum?" is no longer a controversial question for the science curriculum reform of Zhejiang; however, other provinces continue to discuss this problem. We should explore how we can carry the integrated science curriculum reform a step forward. We should face the status of our science curriculum implementation and analyse the problems that confront us. To clarify problems in the practice of integrated science curriculum implementation for two decades, we gathered data regarding the status of integrated science curriculum implementation from more than 500 science teachers in different regions. The research tool includes questions for interview, videos and questionnaires which are compiled and revised based on test measurements.

Indicator Construction

The concept of "Curriculum Implementation" must be understood in order to construct indicators of implementation of science curriculum in Zhejiang. For curriculum implementation, different scholars have proposed a multi-dimensional understanding, which means many issues are involved in curriculum implementation. However, regardless of type, no curriculum implementation can occur without teachers and students. Thus, we built indicators in view of the five dimensions understanding of curriculum implementation proposed by Fullan and Pomfret (1977), especially the subject in the curriculum implementation and its relation. Thus, the investigation for science curriculum implementation consists of 34 questions, which includes

Table 1. Indicators of science curriculum implemenatation

First-grade index	Second-grade index	Third-grade index
System of Science Curriculum	Nature of subject	Understanding the integration and logic of science curriculum
		Distinguishing science curriculum and the subdivided courses
	Existing curriculum form	Curriculum form must be multi-disciplinary in nature
		Existing curriculum form of every school
Science Teachers	Professional background and degree of adaptation	Professional background
		Ability to adapt to integration
		Teachers' adaption to the new content and teaching methods
	Teacher communication and training	Form and demands of communication of science teachers
		Science teachers' training needs, opportunities, and effects
Science Textbook and Curriculum Content	Science textbook	Whether science textbook reflects the nature of science
		The difficulty of scientific content, the logic of the layout
		Synthesis of science textbook
	Science experiment	Science laboratory, equipment, and assistant
		Scientific experiments skills of science teachers
		Scientific experiments carried out
	Other curriculum content (such as nature of science, history and philosophy of science, STS education)	Attention paid to other curriculum content
		Instruction and analysis for other science contents
Teaching Style and Methods	Scientific experiment	Scientific experiment instruction
		Instruction of science experiment
	Other teaching methods	Variety of learning styles (such as inquiry learning, cooperative learning, etc.) to carry out

four first-grade indices, nine second-grade indices, and twenty third-grade indices (Table 1). As to the questionnaire of understanding the nature of science, we built indicators according to McComas' views of international science education. The first-grade indices (Table 2) cover the nature of scientific knowledge, the nature of scientific inquiry, and the nature of scientific cause. In addition, the interview outline is based on the nature of science curriculum and science curriculum standards,

Table 2. Indicators of the nature of science

Nature of scientific knowledge	Nature of scientific inquiry	Nature of scientific enterprise
Durable of tentative character, replicability, creative, evolutionary, and revolutionary	Skepticism, challenge empirical data, logical reasoning, limitation, methods of diversification, theory-laden, lack of no universal step-by-step scientific method	Cultures contribute to science; scientific ideas are affected by their social and historical milieu

Table 3. Design ideas for interviews on science curriculum implementation

Awareness	Integrated science curriculum construction	Characteristics different from subdivided courses, such as the proportion of theory, experiment and practice, and the degree of integration
Understanding and Application	The nature of Science and its teaching	Connotation and its teaching of the nature of science, science teaching objectives and its embodiment, and nature of subject and its teaching
Reflection	Pedagogical content, reform, and innovation	Science textbook and other curriculum resources, the content and chosen basis of science experiment content, and the proportion of various types of science experiments

especially on the understanding of "comprehensive, independent, cooperation, inquiry, and difference." We designed it from seven dimensions based on three levels (Table 3).

Indicators Construction

Based on the index construction, we chose science teachers from four different districts of Zhejiang Province to survey. We interviewed them regarding the construction of integrated science curriculum, the nature of science and science curriculum objectives, implementation and reform of science curriculum content, science learning mechanisms and processes, science curriculum implementation strategy and evaluation, the professional development of science teachers, and the environment of science education. We conducted in-depth analysis of integrated science class records (heterogeneous classes, open classes, etc.). Because of the importance of the nature of science for scientific literacy, we specifically surveyed the science teachers' understanding of the nature of science.

Positioning of integrated science curriculum form. We can classify comprehensive curriculum by the existence curriculum form and its core. The integrated curriculum is divided into systematic integrated curriculum (also known as wide-area courses,

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which organize a field of subjects to cover the entire curriculum), such as the problem-centered integrated curriculum; human-centered integrated courses (general education in Hong Kong); the integrated curriculum combining two or more disciplines (stressing the breakdown of various disciplines of knowledge system to form new knowledge system); and modular integrated courses (two or more related disciplines maintaining relatively independent subjects in the topics or ideas). (Li, 2006) Integrated science curriculum is an ideal course manifestation, which is essential in the achievement of students' scientific literacy. Therefore, the coexistence of a variety of courses is necessary, and subdivided courses can be combined with an integrated curriculum in the current national basic education system. However, two forms exist in our current science curriculum implementation process. First, "Combined Science" (physics+geo graphy,biology+chemistry) exists in Riverside District, which regarded as the kind of intermediate state for integrated science chosen under the existing textbooks system, evaluation system, and teacher professionalism. When we focus on the reasons for "combined science" teaching, some science teachers believe it to be a form adapted to the needs of the current evaluation, which shows knowledge of the subdivided courses in a combined test. Some science teachers believe that "combined science" helps students build an in-depth understanding of scientific knowledge and develop systematic thinking. Of course, "combining science" is partly based on science teachers' professional sources (sub-division development). Second, the "integrated science" form, with integration of physics, chemistry, biology, and geography into one, which is present in Lucheng District, is the ideal form of "Natural Science."

Nature of science and science curriculum objectives. The students' understanding of scientific literacy is the ultimate goal of science curriculum. Understanding the nature of science is the core meaning of scientific literacy; therefore, the objective of science curriculum is to promote students' understanding of what science is, as reflected in the specific science curriculum design, content compliance, implementation, and evaluation. Therefore, explaining the meaning of scientific literacy and the nature of science is necessary. Science teaching should distinguish between science and pseudo-science, subjectivity and objectivity, observation and conjecture using variety of scientific methods.

In the survey of science teachers, most science teachers recognized promoting students' understanding science literacy as the object of science curriculum and teaching; however, they lacked accurate and comprehensive understanding of the content of scientific literacy. Because of the evaluation, teaching materials and other factors, knowledge and skills are paid much attention in science teaching, whereas "process and approach," "feelings, attitudes and values" are often kept outside of science classroom. As to the nature of science, most science teachers focus on "logical," "experimental," and "useful (practical)" in the implementation of science curriculum. Thus, the understanding of science teachers of the nature of science is preliminary and fragmented, and they cannot accurately understand the

rich and dynamic content, such as temporary, openness, reproducibility, empirical verifiability, and subjectivity (scientific knowledge based on human imagination and creativity) of scientific knowledge.

Science teachers generally think "science–technology–society" should be emphasized and embodied in science teaching to improve the interest of students in science and their understanding of the significance of learning science. Such lessons can also be interspersed with some of the examples into science teaching, such as the application of science and technology in the real life. However, most science teachers are not able to examine science teaching according to STS; they merely add technical and social elements to improve students' interest in learning science, not to help them understand science based on its relation with technology and society.

A tool to measure the understanding the nature of science of science teachers is needed. We not only compiled a questionnaire, but also used scientific observation to test the understanding the nature of science of science teachers. We used SPSS for effective system to obtain the value of α (0.746), which satisfies the "internal consistency" standard proposed by Nunnally in 1978. In short, the validity of the questionnaire is good if the value of α greater than 0.7.

1. Existing understanding the nature of science. As to the survey of science teachers' view of NOS, we designed questionnaires and carried out the investigation according to the essence index of NOS from six facts: "the relativity of scientific knowledge," "the subjectivity and objectivity of science," "the practice and creativity of scientific process," "scientific theory and scientific laws," and "relationship of science, technology, society and culture." The results are shown below (Figure 1a, Figure 1b, Figure 1c, Figure 1d, Figure 1e, Figure 1f).

As to the statistical analysis of "relativity of scientific knowledge, although 94.6 % of science teachers denied the invariance of scientific theory in Question 32, the results of Questions 1 and 18 presented approximately the same ratio of supporting and opposing viewpoints (57.4 ratio 39.1 for Question 1, 53.9 ratio 36.7
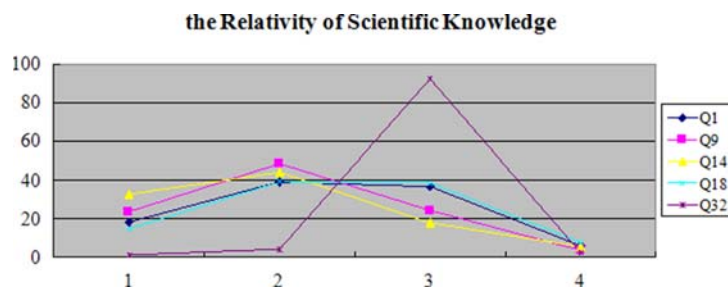
Figure 1a. The relativity of scientific knowledge.

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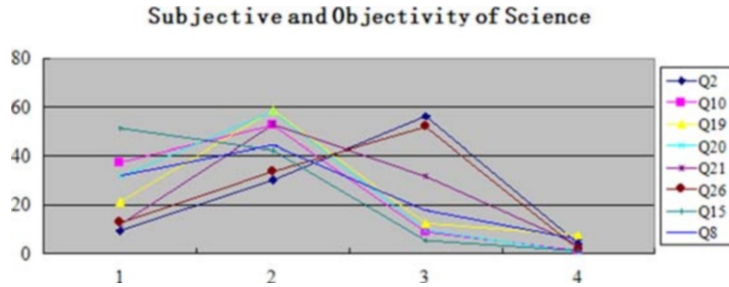
Figure 1b. Subjective and objectivity of science.
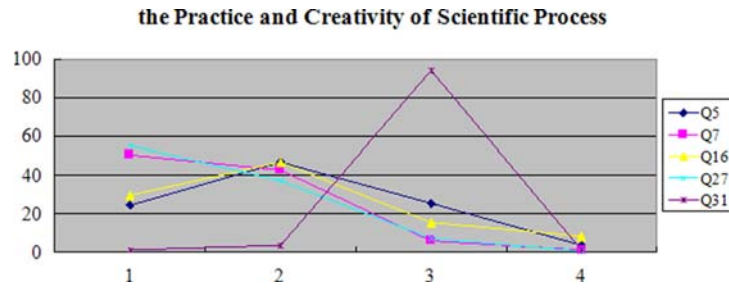
Figure 1c. The practice and creativity of scientific process.
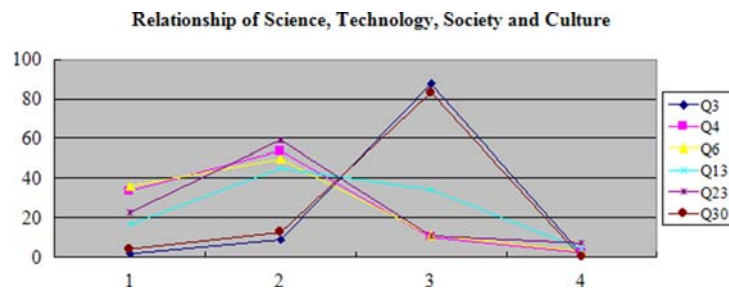
Figure 1d. Relationship of science, technology, society and culture.

for Question 18). For "scientific knowledge cannot be regarded as truth,"72.2 % of science teachers held a positive view; however, 24.5% of the science teachers did not agree. "Subjectivity and objectivity of science" was reflected in Question 8, with a ratio of 56.2 for support and 39.4 for opposition. We can deduce from Questions 10, 15 and 20 that most science teachers (89.9%, 93.5%, 89.8%, respectively) think
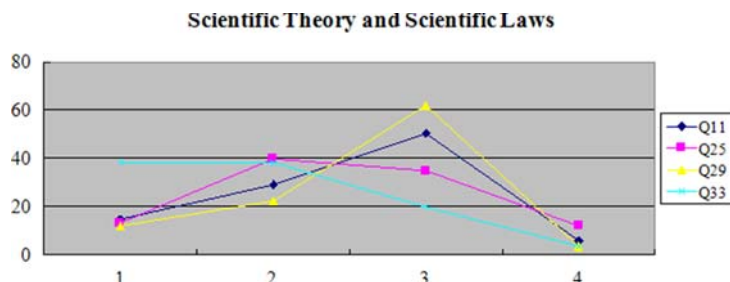
Figure 1e. Scientific tehory and scientific laws.
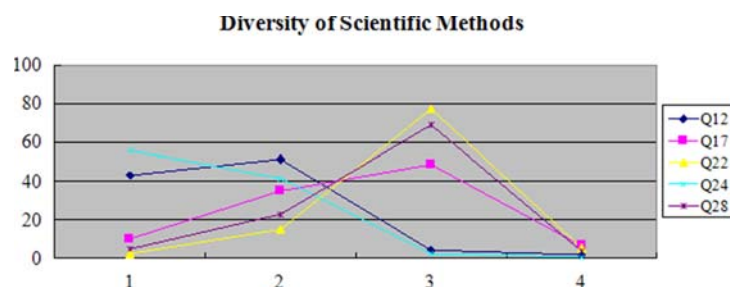
Figure 1f. Diversity of scientific methods.

scientists observing phenomena will be affected by their original theory and the observation purpose; therefore, different points of view, evidence, and interpretation for the same results will occur. However, the analysis of Question19, which shows 79.9% science teachers believe that scientists are objective in their data collection, is contradictory to the previous point of view. According to the answers given for Question21, although 64.7% of science teachers believe various activities will affect their research work and scientific conclusion, whereas 31.7% of science teachers did not agree with this view. Specifically, for the question regarding "scientific research seeks for the answer of objective facts and truth independent of the society and culture, respectively 46.4% and 51.8% of the endorsement and opposition. As to "practicality and creativity of the scientific process, science teachers pay more attention to imagination and creativity than to intuition in their scientific research.

We can deduce from the survey data that science teachers found "scientific theory and scientific law"the most difficult to understand. Although most science teachers have an understanding of scientific theory and scientific law, they seem unable to differentiate the two (the proportion of opposing and supporting viewpoints are the same, namely, the ratio of 43.8 to 50.3 for Question 11 and 53.1 to 34.9 for Question 25). "Understanding the relationship of science, culture, and society" is one

aspect for science teachers found easy to understand, more than 80 percent of science teachers showed a clear understanding. As for "the diversity of scientific method, more than 90 percent of the respondents recognized the importance of curiosity and collected evidence in scientific research, but at different levels. Overall, science teachers seemed to have a different focus on understanding the different levels of the nature of science, but lacked a conception of modern science.

2) Understanding the status quo of science curriculum. In addition to the understanding of the nature of science of the survey implementers, we also need a clear picture of science teachers' understanding of the science curriculum (embodied in part in the problems in "the survey of science curriculum implementation"), which mainly reflect in the analysis of "the nature of science curriculum,"such as integration and logic of science curriculum (Figure 2). Approximately 75 percent science teachers regard the science curriculum as other subjects put together, 39.9 percent of science teachers think that the science curriculum undermine the inherent logic of the subdivision of courses, and 86.5 percent of science teachers think students have more difficulty in building a framework of knowledge. In addition, 59.5 percent of science teachers think that the science curriculum is relatively difficult for the in-depth discussion and learning of students. As to inquiry activities for science curriculum, 30.4 percent of science teachers believe such activities to be too much to carry out (Figure 2).

Development and Utilization of Science Curriculum Resources

Curriculum resources comprise the sum of all be available in the entire curriculum development process of curriculum design, implementation and evaluation. It contains all kinds of materials from school, family and society to help students' literacy improving. Curriculum resources are not only the carriers of knowledge, information and experience, but also the media for curriculum implementation. (Xu, 2002) As an important resource, the science textbook is the main content in curriculum
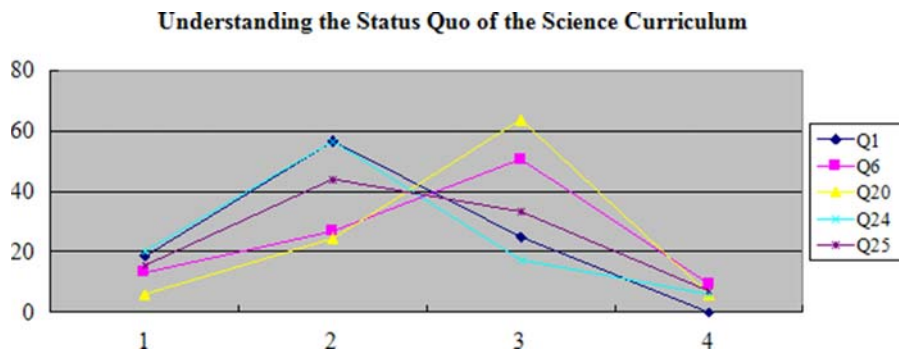
Figure 2. Understanding the status quo of the science curriculum.

implementation for science teachers. According to the survey, science teachers call for the reform of science textbooks, which means science textbooks are important for science teachers. Textbooks should consider the relationship of science structure (logic relationship between the various fields of science, the balance of difficulty of each grade segment) and disciplinary relations (science and mathematics, Chinese of primary). In contrast, the survey reflects the strong dependence of science teachers on science textbooks; even worse, some science teachers regard the teaching materials as their bible, from which they do not dare to deviate. As to the development and utilization of science curriculum resources except the teaching materials, science teachers in different schools have different views. Taking Bingxing School as an example, some science teachers emphasize the development of regional and generative resources, such as non-default experiment resources development, holding experimental exploration to be secondary. They extend science teaching outside the classroom and use interesting science experiment from students' life to replace their assignment.

Curriculum reform on the national, local, and school levels can help schools and students adapt to the curriculum and provide a broad stage for teachers to develop and utilize curriculum resources. However, great differences were evident among the different schools in the three courses because the corresponding mechanisms (such as home-school cooperation, community participation mechanisms, and market-oriented curriculum resources) have not been built.

The development and utilization of science curriculum resources are relatively inadequate. As to the survey of "whether school curriculum resources are abundant," 62.5 percent of science teachers believe that their science curriculum resources are very scarce. Specifically, with regards to the science experiments, approximately half of all science teachers reported that their schools have no full-time lab assistant. In addition, 47.1 percent and 61.2 percent, respectively, of science teachers reported insufficient scientific experiments room and laboratory equipment. Of course, such situations are not only caused by the pressure of science teaching evaluation; science teachers also lack the awareness to develop and utilize the outside curriculum resources, especially the Science and Technology Museum, which requires the convergence of science teaching content and reflection of the important aspects of science, technology and social relations. In the interview, the majority of science teachers preferred multimedia teaching materials, extracurricular experiments, and even teaching reference and exercise books. The reason for such preference could be deduced from further interviews. First, science teachers feel too much pressure to develop and utilize relevant science curriculum resources, which are quite time-consuming. Second, students are short of time to attend relevant inquiry activities because of their heavy workloads. Third, schools try to avoid courses related to curriculum development and utilization in consideration of the safety of students. Fourth, no similar external standardized examination and evaluation tools to evaluate the actual effectiveness of science curriculum resources development and utilization exist. Fifth, due to lack of understanding of curriculum resources, science teachers ignore or fail to grasp the rich student-generated curriculum resources.

Different schools pay different levels of attention to the exploitation of curriculum resources. For example, some schools set up areas such as "Botanical Garden,""Herbarium," "Geographic Park," and "Science and Technology Museum" for students to learn and understand science, whereas some schools carry out a variety of practice activities about science, such as competitions about science and technology (e.g., model aircraft competition). Such comprehensive activities are not fully independent of science teaching so that they cannot be regarded as the source of questions about science for students. Students fail to establish the relationship between high-tech and science learning, thereby showing the lack of the understanding of science and technology links. This phenomenon may be part of the reason STS education implementation should focus more broadly on science and its utilization in society.

From the survey about STS education in science education, 72.6 percent of science teachers think the implementation of STS education is often a mere formality. For example, 74.29 percent (Yuhuan County) and 80.26 percent (Jinhua City) of science teachers believe the implementation of STS education is a mere formality.

Scientific Learning Process

Understanding the cognitive development of children and its psychological characteristics would help science teachers to design adaptable course content and use appropriate teaching methods. Namely, science curriculum design and the teaching process depend on understanding the cognitive development and learning characteristics of students. Thus, we design the interview in three levels: whether science teachers recognize the learning mechanisms of students, whether science teachers use learning mechanisms for teaching science, and whether science teachers can self-reflect according to the learning mechanisms.

From the survey and interview, the majority of science teachers emphasized that students experience is important for their science learning. They learn and understand science based on the phenomena and facts they observe and experience. Therefore, most science teachers emphasize scientific experiments and scientific inquiry activities in their science teaching. The relationships among each field of science and science and mathematics (or Chinese) are also emphasized. Taking the topic "measurement of length and volume" of science textbook as an example, students find these books difficult to understand because they cannot use scientific notation in math, which they have not learned in previous grades or classes. In short, not only science teaching, but also the development of science textbook, should consider the relationship of internal logic of scientific disciplines and the links between science and other disciplines.

As to the preconceptions in science learning, science teachers show different levels of awareness across different districts. Most science teachers from Lucheng District have an in-depth understanding of the preconceptions and can distinguish two different kinds of preconceptions by means of specific scientific examples: the

original concepts of students and scientific concepts are consistent, though they are low-level, whereas intuitive concepts can be obtained as foundation for scientific concepts.

In addition, the original concepts of students and scientific concepts are inconsistent and will play a hinder impact on the formation and development of scientific concepts. As to the conversion of these misconceptions, the majority of science teachers stress the importance of scientific experiment and inquiry. However, most have limited understanding and only several individual science teachers can cite part of the strategy for the conversion of misconceptions. They show students' contradiction of the original concepts and scientific concepts using guesswork and scientific analysis, and guide students through the experiment and inquiry process to promote the transformation of scientific concepts. With regards to the classification of scientific concepts and conceptual change strategies, most science teachers are unable to clarify the reasons for the discrepancies between misconceptions and scientific concepts, and thus cannot provide a variety of strategies in their teaching behaviors. Professional guidance is therefore crucial.

Regardless of whether the school is in high-tech area, rural or urban, science teachers must consider the differences of students, and then value cooperative learning and their experience process accordingly. Taking Bingxing Middle School as an example, whereas some science teachers can take stratified teaching and the hierarchical design of an assignment to promote the development of a student, few concern themselves with the difference in assessment. However, according to the survey and interview, the majority of science teachers lack an accurate understanding of cooperative learning and its effective strategies, which means they are unable to distinguish cooperation learning, collaborative learning, and group learning. They also do not understand the nature of cooperative learning clearly, and thus lack effective implementation strategies and evaluation needed for professional guidance.

Teaching Process and Its Evaluation

The teaching process reflects the effectiveness of science teaching; thus, the effectiveness of implementation needs to be evaluated. "Teaching to promote learning," which means diluting the selection and increasing the value of evaluation, is put forward in new curriculum reform. Improving the scientific literacy of students is put forward in the science curriculum standards (Grades 7 to 9), which stress the evaluation reform to promote student and teacher development, as well as the effective implementation of science curriculum. (Ministry of Education, 2001).

According to the survey and interview, despite the awareness of science teachers that improving the students' literacy is the ultimate goal of science teaching most continue to focus on scientific knowledge and stress unit tests, midterms, and final exams as the main assessment forms in science teaching and its evaluation. Teachers, not students, are regarded as the main subjects to evaluate, and thus evaluation tools

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depend on the various types of test questions and exercises, which have distinct pros and cons. Inquiry and cooperation are also stressed in science curriculum standards as a reflection of science teaching; however, the evaluation process of scientific inquiry and cooperative learning, especially the operability of the scientific inquiry evaluation system, is not mentioned. In addition, although 81.3% and 74.3% of science teachers often adapt inquiry learning and cooperative learning, respectively, the majority of the science teachers in the interview do not seem to understand inquiry and cooperation, and thus experience difficulty in carrying out real inquiry teaching in practice. Figure 3 presents the comparison of inquiry in two areas. One point that should be made clear is that science history and method in science teaching show discrepancies with results of the survey of "the nature of science": 73.2%, 82.2% and 77.4% of science teachers, respectively, stress the penetration of history of science into science teaching, elaborate the nature of science combined with the scientific content, and are concerned with science method penetration and education.

With the development of science and technology, and their application in education, we have entered a stage of information technology and curriculum integration (IITC). As a teaching and learning theory, constructivist theory contains "situation," "consultation," "conversations" and "meaning construction," which, due to the popularity of multi-media technology and networks, have a significant impact on teaching practice. From the characteristics of integrated science curriculum that embody comprehensiveness and openness, science curriculum resources are needed to help students learn science from nature and society. As to the science curriculum content, it should involve micro, macro, and macrocosmic scientific phenomena. Abstract science must be transformed into intuitive, specific representations for science teaching, based on IT technology. However, the most application of IT in science education still focus on the graphic video demonstrations for convenient, rapid, and large scale exercises, as well as text and video to stimulate students' interest. In short, the functions of IT integrated into the science curriculum are limited to the visualization of the scientific content, and do not concern its resources function and interactive features. Specifically, when we utilize DIS for science education, the majority of science teachers are unfamiliar with the concept and are unable to use DIS for scientific experiments. This issue has become a great concern in science curriculum reform.

Science Teachers and Their Professional Development

The integration of science curriculum has broadened scientific content to involve geography, astronomy, and aeronautical science. In addition, activities of scientific inquiry and STS topics are stressed in science teaching, putting forward new demands regarding inquiry, problem solving and application for science teachers. The quality and subject knowledge structure of science teachers are key factors. Therefore, whether our science teachers adapt to interdisciplinary characteristics of "Science" course is an unavoidable question that needs serious investigation. According to the
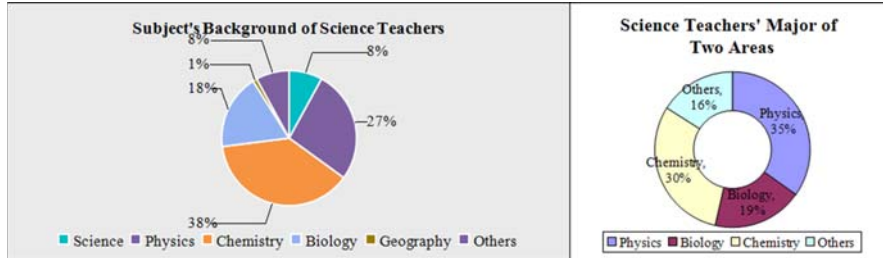
Figure 3. Subject's background of science teachers.
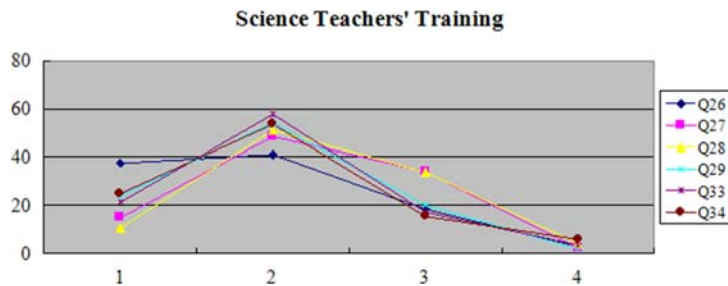
Figure 4. Science teachers' training.

survey, the main force of the science teachers comes from physics, chemistry, and biology majors of normal universities. Few possess other professional backgrounds, as shown in the survey of two areas (Figure 3a, Figure 3b).

Certainly, the implementation of integrated science curriculum in some areas is affected by the professional background of the science teachers. Thus, the "combined science" curriculum form implemented in Grade Three of some junior high schools is consistent with the survey and interview.

As to training and research of science teachers, nearly all regions and schools regularly or irregularly organize teaching and research activities, which are often mainly on the teaching of scientific knowledge for science teachers of different majors. Discussion about development of curriculum resources, teaching strategies and methods, science teaching evaluation and so on are lacking, thereby making in-depth exploration and research on science teaching is difficult (Figure 4).

According to the survey, 78.6 percent science teachers believe outside training opportunities are insufficient, and 63.5% believe science courses seldom carry out school-based teaching and research. Although cooperation and communication are stressed, 78% science teachers think communication mechanisms of different schools are lacking. As to the effective training, 79.1% of science teachers think that not only the content and skills be improved, but also the research and discussion mechanisms.

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According to the science teachers, the normal institutions of Zhejiang Province actively participated in the new curriculum reform. Science education majors from different normal universities were set up one by one, such as "science education," was an important major, by Zhejiang Normal University, Ningbo, and Shaoxing Colleges in 2003, and by Huzhou Normal University, Huzhou, and Taizhou Colleges in 2004. These institutions provided professional science teacher candidates for deepening the reform. However, some facts should be considered regarding curriculum design: (1) First, the cultivation of science teachers of different colleges focusing on the various disciplines were present, but an integrated and comprehensive curriculum was lacking; (2) Second, the focus was different for different colleges: mathematics and physics colleges stressed physics, whereas chemical and biochemical colleges focused on the professional basis of biology and chemistry.

The professional development of science teachers is a dynamic, generated, and constructed process, with individual, situational, and constructional elements that require inquiry and communication in the specific context. "A learning community is a group that investigates the problems encountered in the teaching and learning process. All participants will reach a common language about science teaching." According to the survey and interview, science teachers have varying degrees of communication with the other teachers in the same school, and exchanges between the different schools and areas are uncommon.

Convergence of Science Curriculum of Every Segment

Curriculum convergence of primary school and junior high school, and junior high school and middle school, is a common problem faced by the curriculum designers. In short, such curricula must be intrinsically linked and comprehensive. The science curriculum of both follows the development of "nature" and shows the same goals to promote students' understanding of scientific literacy. The content of both concerns biology, humanity, water and air, power and machinery, sound and light, electricity and magnetism, the earth, the universe, and so on. Because of different cognitive characteristics, differences exist in the formation and development of scientific literacy. For primary students, interest in science and thirst for science, scientific activities to experience the process and methods, and understanding the relationship of science, technology, and society are stressed. For junior high school students, understanding the nature of science and the student's science attitude formation are given added stress to promote their understanding and application of STS. In addition, scientific inquiry should also have a different focus because the focus of elementary students is to cultivate the ability to observe, describe, and express their experience of the scientific inquiry process. The students of junior high school should be able to use simple instruments and tools to collect data, record results of observation and measurements, use research processes and results in different ways. For high school students, inquiry activities, systematic observation, and precise determination must

be cultivated. Therefore, we should clarify the different requirements of the same scientific content for students of different grades ("mechanical leverage and its applications" is a good example).

Convergence of junior science curriculum and senior subdivided curriculum is the problem in the implementation of science curriculum. From the curriculum content, integrated science curriculum emphasizes breadth of knowledge whiles placing less emphasis on depth, and stresses students' experience of scientific knowledge while placing less emphasis on the systems and logic, resulting in the fragmented grasp and vague understanding of subject knowledge which are clearly demonstrated the incoherent of the science textbook. Therefore, we should pay attention to convergence, not only in complying science materials, but also in the process of teaching and teacher training. "Chemistry (physics, biology) experimental teaching method" is the bond to connect science and subdivided curriculum. Some columns, such as "reaction" and "thinking and communication" also can be the links connecting the junior high school and high school chemistry. In general, both schools must actively participate in the teaching activities to concern convergence not only in content, but also in teaching.

Difficulty of the Implementation of Science Curriculum

Implementation of the integrated science curriculum involves many aspects that are important to the effective implementation of science curriculum. We designed open-ended questions of survey such as "What do you think is the major difficulties encountered in your science teaching?"; "How do you solve such problems?"; "What is the great difficulty facing the science curriculum?" and "What measures must be taken to ensure science curriculum implementation?" According to the survey, the professional background of science teachers is the main factor for effective science curriculum implementation. Most science teachers feel the lack of relevant knowledge and then spend much time to prepare despite their years of teaching experience (Figure 5). According to the survey, 75.2% of science teachers
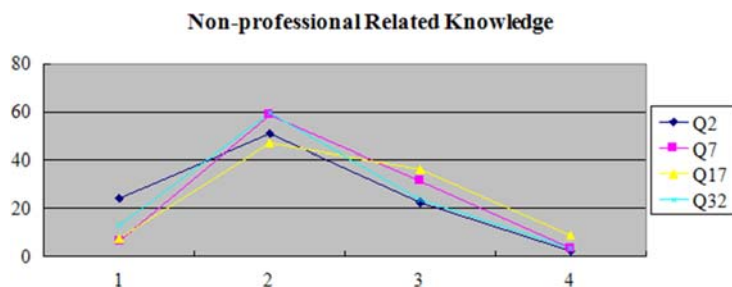
Figure 5. Science teachers' non-professional related knowledge.

feel the lack of non-professional related knowledge in their teaching, 65.1% of science teachers do not fully grasp the integration of science curriculum, and 45.2% are not proficient with the experimental skills, except for those covered by their major. Therefore, 72.6% of science teachers are greatly lacking in non-professional knowledge and experimental skills.

Difficulties in the implementation of scientific experiment and scientific inquiry not only stem from the demonstration experiment arranged in textbooks, but also due to the lack of laboratory equipment and professional lab assistants. The lack of modern equipment hinders the capacity of science teachers to design experiments, which results in "multi-media experiments" and "blackboard experiments" instead of scientific experiments. The science textbook is another difficulty for science curriculum effective implementation.

The examination and evaluation system of the science curriculum, including the matching degree of difficulty of teaching content and examination question, was also difficult to implement effectively. According to the survey, scientific evaluation standards need to be identified. People's opinions regarding evaluation as "the writer and advocator of science curriculum evaluate the implementation normally according to their experience" and "the opponent of science curriculum generally evaluates the science curriculum implementation according the standard of the subdivision of curriculum" need to be changed.

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11. HIGH SCHOOL HISTORY

From Imparting Knowledge to Boosting Lives in the Context
of the New Curriculum

In order to adapt to the 21st century personnel training and international competition, China, at the turn of the century, began a new round of basic education reform. The document *Basic Education Curriculum Reform Program (Trial)* (2001) proposed the basic education goal that "the times require that students should be trained to inherit and carry forward the fine traditions of the Chinese nation and its revolutionary tradition. They should be equipped with patriotism, collective spirit, love of socialism, with a socialist democratic and legal awareness and compliance of national laws and social ethics. They should be gradually provided the correct world outlook, an outlook on life and values with social responsibility, and strive to serve the people. They should have the initial spirit of innovation, practical ability, and scientific and cultural literacy, as well as environmental awareness. They must master basic skills and methods to adapt to the basics of lifelong learning. With robust bodies, and good mental qualities and aesthetic taste, the students will develop a healthy life style. Thus, they will become a new generation with great ideals, high morality, rich culture, and strict discipline." According to these basic education goals, the Ministry of Education enacted the following: *Full-time Compulsory History Curriculum Standards (trial version)* (2001), *History and Social Studies Full-time Compulsory Education Standard (a) (experimental version)* (2001), *History and Social Studies Full-time Compulsory Education Standards (b) (trial version)* (2001), *Full-time High School History Curriculum Standards (trial version)* (2003). At the same time, experimental history teaching materials that match the requirements of *Curriculum Standards for History* in compulsory education were first tested in 38 provinces in the autumn of 2001. Similar teaching materials for high school students were tested in four pilot provinces in 2003. Thus far, aside from high schools in Guangxi, other provinces and autonomous regions have entered the new curriculum period. With the new curriculum reform, our teaching of high school history has not only experienced unprecedented changes, but also some new problems. These issues must be sorted out and studied in depth. This chapter attempts to sort out these problems, to demonstrate the new curriculum changes in high school history teaching since the implementation of the reform, and to put forward some issues that need further exploration and discussion.

THE MAIN FEATURES OF THE NEW CURRICULUM OF HIGH SCHOOL HISTORY

The Nature of the History Curriculum is Basic and Human

As *Full-time compulsory history curriculum standards (trial version)* states, "Through junior high school history courses, students gain basic knowledge and skills of history and a preliminary understanding of the basic process of the historical development of human society. They gradually learn to use historical materials to analyze and solve problems. They develop enhanced feelings of patriotism, inherit and carry forward the Chinese fine cultural traditions, and establish a sense of national self-esteem and self-confidence. They gain the initial formation of the correct international awareness, and understand and respect civilizations created by other countries and people. The students learn and inherit the traditional virtues of the human beings. From the twists and turns of the historical development of human society, they gain a good understanding of the values and meanings of life, and gradually form a correct outlook of the world, life, and values." (Ministry of Education, 2001, p. 1).The new curriculum for junior high school history, in addition to positioning the basic courses, has placed more emphasis on historical humanities disciplines. In addition, the new curriculum focuses more on the humanity of students in its function. It is indispensable in the development and improvement of the humanity of students. It has thus become a core course for the implementation of human education. As the document *Full-time high school history curriculum standards (trial version)* states, "The high school history curriculum explains the process of development of human society and laws from a point of view of a materialist. It further develops and improves the senses of history, culture, and humanities of students as a basic course." "Through high school history courses, students gain good characters, and the healthy development of personality is promoted" (Ministry of Education, 2003, p. 1). The high school history curriculum, apart from the basic nature and human nature, highlights that the function of the history curriculum is character education.

History Curriculum Objective Optimization is Multidimensional and Hierarchical

Compared with the past history syllabus, the new "history curriculum standards" achieve a major breakthrough in the course objectives in three aspects. First, the course objectives fall into three levels "knowledge and ability," "process approach," and "emotional attitudes and values." These objectives involve not only specific knowledge, ability, emotions, and thoughts, but also the process and methods of learning the history, focusing on breakthroughs in the way students to learn history. Second, beyond the pure political education of historical thoughts and feelings, it focuses on fostering humanity and the scientific spirit, and relates the historical function of social education in human development education. Finally, in imparting knowledge, the operational target is proposed. Students learning history should meet three content standards: memorization, comprehension, and application.

History Curriculum Structure Optimization is Comprehensive and Selective

The new history curriculum places emphasis on a curriculum structure that is comprehensive and selective, rather than discipline-based and lacking in integration. History curriculum in compulsory education period is divided into six sections: ancient Chinese history, Chinese history, modern Chinese history, ancient world history, modern world history, and contemporary world history. Each section is made up of a number of subjects. The high school history curriculum uses a "module-topics" course structure that includes nine modules. Three compulsory modules reflect the social, political, economic, and cultural development of human societies. They include twenty-five subjects, ranging from ancients time to modern society, relating to both foreign countries and native lands. The other six selective modules are (1) a review of major reforms in the history; (2) democratic ideas and practices in modern society; (3) war and peace in the 20th century; (4)comments on Chinese and foreign historical figures; (5)exploring the mysteries of history; and (6) World Heritage sites and collections. Changes in the structure of this course are intended to highlight the selectivity and diversity of the history curriculum. It not only has a solid foundation, but also has the flexibility to better promote the comprehensive development of students.

Evaluation of the Development of the History Teaching is Diverse and Developmental

Compared with the previous syllabus, *History Curriculum Standards* aims to raise teaching evaluation, with special emphasis on evaluation to promote student development and the diversity of evaluation. The evaluation methods in *Full-time compulsory history curriculum standards (trial version)* propose "to use a variety of evaluation methods to explain the effects of history teaching scientifically. Thus, the evaluation can not only understand the students' ability and problems in all aspects of the history learning, but also inspire students' initiative and creativity" (Ministry of Education, 2001, p. 45).The suggestions in evaluation part of *Full-time high school history curriculum standards (trial version)* point out that flexibly using a variety of effective evaluation methods to assess the knowledge and capabilities, processes and methods, attitudes and values of students requires a combination of quantitative and qualitative evaluation. "In the process of learning, we should encourage schools, teachers, students, parents, and the community to actively participate in exploring effective learning evaluation methods" (Ministry of Education, 2003, p. 31).

CLASS TEACHING CHANGES OF HIGH SCHOOL HISTORY

China has a vast territory. Schools in the eastern, central, and western regions differ in many aspects, such as school conditions, management level, teacher level, student source composition, among others. However, under the impact of the wave of the basic education reform, when visiting a secondary school history teaching site, you

will find that, compared with the pre-reform curriculum, high school history classes have undergone significant changes, as reflected in the teaching objectives, teaching content, teaching style, teaching methods, and so on. In order to more specifically describe the China's new curriculum changes in classroom teaching, we have chosen the classroom teaching model to illustrate changes in high school history class teaching.

Classroom teaching is the comprehensive implementation of teaching theories, teaching objectives, teaching process, teaching style, teaching methods, teaching form, and other aspects of teaching. The combination of these aspects and the emphasis given will differ; thus, so classroom teaching is carried out through various methods, which we call teaching mode. "Teaching mode," which was first proposed by American scholars Joyce, usually refers to "learning mode" or "learning environment" (Joyce, Well, Calhoun, & Jing, 2002, p. 7). Chinese scholars believe that teaching mode is a "relatively fixed procedure and method of teaching strategy system based on teaching ideas and teaching laws, which must be followed, including the process of teaching, the various elements of the combination of methods, teaching procedures, and the appropriate strategy." (Wu, 2001, p. 151). Teachers widely use some teaching modes, whether consciously or unconsciously, in their daily teaching. The teaching mode, being regarded as the crystallization of the theory and practice, which changes a certain theory into practice and then develops onto intermediate fields of the practice into theory, has its own unique characteristics.

Integrity. Any teaching mode based on a certain teaching theory builds a complete system with a complete structure. For example, the procedures of case teaching mode may include the following : (1) to clarify the "one" as an example; (2) To clarify the "class" as an example; (3) to grasp rules and scope of the law as an example; and (4) access to the experience of world relations as an example.

Simplicity. Teaching mode is regarded as a simplified form of the teaching theory, with clear objectives and a brief process. Through clear and concise explanation of symbols or symbolic signals, teaching mode is typical of its theory basis. People do not find this to understand; thus, a specific and clear structural framework is needed to summarize and accumulate numerous complicated teaching experiences.

Operational. Each teaching mode is a kind of concrete and operational teaching theory. It makes the abstract theory concrete, the inherent nature procedures, which are much closer to the actual teaching and easier to understand and operate, different from speculative theory.

Targeted. Teaching mode has a clear theme, a fixed target, a unique program, and a certain scope. Therefore, teachers must pay attention to its features and functions in the selection and use of teaching. No universal mode applicable to any process of teaching exists.

After the founding of New China and due to the lingering impact of educational theory of the Soviet Kailov, teaching in China's primary and secondary schools were implemented with a five-link teaching method: the organization of teaching—review, leading-in—teaching new —the consolidation of new knowledge—assignments. The biggest drawback of this kind of acceptance-based teaching is that it is not conducive to fostering the practical skills and creativity of students. Therefore, by the 1980s, three crazes of reform arose in history teaching, focusing on "imparting knowledge, ideological education, and cultivating intelligence." In the 21st century, with the development of basic education curriculum reform, the development of high school history teaching mode has changed (1) from a teacher-dominated to a learning-based teaching mode; (2) from a single mode of teaching to a variety of teaching developments; and (3) from a general teaching mode to a scientific teaching mode (Ye, 2004).Many innovative teaching modes have emerged in high school history classroom, such as problems exploration, historical reenactment, historical data studies, interactive sessions, and so forth. The following begins our deeper discussion of the four specific teaching modes.

Problem Exploration Model

Historical figures are important parts of historical knowledge. The knowledge, understanding, and evaluation of historical figures are the new curriculum focus of history teaching. In the lesson "*The Establishment of Napoleon's Empire*," (Zhao, 2007, pp. 52–58). Guo Xiumei, as the teacher, presented details on the politics, society, and military of that era to students through the analysis of historical figure *Napoleon*. The use of a large number of historical sources not only conveys the rich history information, but also enables students to learn a method of evaluation of historical figures, penetrating the materialist conception of history and education. In this lesson, Teacher Guo focused on the topic that, in the struggle of capitalism and feudalism, French capitalism had an urgent need for a "sword," by designing a collection of questions, such as "How can Napoleon become 'the sword'?"; "How did Napoleon use 'the sword' as a safeguard to protect the interests of the bourgeoisie?'; and "Because Napoleon's 'sword' betrayed the principles of the French Revolution, how was he under a bushel?" To enable students to correctly understand Napoleon's successes and failures, Teacher Guo used multimedia presentations to show a vivid historical development full of complexity and richness. The historical data include Napoleon's student life, Napoleon's famous remarks, Napoleon's evaluation on the 'Code', Napoleon's speech, and so on. Teacher Guo applied a more common mode of this inquiry teaching with the following features:

1. Focusing on problems and questions which are open, inspiring and are organized from simple understanding to higher order thinking.
2. Focuses on students' discussion while students are encouraged to express their views freely.
3. Leads to the confrontation of different perspectives and exploration of issues in more depth.

4. Considers the methods used in discussing the problem.
5. The problem itself and its conclusions can be open. For the roles of teachers and students, the teacher is the organizer, or the "consultant" who enables students to explore issues as the owners.

Historical source study mode.   In the 1980s, the educational circles carried out an educational reform in the reform of changing teaching methods of classroom-based education. At that time, the historical source teaching methods appeared. The Ministry of Education regulated the use of historical sources in middle and high school history curriculum standards in the early 21st century. Historical source teaching focuses on the application of historical sources, including collecting, screening, and using historical data. Such data are regarded as evidence in exploring historical source, through which we can understand the nature and laws of the history (Li, 2006). This approach helps to foster the innovative spirit and practical ability of students; therefore, it is widely used in history teaching by history teachers. The study of historical source model is mainly based on students' research on the historical source. The theory regards the teaching process as the students' direct involvement in the discovery process. According to the characteristics of historical cognition, the operating procedures of this model can be divided into the following links: choosing topics, asking questions—making assumptions, collecting materials—analyzing materials, questioning, and verification—arriving at conclusions for improvements. For example, a teacher from Hong Kong Wesley College uses the historical study mode to teach the "Opium War." The main teaching process is as follows: "Setting up questions—screening, selecting historical data—sorting and analyzing historical data —using historical data (narrating, discussion, inference)—writing short papers" (Lei,2005, pp. 318–339).This class focuses on exercising practical ability and paying attention to the development of independent thinking emphasizing the self-learning, inquiry-based learning, cooperative learning of students from the questioning and the use of historical data.

Historical Re-enactment Model

The historical re-enactment mode aims "to create the historical context as the main feature. The theory is that student learning is an interaction between cognitive activity and emotional activity of the development process. It requires teaching and learning environment in a relaxed manner; students' cognition is from the concrete and vivid appearance, as the beginning, to rational understanding. The understanding of history by students should not be conceptual understanding, but the abstract understanding by feelings and experiences of history." (Ye, 2004). The general procedure of this teaching can be divided into four parts: setting goals, teachers and students' preparation—creating situations, specific demonstrations—in-depth situational, emotional experience—analysis and understanding, group exploration—summarizing comments, discussions. The lesson "Papa Ti Athenian political life" of Xia Huihui from Guangdong Province has had a broad impact among the history teachers. In this lesson, the teacher invented a fictional citizen of Athens named

Papa Ti who is a participant in the Citizens Assembly, guiding students to explore the characteristics of Athenian democracy. The main plot of the story: Thirty-year-old Papa Ti with his wife Helen attends the Citizens Assembly. Entering the hall, Helen is blocked at the gate. Papa Ti attends the meeting, which has three issues as the agenda. First, to terminate the financial audit of Archons who are going to retire; second, to vote for those who impede democracy; and third, to debate and vote upon the further expansion of the Navy. After the citizens meeting, Papa Ti takes part in the trial court on Socrates by drawing. The outcome of the trial is that Socrates is sentenced to death. In the process of narration, Mrs. Xia also designed a number of questions for the students to consider and discuss, such as "Why cannot Helen participate in the Citizens Assembly?"; "Why did Papa Ti become a judge after participating in numerous ballots?" and so on? Learning about Papa Ti, the students truly learned the concepts of participation rights, the right to be elected and the right to speak and other political rights. The end part of the story, "Death of Socrates," especially aroused the deep thinking of the students regarding success and failure of ancient Greek democracy. In addition, high school history teachers should lead students into specific historical context by improvising the historical data, video, music, roleplay, and other means to help students feel close to the truth of history. Such activities stimulate their interest in learning, mobilize their mood and emotions, causing them to observe and think, to acquire knowledge and develop capabilities, and to form emotional attitudes and values.

Participatory Mode

On October 2011, Wang Xiong, a special grade teacher from Yangzhou secondary school, taught a lecture "The revolution of 1911," as a case of participatory teaching in the national history teacher Education Committee on the Third Annual Meeting and Symposium. This lecture became a hot topic of experts and the history teachers. The lesson consists of four main components of participatory activities.

Activity One:

1. Discuss the background information, processes, significance, and impact of the Revolution of 1911, and write down the results in materials handed out according to the chronology and textbooks.
2. In each group a spokesman reports for the reports on the discussion results.

Activity Two:

1. Teachers use multimedia to display eight images as the students note the corresponding position under the picture reflecting the chronology of historical events.
2. After viewing the picture, students reflect on what they find most interesting about the picture and why.
3. Each group sends a representative to speak.

Activity Three:

1. Students in each group use a piece of paper to make a pagoda and the names of team members are written on the top.
2. Two teams are composed of opposing sides. Three students are sent to the opposing parties to tear down the building designed by the opposing group through negotiation and persuasion.
3. Elected representatives of each group explain the feelings and reasons behind tearing each other's buildings.
4. The teacher guides students to reflect on the connection between the torn building and the Revolution of 1911.

Activity Four:

1. Teachers produce images for students to act out the activities under the two systems.
2. After performing, each group thinks about the problem that "political system is written on paper or only a habit."

Many deficiencies are present in this section of participatory teaching and learning activities in class; however, the core idea is to emphasize the participation of teachers and the interaction of students. The basic idea of participatory history teaching mode is that taking full advantage the existing knowledge and experience of students to acquire knowledge and develop the ability fully reflects the dominant position of students. Participatory teaching process is generally composed of three steps: the creation of history teaching situations—organizing various activities—summary of activities.

The first step is the creation of historical situations. A major feature of the model is to inspire students to learn the historical emotions with a variety of vivid historical scenes so that students are willing to participate in activities. In the second step, teachers and students are in pre-scene, in accordance with the procedure for certain activities. The main purpose of this step is to enable students to participate in various forms of teaching and learning activities. Therefore, students are provided with specific practice opportunities to learn historical knowledge. This mode enables students to take part in both lectures and the learning process, the participation process of mental and physical, which truly reflects the dominant position and participation of students. The third step is summary transformation, either by the teacher or the students. The purpose is to enable students to learn the emotional tone of what they have learned so that they can find the unity of love and reason. At the same time, these knowledge and experiences could guide their thinking and behavior. History teaching in basic education stage bears the task of training modern citizens. The accomplishment of such modern citizens lies not only in cognition, but, more importantly, in action. The participatory approach is useful for the educational function of history teaching as well, as the quality of modern citizens.

REVIEW ON THE CURRENT TEACHING MODEL OF HIGH SCHOOL HISTORY

1. *The changes of classroom teaching of high school history reflect the value of modern history education.* Since the new curriculum reform, the view that history education contributes to human development and the improvement of humane and civic accomplishment has generally been recognized. History education is, in essence, civic education; it is responsible for the humanity and civic accomplishments of students. The core of civic literacy in modern society is the sense of responsibility, democracy and equality, innovation, and independent personality, which coincide with the function of history education. Therefore, the history education commits to four missions in the era: (1) to develop people's humane awareness, and improve people's personal tastes; (2) to develop people's correct understanding of history and social awareness; (3) to inspire people to learn and develop their intelligence; and (4), to promote the overall development of the discipline and perfect educational function of discipline (Qi & Zhao, 2004, pp. 15–20).The ultimate direction of history education is the commitment to life. The teaching of history should be rooted in the fertile soil of human nature, closely concerning the life of the student. The teaching aims towards commitment to life (Ren, 2007). These views target the improvement of the humanity and civic accomplishments of students. The traditional class teaching mode must therefore change in terms of the human development. All the teaching modes, including problem exploration, historical studies, historical reenactment, participatory approach, and other historical classroom teaching modes attempt to change the traditional functions of imparting knowledge and existing building capacity in history teaching. The core objective of history teaching in secondary school is character building and personality development. Although such changes have a more profound theoretical basis, in line with requirements of the times, history teachers face a long battle to change theoretical understanding into the vivid and rich teaching practice.

2. *Modern teaching theory provides a theoretical basis for the change of teaching model of high school history.* As early as Before the reform in the curriculum, some researchers called for a shift from the "knowledge" classroom to the "life" classroom (Ye,1997). Classroom teaching should be considered as a very important part of students' life experience, and thus a meaningful part of their life. Therefore, the values and outlook of the teaching process must be rebuilt (Ye, 2002). The value of the theory of life teaching is widespread, as the curriculum reform promotes. In addition, communication theory has also received due attention from education circles. Some scholars have pointed out that teaching is not only a special process of cognition, but also a specific interaction process. Communication theory advocates teaching in the classroom as teacher–student interaction for survival and development. It emphasizes that a teaching process based on students and teachers' lives and with language instructions makes the teachers and students interact, share, and create together (Tian, 2004).These classroom teaching theories have created a backlash in the traditional class

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teaching mode of imparting knowledge. History teaching draws on the relevant outcomes of history teaching and learning style. Participatory teaching mode is a vivid manifestation of history curriculum reform. From several current emerging teaching models, how to change students' learning style in history teaching, how to conduct effective dialogues, and cooperation and exchanges in large classes still need to be explored in both theory and practice.

3. *The existing assessment system has restricted the changes of history teaching patterns in secondary schools.* Before the curriculum reform, the general tendency of teaching was "what to test, what to teach," and the content of teaching aimed at the contents of the exam. The teaching concept of "what to test, what to teach" widely existed in the entrance examination for high school and college entrance examination, severely hampering the full development of students. Meanwhile, teachers' teaching was assessed through students' achievements, a single standard. The quality of teaching depended on students' achievements; therefore, this linear model of teacher evaluation also led to examination orientation. A variety of assessments, including process evaluation, student self-assessments, among others, has gradually replaced a single summative assessment mode, and changes in classroom teaching have brought new opportunities. Regardless of the concept of evaluation and assessment methods, their purpose is consistent with curriculum reform that "all is for the development of students." However, because the college entrance exam is a high stake factor for students, scores, as a single standard, are used as a measure of the quality of school teaching. This phenomenon prevails. Lecturing is still the most common history teaching method. The problem exploration, historical source studies, historical reenactment, participatory approaches, and other classroom teaching modes of history have not shaken the dominance of the traditional lecture-based teaching model aiming at imparting knowledge.

4. *High school history class teaching patterns in minority regions lack research.* China is a vast, ethnically diverse country; thus, history education plays a very important role in national identity, cultural identity, and country identity. In regions with national minorities, economic development is relatively backward, people are relatively ill-informed, and high-quality educational resources are in short supply. Because of the differences of language, customs, religion, lifestyle, and national policy, setting a unified national history curriculum is more difficult compared with the developed areas. As for historical subjects, the students of the minority regions have a strong interest in local history; therefore, in the history classroom, teachers also pay attention to local history teaching. Researchers believe that history teaching in the minority regions is still based on teaching for examinations and takes student achievement as the sole criterion for the quality of the history teaching. The implementation of new curriculum has brought both opportunities and challenges to the history of the ethnic regions. In classroom teaching, the problem exploration and the participatory modes have gradually been recognized, and teachers have put them into practice (Xiang, 2011). However, the

quality of history teachers in minority regions are relatively weak, constraining the implementation of history curriculum of national areas. Meanwhile, in the ethnic areas, the kind of history teaching that is in line with national characteristics and teaching practice still needs to be identified and studied.

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12. HIGH SCHOOL TASK-BASED LANGUAGE TEACHING IN MAINLAND CHINA

INTRODUCTION

Since the 1980s, reforms on second or foreign language teaching have been implemented in many countries and regions. Many linguists, psychologists, experts on teaching methods, and frontline teachers in primary and secondary schools have focused on teaching aims, efficiency, and theories for their research. English teaching approaches have transitioned gradually from a teacher-centered to a student-centered paradigm. At the same time, communicative teaching approaches emerged and rapidly became theories. Task-based language teaching is a communicative teaching approach (Gong & Luo,2003) and has a history of more than 30 years. Since Prabhu initiated his English teaching experiment—known later as the Bangalore Project— in the south of India in the late 1970s, task-based language teaching has become a widely used language teaching approach in second and foreign language teaching. From initially focusing on language communicative teaching, it now covers several fields, such as sociolinguistics, psycholinguistics, second language acquisition theory, pedagogical psychology, language curriculum theory, and language teaching test and evaluation, which have drawn the attention of many researchers from different countries and of different research backgrounds. Internationally well-known scholars such as Breen, Candlin, Ellis, Nunan, Long, Skehan, and Willis have published relevant academic works. Task-based language teaching is officially advocated by many countries, including China, United States, Canada, Singapore, and Hong Kong.

English learning has become increasingly important as China gradually enters international society. As such, research on English teaching methods has attracted the attention of many scholars. The Ministry of Education has also strengthened English teaching reform in basic education. In the middle to late 1990s, some scholars in universities introduced task-based language teaching into English language teaching in China (Wu, 1997; Xia, 1998), attracting the attention of foreign language teachers and researchers. In 2001 and 2003, the education Ministry of Education successively issued *Full-time Compulsory Education General High School English Curriculum Standard (Experimental Draft)* and *General High School English Curriculum Standard (Experimental)*, in which task-based language teaching was explicitly advocated. Teachers are required to adopt task-based language teaching as often as possible instead of using traditional teaching methods to teach language points (Cheng, 2006, p. 2). From then on, task-based language teaching has rapidly become a hotspot in English language teaching research in China.

"We are used to change, and we are also used to resistance to change" (Woodward, 2002). Influenced by many complicated factors like the market-based economy, globalization, and knowledge-based economy, educational reform has become increasingly uncertain. Curriculum reform cannot be implemented through administrative orders or simple demonstrations as before. Such reform depends on teachers' active meaning construction based on their understanding and receptivity. As such, teacher receptivity has become a research focus in the field of curriculum implementation (Yu & Jin, 2007). Without teacher receptivity and acceptance, task-based language teaching cannot be implemented in class, and will be limited only to academic works and lectures.

As one of the first batches of China's state-level national curriculum reform experimental bases, Guangdong Province has been carrying out the New Curriculum Reform for more than 10 years. How is teachers' receptivity to task-based language teaching? What are the influencing factors? Exploring these questions can help understand high school teachers' cognition and feelings toward task-based language teaching, and determine the degree, scope, level, and effectiveness of the implementation of task-based language teaching in high school classrooms. This research also aims to offer targeted guidance for further effective implementation of task-based language teaching, and provide a foundation for amending and revising the *English Curriculum Standard.*

LITERATURE REVIEW

Definitions of Basic Concepts

Task is a keyword in task-based language teaching. In the foreign language teaching field, "task" is a widely used term with multiple meanings. In the 1980s to the 1990s, researchers such as Richards, Platt and Weber (Richards, Platt, & Weber, 1985), Michael Long (Long, 1985,p. 28), Prabhu (Prabhu, 1987, p. 24), David Nunan (Nunan, 1989,p. 0), Willis (Willis, 1996.p. 23), and Peter Skehan (Skehan, 1998, p. 95) put forward some representative definitions and views. In the 21st century, scholars like Ellis (Ellis, 2003, p .3) simplified its definition. Researchers find difficulty in agreeing on the definition of "task" due to their different research backgrounds. However, "*no matter how much controversy there exists, the following six aspects have been touched on in most definitions: situation, activity, target, result, meaning and language*" (Cheng, 2006, pp. 36–37).

In this research, the definition of task refers to the one proposed in *English Curriculum Standard,* which states that:

> Task in English teaching refers to various language practices which can help students do things in English.

"Tasks" in *English Curriculum Standard* merely refers to communicative tasks (Lin Yi& Ma, 2005) narrowly, not in a broad sense. As such, "tasks" in this research refers to communicative tasks in a narrow sense.

Task-based language teaching is known variously as task-based teaching, task-based approach, task-based learning, task-based instruction, task-based teaching approach, task-based teaching method, task-based learning approach, task-based English teaching, task-based language learning, and task-oriented teaching, among others. The term "task-based language teaching" is adopted in this research because it is relatively familiar to English teachers in China. It is mentioned in *English Curriculum Standard*, and defined as follows:

Task-based Language Teaching means that learning is motivated by concrete learning tasks, that learning process is featured by finishing tasks, and that teaching effects are evaluated by presenting the results of tasks instead of the test scores. Students should be helped to realize that it's a must to learn English by doing. Students' language proficiency should be developed by using the newly-learned language to do things. It is also important for students to realize that the aim of learning a language is to use it (Chen, 2003, pp. 95–96).

Generally, task-based language teaching can be divided into weak and strong modes. The strong mode transmits the whole teaching process, including the learning of language points into a series of tasks, focusing on the principle of "meaning first, and use first." Learners are required to finish one task after another and to use language authentically. The weak mode also agrees that the task is an essential part of language teaching, but shares several similarities with the traditional 3P teaching mode. The weak task-based language teaching mode is against the highly controlled sharing of knowledge and mechanical language output, and emphasizes the completion of tasks and their results. Based on the relevant literature and curriculum reform documents, task-based language teaching for English tends to be more like the weak mode proposed by Skehan, combined with some features of the strong mode proposed by Jane Willis.

Receptivity

Receptivity, also regarded as acceptance, means one's willingness to accept new ideas and new values. Teacher receptivity falls under receptivity. Scholars in Hong Kong and the mainland have continually revised the definition of teacher receptivity (Wang & Yin, 2007; Yin, Jin & Ma, 2008). According to various definitions in literature, as a degree of acceptance of social regulations, receptivity can be defined as one's cognitive, emotional, and behavioral adherence to social regulations. As a result, one will follow social regulations voluntarily (Feng, 2000). Teacher receptivity to task-based language teaching can be defined in this manner as well, pertaining to teachers' adherence and willingness to implement this method.

Research Situation of Teacher Receptivity at Home and Abroad

Teacher receptivity is decisive for the success of the New Curriculum Reform, which has aroused strong interest and attention from education researchers. Many of them

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have undertaken relevant research and compiled measuring tools with high reliability and validity. The research fields cover various issues on teacher receptivity toward the systematic new curriculum reform as well as other subjects.

Research Situation Abroad

Punch and McAtee (Punch & McAtee, 1979) conducted the earliest research on teacher receptivity and laid the foundation for succeeding studies. In 1987, Waugh and Punch introduced the Rational Behavior Theory into teacher receptivity research in curriculum reform, and put forward an assessment model of teacher receptivity to the New Curriculum Reform (Waugh & Punch, 1987). In 1993 and 1995, Waugh and Godfrey revised and improved the measuring tool to guarantee its reliability and validity (Waugh & Godfrey, 1993). They also created a checklist based on the abovementioned theory, adopting a qualitative method to assess teacher receptivity to systematic curriculum reform (Waugh & Godfrey, 1995). In 2000, Moroz and Waugh investigated Australian teachers' receptivity to using students' academic reports (Moroz & Waugh, 2000). Since then, Australian scholars have made significant progress by thoroughly analyzing teacher receptivity using a theoretical framework, an assessment model, and various research methods.

Research Situation in China

Receptivity in China became a research hotspot in the 21st century, making significant achievements since 2004. In the late 1990s, curriculum scholars in Hong Kong revised the assessment model developed by Waugh and examined teacher receptivity to curriculum reform (Lee, 1998; Lee, 2000; Yan & Lee, 2002). Along with the ongoing changes in the new round of basic education curriculum reform in the early 21st century, scholars in the mainland began studying teacher receptivity in the implementation phase of the New Curriculum Reform. The pilot research was done with a case study analyzing teacher receptivity to the New Curriculum Reform in two primary and high schools in mainland China (Yin, Lee, & Jin, 2003). Henceforth, researchers analyzed teachers' or headmasters' receptivity toward the New Curriculum Reform (Hu & Leng, 2004; Wang, 2005; Qian, 2006; Shuai & Li, 2009). At the same time, researchers in the mainland investigated teachers' receptivity toward specific subjects, such as information technology in high schools (Xie, 2006), learning strategies in English curriculum reform (Tang, 2006), P.E. in high schools (Liu, 2006), and mathematical culture teaching (Jin, 2008). Scholars began to consider how teacher receptivity is influenced by school cultures and the organization where teachers work (Cao & Lo, 2005).

The studies mentioned above show that researchers usually investigate teacher receptivity from three dimensions, namely, teachers' assessment of the reform, overall feelings, and behavior intention, or only from two dimensions, namely, attitudes and behavior intention. The influencing factors mainly refer to teachers' sociodemographic

factors, the nature of the new curriculum, teacher concerns, organizational culture, and support system, among others. Considering their different focuses, the sample limitations, different regions, different situations, different cultures, and the characteristics of the reform, researchers tended to select different variables, and thus reached different results and conclusions (Jin, 2008). Although progress has been made, certain aspects, such as checking the validity more reasonably and analyzing teacher receptivity comprehensively using advanced statistical software and tools, still need to be improved (Yin, Jin & Ma, 2008). Studies on teacher receptivity to task-based language teaching are also practically non-existent, making it necessary to undertake such studies.

Research Situation of Task-based Language Teaching at Home and Abroad

Task-based language teaching is an advancement of communicative teaching. Researchers have examined the subject in the past 30 years, focusing on different aspects such as the theoretical basis of task-based language teaching, its definitions, the sequence of tasks, the difficulty of tasks, the criteria for selecting tasks, the teaching modes, and the relationship between tasks and feelings, between tasks and cognition, and between tasks and communication. Research on this matter has gradually matured and given rise to a more complete framework, attracting considerable attention from researchers and frontline teachers both at home and abroad.

Research Situation Abroad

Task-based language teaching came into being more than 30 years ago when a linguist, N.S. Prabhu, conducted an experiment known as the Bangalore Project in the south of India from 1975 to 1984. This experiment created a great sensation in the field of language teaching. It was presented as a strong mode of communicative teaching, and was considered revolutionary at that time. Since then, numerous linguists have undertaken relevant research and regarded tasks as the essential element. The Bangalore Project encountered certain drawbacks, which succeeding researchers have also focused on.

Candlin revised and improved Prabhu's research, redefining tasks (Breen, 1987; Candlin, 1987) and putting forward a series of criteria for selecting tasks and assessing task difficulty (Candlin, 1987). Afterward, researchers began focusing on teaching practices and came up with a mode for designing tasks for communicative classrooms (Nunan, 1989, pp. 47–48). Since the early 1980s, scholars have explored the roles of tasks in second language acquisition and studied them from the perspective of cognitive psychology, hence promoting task-based language teaching to a higher level.

In practice, a task-based learning mode was put forward. Task-based learning is strictly divided into three phases, namely, pre-task, task cycle, and language focus.

This mode offered concrete guidance to teachers and helped them conduct task-based teaching activities (Willis, 2002). A weak mode was proposed after the introduction of this strong mode (Skehan, 2002).

Research on task-based language teaching has undergone proposals, development, promotion, and application. Task-based language teaching is the further development of communicative language teaching, and has been greatly influenced by findings from second language acquisition research. During this period, linguist educators like N.S. Prabhu, David Nunan, and Jane Willis, have studied task-based language teaching from the educator perspective, whereas second language acquisition researchers viewed tasks' ability to develop learners' interlanguage. In the 1990s, these two gradually merged, focusing on implementing task-based language teaching in language teaching practices. Task-based language teaching matured as it shifted from theory to practice.

As for teacher receptivity to task-based language teaching, experts and scholars discussed the findings from their experiments. With the guidance of experts, some frontline teachers also carried out experiments and reflected on their experiments. Some of them approve of task-based language teaching (Willis, 2002), others welcome both task-based language teaching and traditional teaching methods (Denis, 2002), whereas others strongly disapprove of and criticize task-based language teaching. Many other teachers are even suspicious of the method (Foster, 2002). Judging from the literature collected thus far, finding studies focusing on teacher receptivity to task-based language teaching is difficult, and empirical investigations are scarce.

Research Situation in China

Initially, task-based language teaching was unknown in China, but gradually gained popularity and then suffered a decline. In the late 1990s, university scholars introduced task-based language teaching theory into China and applied it to foreign language teaching practices, attracting the attention of foreign language teachers and researchers. In 2001 and 2003, the Ministry of Education successively issued *Full-time Compulsory Education General High School English Curriculum Standard (Experimental Draft)*, and *General High School English Curriculum Standard (Experimental)*. Task-based language teaching was explicitly advocated in these two official documents. As a result, task-based language teaching became a popular topic of research. With the ongoing advancements of the New Curriculum Reform, theoretical research and the frontline teachers working in basic education emphasize the importance of studying task-based language teaching, resulting in greater progress.

Research on task-based language teaching in China can be classified into theory introductions, applied research, experimental studies, and investigations. The first type mainly introduces theory and practices from abroad into China, focusing on introducing the operational skills, the process, and designs of task-based language teaching implementation. No research exhibited obvious Chinese characteristics.

After the promulgation of the New Curriculum Reform, a series of experimental studies was released, most of which aimed to describe the experience of implementing task-based language teaching into some schools and regions as experiments. Soon thereafter, independent research work was undertaken. Applied research multiplied, generating numerous academic papers and teaching models on task-based language teaching. These studies offered guidance for teachers in primary and high schools on implementing task-based language teaching. Many of the studies investigated the effectiveness of implementing task-based language teaching in different regions and for different versions of teaching materials. A few of them cover the functions and meanings of task-based language teaching. The case study (Chen, 2008) and action study (Wang, 2008) began to appear. Empirical investigations have appeared recently, focusing on the problems that arose from implementing task-based language teaching and recommending measures to solve these problems. The feasibility of task-based language teaching has been discussed, but systematic criticism is still rare. Few studies systematically investigate and analyze the conditions for implementing task-based English teaching practices in both primary and high schools. Teacher receptivity toward task-based language teaching has not been discussed at length in any study, and has only been mentioned occasionally (Pan, 2004; Li, 2006; Xi, 2007; Huang, 2008; Zhou, 2008; Wu, 2008; Zhang, 2008, Wang, 2009).

From the geographical viewpoint, the studies mainly cover the northeast, southwest, and the south of China, including Heilongjiang Province, Guangxi Province, Chongqing, Hunan Province, Jiangsu Province, and Pearl River Delta, among others. Key schools and ordinary schools are both covered, including junior high schools and senior high schools. The research mainly used questionnaires, interviews, observations, and even action research. Results and conclusions differ from one another because of different regions, types of schools, research methods, and research conditions. Teachers are usually for or against task-based language teaching, or view it neutrally. However, few of them actually put the method into practice. Factors such as teachers' qualifications, teachers' concern, students' qualifications, professional guidance, evaluation system, and teaching conditions affect task-based language teaching implementation. Overall, numerous studies have provided a rough picture of the implementation status of task-based language teaching and identified some influencing factors. However, they still have some drawbacks, one of which is the use of self-made questionnaires as an investigation tool. Questionnaires lack validity and reliability. Only descriptive statistics are analyzed in these studies by presenting the percentage rating. The samples are too small, with most of them having less than 100 respondents. This condition restricts the results' references. Additionally, no strong theoretical basis for analyzing teacher receptivity and its influencing factors exists. Instead, they are analyzed at random, making it nearly impossible to acquire rational knowledge. This particular field of study should therefore explore teachers' receptivity to task-based language teaching by systematically analyzing its implementation status, summarizing the experiences, and identifying the problems.

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REASEARCH METHODS

Based on literature review, a questionnaire is designed by combining previous research findings (Yin, Lee & Jin, 2003) and our own research conclusions (Shuai & Li, 2009; Li & Shuai, 2010). Class observation and interviews also facilitated questionnaire development. This questionnaire uses a seven-point Likert scale. The higher the points are, the greater the teachers' approval. There are eight subscales in all. "Teacher receptivity" includes "cognition," "feeling," and "behavior." "Influencing factors" include "nature of task-based language teaching," "teachers' cost," "reward," "support from within schools," and "support from outside schools." A small-scale pilot study involved investigating teachers in Shenzhen undergoing online training. Following the principle of stratified sampling, four out of 21 districts in Guangdong Province were selected according to their economic status. The formal investigation was carried out in these four districts, namely, Shenzhen, Zhongshan, Zengcheng, and Wuhua. A total of 1,055 questionnaires were received, of which 856 copies were valid. The validity percentage is 85.2%. SPSS16.0 and LISREL8.3 were used to analyze the data. Two teacher-researchers and seven high school teachers were interviewed. Sixteen classes, including six junior high school English classes and 10 senior ones, were observed. To undertake participatory observation, one of the authors attended a training course entitled *The Implementation of Task-based Language Teaching into High School English Classes* for high school English teachers in Shenzhen.

FINDINGS AND DISCUSSION

Analysis of the Questionnaire

According to the result of the data analysis by SPSS16.0, the questionnaire on Teacher Receptivity to Task-based Language Teaching in High Schools has high reliability. The Cronbach's alpha coefficient value of the questionnaire is 0.951, and those of its subscales range from 0.733 to 0.915, showing high reliability. The mean of the questionnaire is 275.68, and the scoring rate is 70.33%. The scores that teachers received in the four subscales of "cognition," "reward," "behavior," and "cost" are relatively higher, and the scores in the "nature" and "feeling" subscales are not low. In contrast, the scores in the "support from within schools" and "support from outside schools" subscales are relatively low (see Table 1).

As for the goodness-of-fit index (GFI), some experts choose to report c^2, df, RMSEA, NNFI, and CFI. They claim that the fitness of a model is good if the RMSEA is under 0.08 (the lower, the better), and both the NNFI and CFI are over 0.90 (the higher, the better) (Hau & Wen, 2004). The analysis of confirmatory factors indicates that the fitting exponential model is good, and that the structural validity of the subscales is high. The values of standardized factor loadings of 10 items range from 0.4 to 0.6, and those of the other items are all over 0.60.

Table 1. Mean, SD, percentage, and reliability coefficient values of subscales (N = 856)

subscale	item	M	SD	%	Cronbach's α
cognition	6	5.40	0.90	77.14	0.753
feeling	6	4.86	0.98	69.43	0.786
behavior	6	5.12	0.90	73.14	0. 803
nature	8	4.89	0.84	69.86	0.783
cost	7	4.96	0.85	70.86	0.733
reward	10	5.25	0.94	75.00	0.915
support from within schools	7	4.58	1.02	65.43	0.743
support from outside schools	6	4.15	1.05	59.29	0.823

Table 2. Results of correlation analysis (N=856)

subscales	cognition	feeling	behavior	nature	cost	reward	within schools	outside schools
questionnaire	.807***	.592***	.837***	.871***	.624***	.946***	.630***	.630***

Note: * * * $p < 0.001$ (two-tailed)

The correlation coefficient values between the questionnaire and the subscales are statistically significant and meaningful. Among them, the correlation coefficient values between the questionnaire and cost, questionnaire and nature, questionnaire and behavior, and questionnaire and cognition are over 0.8, indicating a high degree of correlation. The correlation coefficient values of the other subscales are above 0.6, reaching a medium degree. Overall, the structural validity of the questionnaire is good (see Table 2).

Teacher Receptivity to Task-based Language Teaching

Whether task-based language teaching will be adopted or not depends on the degree of teachers' and learners' receptivity toward it. Task-based language teaching can be implemented when learners and teachers realize its importance, and if they are willing to adjust their previous cognition (Cheng, 2004. p. 176). Teachers received high scores in the following three subscales of teacher receptivity: "cognition," "feeling," and "behavior", with respective means of 5.40, 4.86, and 5.12, and respective scoring rates of 77.14%, 69.43%, and 73.14%. However, the data collected from interviews and classroom observations show that high school English teachers in Guangdong Province still do not understand task-based language teaching, and that there are some exaggerations in teacher receptivity to task-based language teaching. As such, there is still much room for improvement. To get a clear picture of teacher receptivity to task-based language teaching, the scores in every dimension

and item of the "cognition," "feeling," and "behavior" subscales must be analyzed and compared. At the same time, data collected through interviews and classroom observation will be analyzed. This procedure will provide a clear, authentic, and holistic picture of teacher receptivity to task-based language teaching.

Teachers' Scores for "Cognition"

The mean score teachers received for "cognition" is 5.40, and the scoring rate is 77.14%, showing that high school teachers in Guangdong Province have a comprehensive understanding of task-based language teaching (see table 3). Teachers' cognition is consistent with the theory of task-based language teaching. The core principle of task-based language teaching is that students, guided by teachers, realize their goals and experience success by perceiving, experiencing, practicing, participating, and cooperating in various tasks. The scores teachers received in every dimension and every item are rather high. Under "teaching aims," the mean score is 5.26 and the scoring rate is 75%. Most teachers hold the view that "students' English language proficiency should be emphasized in English teaching practices," and they believe that "the effectiveness of classroom teaching should be mainly evaluated by students' fulfillment of tasks." The scoring rates in these two items are 85% and 75.86%, respectively. However, not many teachers agree that "the key point of English teaching is not to impart language points, but to guide students to finish various tasks." The scoring rate in this item is 64.43%. The mean scores under "teaching methods" is 5.55, and the scoring rate is 79.29%. Most teachers think that "the classroom should be student-centered, and teachers are only guides and organizers." They believe that "the aim of English teaching is to cultivate students' ability to finish various authentic tasks," and that "students can learn English well by doing things." The scoring rates in these items are 82.71%, 79.71%, and 75.57%, respectively.

Table 3. Teachers' scores in every item under the "cognition" subscale

Item	M	SD	%
Students' English language proficiency should be emphasized in English teaching practices.	5.95	1.28	85.00
The classroom should be student-centered, and teachers are only guides and organizers.	5.79	1.25	82.71
The aim of English teaching is to cultivate students' ability to finish various authentic tasks.	5.58	1.30	79.71
The effectiveness of classroom teaching should be mainly evaluated by students' fulfillment of tasks.	5.31	1.30	75.86
Students can learn English well by doing things.	5.29	1.34	75.57
The key point of English teaching is not to impart language points, but to guide students in finishing various tasks.	4.51	1.57	64.43

Most teachers think that English teaching should be student-centered, and that students should be guided as they take part in all kinds of activities. Their English proficiency should improve while they are completing various tasks. This notion is seen to enhance the effectiveness of English teaching. Compared to traditional teaching concepts, teachers in the New Curriculum Reform have produced gratifying changes. As they put it,

Take the cultivation of students' English proficiency for example. That is a must.

Teaching should be student-centered.

However, when it comes to more specific issues such as the important points of English teaching, teacher receptivity to task-based language teaching declines significantly. This outcome may be a result of teachers' misunderstanding of the definition of "task." A number of teachers do not know the difference between tasks and exercises, and between tasks and teaching contents, and think that task-based language teaching refers to achieving teaching objectives, completing teaching materials, or finishing teaching contents. Therefore, the high scores teachers received in the "cognition" subscale are exaggerated to some degree. Dealing with this problem is difficult in the self-report questionnaire. While interviewing two teacher-researchers, the teacher-researcher of the senior English class points out:

There are few true tasks. Instead, false tasks flooded. Nonsense. Many teachers know nothing about the differences between task and exercise.

Meanwhile, the teacher-researcher of the junior English class says,

You want to do a research here. But as you know, quite a lot of teachers do not know what task-based language teaching is about.

This sentiment can be supported by the interviews with teachers. When asked, "In your opinion, what is task-based language teaching?" a teacher replied, *"To prepare learning plans for students."* Another one was quite talkative during an online chat with the interviewer, but kept silent when asked to share his understanding of task-based language teaching. Some teachers agreed that the effectiveness of classroom teaching should be mainly evaluated by students' fulfillment of tasks, saying, *"It is absolutely important to finish teaching tasks."* However, to them, "tasks" means "classroom teaching aims," "teaching materials," or "teaching contents." Even worse, some equate "tasks" with "teaching steps." As one teacher puts it,

Task-based language teaching is so good. When writing teaching plans, we don't write Step 1 or Step 2 any more. Instead, we write Task 1, Task 2....

The results of classroom observations show that some teachers think that they are carrying out task-based language teaching in their classrooms, but are in fact simply conducting exercise activities. Tessa Woodward has described the situation, saying,

Very often what we believe in and think what we do (our espoused theory) is different from what we actually do (our theory-in-action) (Woodward, 2002).

Teachers' Scores for "Feeling"

Feelings can be generally divided into positive and negative feelings. The former mainly includes enjoyment, satisfaction, and happiness, whereas the latter mainly includes distress, fear, horror, and nervousness. Teachers received high scores in items under positive feelings, and low scores in items under negative feelings. After reversing the negative items, the mean score in "feeling" is 4.86, and the scoring rate is 69.43%. The results suggest that most teachers harbor positive feelings and emotional experiences about task-based language teaching (see table 4).

In the "positive feelings" dimension, the mean score is 4.97, and the scoring rate is 71%, indicating that the majority of participants like task-based language teaching and consider its adoption enjoyable and satisfactory, with scoring rates of 72.71%, 71.29%, and 69.14%, respectively, in these criteria.

In the "negative feelings" dimension, the mean score is 3.25, and the scoring rate is 46.43%. The scores are all below the theoretical neutral value of four, implying that teachers do not think that task-based language teaching will bring them much distress or fear; moreover, they are not sick of the method. Their scoring rates are 48.57%, 46.43%, and 44.29%, respectively, in these criteria. These results are consistent with the fact that most teachers consider the reform feasible and practical, and believe in the teaching principles suggested by experts in the New Curriculum Reform. Their feelings are thus quite positive, as seen in the interviews. As some interviewees put it,

I like it (task-based language teaching) very much.

I like it. If it can be really applied, I think it will be beneficial. It is something like learning by doing.

However, teachers do not feel as good about the process of implementing task-based language teaching. When asked, some teachers respond that they are dissatisfied with the results. As one teacher puts it,

It's not satisfying. I think one reason is that...I don't know how to put it. Maybe it is limited by many conditions.

Table 4. Teachers' scores in every item under the "feeling" subscale

Item	M	SD	%
I like task-based language teaching.	5.09	1.25	72.71
I think adopting task-based language teaching is enjoyable.	4.99	1.29	71.29
I think adopting task-based language teaching is satisfactory.	4.84	1.25	69.14
I think adopting task-based language teaching is distressing.	3.40	1.54	48.57
I am nervous about adopting task-based language teaching.	3.25	1.50	46.43
I am sick of task-based language teaching.	3.10	1.56	44.29

One teacher does not think that students are fond of it:

> I implemented it for half a year with no good results. Students didn't accept it. They think of it as a waste of time.

> One teacher claims that his students like it, but contends that the method is very time-consuming:

> Students are fond of it. Maybe that is because they feel more relaxed. Considering specific situations, there should be less tasks. Otherwise, they cannot be fulfilled.

Teachers' Scores for "Behavior"

In the "behavior" subscale, the mean score is 5.12, and the scoring rate is 73.14%. Most teachers do not merely impart grammar and language points in their teaching practices. They also actively apply task-based language teaching, paying attention to the cultivation and promotion of students' language proficiency (see table 5).

In the "teaching aims" dimension, the mean score is 5.22, and the scoring rate is 74.57%. Most teachers make the cultivation of students' language proficiency the top priority in their teaching practice. They believe that the major goal of teaching is guiding students to understand and communicate in English, not merely imparting language points. These teachers' classroom effectiveness is mainly evaluated by their students' fulfillment of tasks. The scoring rates are 77.71%, 75.43%, and 74%, respectively, for these three criteria.

In the "teaching methods" dimension, the mean score is 5.02, and the scoring rate is 71.71%. Most teachers think that they organize their classes according to the "learning by doing" principle. Their classes are student-centered, with teachers acting only as guides and organizers. The scoring rates are 72.71% and 72.12%, respectively, for these criteria. The teachers' score on the item *"I designed many open-ended exploration activities in my classes"* declines, with a scoring rate of only 67.14%.

Table 5. Teachers' scores in every item under the "behavior" subscale

Item	M	SD	%
I put the cultivation of students' language proficiency as my foremost teaching practice.	5.44	1.31	77.71
My classes are student-centered, and I'm only a guide and organizer.	5.28	1.29	75.43
My teaching focus is guiding students to understand and pass information in English, not merely imparting language points.	5.18	1.21	74.00
I usually organize my classes according to the "learning by doing" principle.	5.09	1.25	72.71
I mainly evaluate classroom effectiveness by students' fulfillment of tasks.	5.05	1.29	72.14
I designed many open-ended exploration activities in my classes.	4.70	1.25	67.14

The results of the questionnaire show that most teachers can guarantee the following: (1) their classes are student-centered, (2) students' English proficiency is given top priority, (3) more attention is paid to students' understanding and communication in English and not merely imparting of language points, (4) teaching is organized according to the "learning by doing" principle, and (5) classroom effectiveness is evaluated mainly by students' fulfillment of tasks. Furthermore, teachers design some open-ended exploration activities for their students. Compared to traditional teaching methods and teacher-centered classrooms, this approach is an incredible change, and there are many reasons behind it. The most important one is that teachers have updated and promoted their notions of teaching during the New Curriculum Reform. Another reason is the unique appeal of Guangdong Province, whose favorable conditions have attracted outstanding teachers from all over the country. Guangdong is situated at the forefront of reform and opening up, and its cultural diversity makes residents more likely to accept new things. In addition, the economy of Guangdong Province is highly developed, providing good material conditions and rich resources, including favorable hardware and software conditions for the New Curriculum Reform. Teachers can receive more guidance from experts during the reform, as well as many opportunities to communicate with teachers and experts in Hong Kong and study abroad.

From another viewpoint, the above results also highlight the success of the reform of the College Entrance Examinations and Senior High School Entrance Examinations in Guangdong Province. These examinations emphasize testing students' comprehensive abilities, which in turn have a positive impact on high school teaching practices (Shuai, 2007). The College English Entrance Examination, for example, has greatly changed since the promulgation of the New Curriculum Reform, featuring quite a few passages selected from English websites. This examination not only focuses on students' language proficiency, but also reflects the current times and ways of living. With the reformed College Entrance Examinations leading the way, students are taught to care not only about books, but also about social life and the applications of English in international communication.

As seen in the collected interview data, many teachers see themselves as more or less implementing task-based language teaching, but they also feel frustrated and quite trapped in a dilemma. Some teachers say:

I know it's good, but I haven't done it. There is no way to do it.

I really want to… but… not very much. To be honest, learning by doing is only applied to some opening classes. Generally speaking, it won't be adopted in regular and ordinary classes.

This task-based language teaching is limited by students and teachers. If I lowered the requirements, the requirements of College Entrance Examinations cannot be met. So… From the bottom of my heart, I think it is an effective method, but I'm afraid I can't find a way—or I put it another way, I haven't found a good way to implement this method.

Based on classroom observations, teaching practices in high schools are mostly traditional and focused on the basics, especially vocabulary and grammar. There is intensive training in listening, reading, and writing skills. Relationships can be described as teacher-instructing and student-listening, and student-drilling and teacher-explaining, and strongly examination-oriented. When oral tests are not included in the College Entrance Examinations, oral practice is reduced or even omitted.

In schools with students who are better at English, teachers organize reading-based classes in English, whereas Chinese is used in other schools. In schools with students who are poorer in English, most English classes are taught in Chinese, giving students little chance to listen to, and speak in, English.

Here is a vivid example: in an English class for Senior 2, the teachers chose New Concept English 2 as their extra teaching material. The teaching content of the period observed was Lesson 11 of New Concept English 2: *One good turn deserves another*. They chose New Concept English because the students were very poor in English, and the selected material was much easier than the texts officially assigned by the educational administrative department. Furthermore, the material was selected to help train the students for the English listening and speaking test included in the new College Entrance Examinations Program in Guangdong Province. However, the teacher applied typically traditional methods in this period, using the following teaching steps: (1) reading after the tape, (2) reading after the teacher, (3) reading together, (4) answering questions, and (5) summary writing. Nearly all of the activities were mechanical drills. All the questions asked by the teacher were from the students' book and teachers' reference book. The teacher offered students no guidance for listening and writing. The students were absolutely passive during the whole period because they were highly suppressed and tightly controlled by the teacher. Most of the time, they were only reading the vocabulary and the text under the control of the teacher. We can safely conclude that it was a dull class without any vitality or vigor.

Factors Influencing Teacher Receptivity to Task-based Language Teaching

According to the theoretical framework, the factors influencing task-based language teaching include "nature of task-based language teaching," "teachers' cost," "reward," "support from within schools," and "support from outside schools." To study the relationships among them, LISREL 8.3 was used to analyze the data through path analysis. All parameters were generated without any iteration, and all were statistically significant except for "cost" on "behavior."

The authors' former research shows that most teachers think that if the New Curriculum Reform can promote the development of teachers and students, they are willing to take part in the reform, even if they would have to invest much more time and effort (Shuai & Li, 2009). Similarly, if task-based language teaching is truly effective and can promote the development of teachers and students, English teachers

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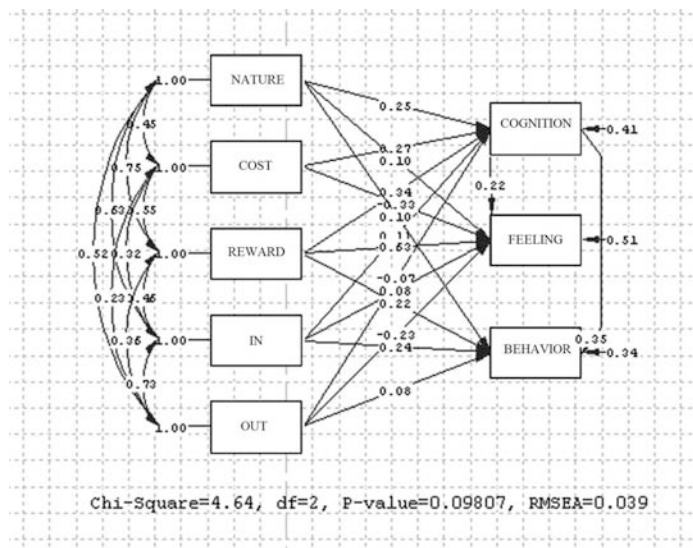
Figure 1. Final solution of the revised path analysis.

Table 6. Fit index of the path model

Model	Chi-square values χ2 WLS χ2		df	RMSEA	NNFI	CFI	GFI	SRMR
Before modification	4.59	4.58	1	0.065	0.098	1.00	1.00	0.0045
	P = 0.032	P = 0.032						
After modification	4.66	4.64	2	0.039	0.99	1.00	1.00	0.0039
	P = 0.097	P = 0.098						
Differences	0.007	0.006	1					
	P > 0.05	P > 0.05						

will take an active part in implementing it, no matter the cost. Thus, it is not difficult to understand the result that teachers' "cost" has no influence on their "behavior." The influencing path of "cost" on "behavior" can be therefore be deleted. LISREL 8.3 is thereafter utilized once again to analyze the data through path analysis. All parameters were generated after three iterations. The standardized solution is shown in Figure 1.

When adding one degree of freedom, the chi-square value does not increase significantly, and the GFI is improved. The WLS = 4.64, whereas $P = 0.098$. The NNFI, CFI, and GFI are 0.99, 1.00, and 1.00, respectively, all above 0.95; meanwhile, RMSEA = 0.039. Overall, the fit index of the model is ideal, and the revised model is a very good assumption (see Table 6).

After revision, all of the model's parameters are statistically significant. The decomposed effects of the path analysis are shown in Table 7.

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Table 7. Decomposed effects of the path analysis

		Dependent variables (Endogenous variables)		
Independent variables		Y1 Cognition	Y2 Feeling	Y3 Behavior
		standardized effects	standardized effects	standardized effects
Exogenous variables	X1 Nature			
	Direct effect	0.25***	0.10**	0.10**
	Indirect effect		0.05	0.09**
	Total effect		0.15**	0.19***
	X2 Teachers' cost			
	Direct effect	0.27***	-0.33***	--
	Indirect effect		0.06*	0.09**
	Total effect		-0.27***	0.09**
	X3 Reward			
	Direct effect	0.34***	0.63***	0.22***
	Indirect effect		0.07*	0.12**
	Total effect		0.70***	0.34***
	X4 Support from within schools			
	Direct effect	0.11**	0.08**	0.24***
	Indirect effect		0.02	0.04
	Total effect		0.10**	0.28***
	X5 Support from outside schools			
	Direct effect	-0.07*	-0.23***	0.08**
	Indirect effect		-0.01	-0.02
	Total effect		-0.24***	0.06*
Endogenous variables	Y1 Cognition			
	Direct effect		0.22***	0.35***
	Indirect effect		--	--
	Total effect		0.22***	0.35***

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.01$

Based on we can obtain the following three regression equations:

*Cognition = 0.25 * nature + 0.27 * cost + 0.34 * reward + 0.11 * support from within schools −0.07 * support from outside schools*

*Feeling = 0.15 * nature - 0.27 * cost + 0.70 * reward + 0.10 * support from within schools −0.24 * support from outside schools*

*Behavior = 0.19 * nature + 0.09 * cost + 0.34 * reward + 0.28 * support from within schools + 0.06 * support from outside schools*

The residuals of the three components of teacher receptivity are not large: 0.41, 0.49, and 0.34 for "cognition," "feeling," and "behavior," respectively. The rates at which they are explained by independent variables are 59%, 51%, and 66%, respectively.

The independent variables that can forecast and explain more of "cognition" are "reward," "teachers' cost," and "nature of task-based language teaching."

The independent variables that can forecast and explain more of "feeling" are "reward," "teachers' cost," and "support from outside schools."

The independent variables that can forecast and explain more of "behavior" are "reward," "support from within schools," and "nature of task-based language teaching."

Given the above, we can safely conclude that "reward" is the decisive influencing factor of teacher receptivity. This conclusion is quite understandable, as most teachers follow the principles of "cost and reward." Teachers accept task-based language teaching because they believe it can substantially benefit the development of teachers and students, and promote the New Curriculum Reform.

The two BETA coefficients are statistically significant and meaningful. They suggest that "cognition" has a positive influence on both "feeling" and "behavior," although the influence of these two factors is not included in this model. This result means that teachers' feelings have no impact on their decision to implement task-based language teaching. This idea may seem unbelievable at first, but it has to do with Chinese culture. Nearly all educational reforms are carried out from top to bottom, and so teachers have little chance to voice their opinions. A few frontline teachers in primary and high schools are positive and show initiative in educational reforms; the rest are mostly passive and obedient. Regardless of the implementing conditions, teachers will carry out and fulfill tasks and notions only if these are put forward by the educational administrative department. Teachers will do what they are required to even when they are unwilling to do so, or worse, even though they are slightly against it. They may complain, but they will comply.

Notably, "support from outside schools" has a negative influence on "cognition" and "feeling," although it has some positive influence on "behavior." The authors' former research also suggests that support from outside schools has a negative influence on teachers' intentions to carry out school-based curriculum development (Li & Shuai, 2010). We can therefore conclude that high school teachers consider it easy to implement task-based language teaching, according to their own understanding of it. However, various kinds of information coming from outside schools remind them that the process is actually very complicated. Support from outside schools is neither concrete nor specific, neither detailed nor to the point. As a result, teachers feel confused and gradually learn to distrust experts and external personnel. From the teachers' viewpoint, those people are merely saying what should

be done without troubling themselves to do concrete things, and even direct personal involvement cannot guarantee success. One of the authors took part in a course for English teachers in high schools in Shenzhen, entitled, "The Implementation of Task-based Language Teaching into High School English Classes." During the two-day training, the lecturer introduced the background of task-based language teaching, its leading scholars and researchers, relevant definitions, operating modes, and so on. She organized a discussion in which teachers gave their comments on her teaching power points. She also asked them to share these power points with others. While presenting their own power points, most teachers shared the view that they implemented task-based language teaching in their English teaching practices, but the lecturer did not agree. A teacher asked,

> If we organized our teaching by using the method of task-based language teaching as you taught us to, then when could grammar be taught to our students?

The other teachers burst out laughing. Many of them looked approvingly at the one who asked the question. The lecturer replied:

> I'm not against your explanation of grammar to students. What I mean is that if you say your teaching is organized by task-based language teaching, there should be one or two tasks in your classes.

Despite professional training, English teachers surprisingly find task-based language teaching infeasible or impractical—indeed, a hindrance to grammar instruction—and therefore not a good way to cope with the Entrance Examinations. Thus, teachers will naturally have negative feelings toward task-based language teaching. This reaction has to do with the nature of task-based language teaching and the conditions of English teaching in China. On the one hand, task-based language teaching is controversial, having many well-known shortcomings. On the other hand, English teaching conditions in China are far from satisfactory. Many teachers have come to realize these facts, with the help of various forms of support from outside schools. It is therefore natural that these teachers should receive lower scores in the dimensions of "cognition" and "feeling."

CONCLUSIONS AND SUGGESTIONS

Conclusions

The following conclusions can be drawn from this research:

1.1 High schools teachers in Guangdong Province have a high receptivity to task-based language teaching, but some exaggeration of this high receptivity takes place.
1.2 Teachers have many misconceptions regarding task-based language teaching. Some of them cannot tell the difference between tasks and exercises, between task-based language teaching and teaching content, and between task-based language teaching and achieving teaching goals.

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1.3 "Reward," "teachers' cost," "nature of task-based language teaching," "support from within the school," and "support from outside schools" all influence teacher receptivity to task-based language teaching. This influence can be direct or indirect, positive or negative. The rates of the three independent variables of teacher receptivity—"cognition," "feeling," and "behavior"—are 59%, 51%, and 66%, respectively.

Suggestions on How to Improve Teacher Receptivity

As a new method introduced from abroad, task-based language teaching needs some time to be localized and then rooted in Chinese culture. Additionally, there is much to be done before high school teachers can accept and implement the method willingly and proficiently. Although this study shows a relatively high teacher receptivity toward task-based language teaching, some exaggeration still occurs. Much work needs to be done to improve high school teachers' receptivity toward task-based language teaching.

Popularizing the Relevant Theory of Task-Based Language Teaching

Many high schools teachers know little about task-based language teaching, hindered as they are by great pressure from work, lack of spare time, few training opportunities, and scarcity of expert guidance, among others. What limited understanding they possess of task-based language teaching comes from a small amount of reading material and brief introductions by theorists during training in the New Curriculum Reform. This understanding, of course, is far from overall, systematic, rational, or accurate. Quite a few teachers confuse tasks with exercises. Task-based language teaching is disregarded in favor of achieving teaching goals or finishing teaching content. Therefore, some key definitions should be clarified to teachers. Their misconceptions of task-based language teaching should be eliminated, or lessened at the least. Moreover, they should be trained to internalize the theory of task-based language teaching, and know how to implement it skillfully.

Localizing Task-Based Language Teaching

It takes some time to localize task-based language teaching and adjust it to the specific English teaching conditions in China. The circumstances in China are quite different in many respects from those in countries where English is spoken as the first or second language. These aspects include language learning environment, examination and evaluation system, and cultural environment, among others. The majority of students in China do not have a good external learning environment during the English learning process. They have difficulty in finding opportunities to apply what they learned in school. This situation is quite different from those of second language learners in second language acquisition environments, who can put

the second language they learned in school into practice, whenever and wherever they like. Furthermore, they can accumulate wide knowledge in the second language, thus acquiring the second language naturally. The majority of students in China, however, can only learn English by studying it at school; few of them learn English by acquisition. Therefore, we should learn from practice, infuse task-based language teaching with our own features, and make it suitable for our own students at present.

Building a Platform for Communication

The New Curriculum Reform is a systematic project requiring many-sided efforts and cooperation. To carry out task-based language teaching, a platform needs to be built for different stakeholders to take part in. These stakeholders should include curriculum experts, subject experts, educational administrative departments, schools, teachers, students, parents, and social agencies, among others. They should exchange ideas equally, and a trust alliance should be built through communication, negotiation, and cooperation. Curriculum experts and subject experts should help teachers understand relevant theories and operating modes through various channels. Educational administrative departments and schools should offer teachers sufficient material and support for the proper implementation of task-based language teaching. Teachers should respect and encourage students. Parents should be understanding and considerate to teachers and their children. Society should create a favorable public opinion environment and a good language environment for the implementation of task-based language teaching.

Improving the Educational Evaluation System

To guarantee the actual implementation of task-based language teaching, we should improve the educational evaluation system. Great progress has been made in the High School and College Entrance Examinations in Guangdong Province. Nevertheless, the educational evaluation system still cannot match task-based language teaching. The reason is that task-based language teaching emphasizes students' English proficiency to make sure that they can solve authentic problems in English. However, the educational evaluation system focuses on testing students' knowledge and skills. Improving the educational evaluation system such that it tests not only students' knowledge and skills, but also their overall capabilities to solve problems in English poses quite a challenge. Task-based testing may be an effective means of solving this problem. Much work needs to be done to solve this problem creatively.

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13. MORALITY, VALUES AND SPIRITUALITY IN THE SCHOOL CURRICULUM IN MAINLAND CHINA

INTRODUCTION

Viewed through the lens of power relationship in Chinese curriculum, this chapter analyzes controls and decentralization in the teaching of morality, values, and spirituality in China. Studies on the teaching of morality, values, and spirituality in Chinese curriculum mainly focused on moral education curriculum and found that China's moral education curriculum has decentralized and depoliticized as the result of China's "open door" policy and economic reforms, and social transformations. On the other hand, they found persistent problems in moral education caused by political stresses and tight state control. In line with these studies on Chinese moral education, this chapter presents a reconsideration of a model for understanding morality, values, and spirituality in the Chinese curriculum based on my study of a school-based curriculum innovation in moral education in Shenzhen City in South China. The major argument in this chapter is that, rather than viewing the relationship between state and civil society as conflicting in shaping more de-politicized Chinese moral education curriculum, both should be considered important for evolution of teaching of morality, values, and spirituality in China; thus, the state still plays a leading role in shaping moral education curriculum, whereas the civil society initiates, facilitates, or sometimes even interrupts national moral education. This opinion is expected to provide a critical view of teaching of morality, values, and spirituality in China, which may be helpful to inform research, practice, and policymaking in this field.

This chapter includes the following parts: an overview of morality, values, and spirituality in the Chinese curriculum ; a discussion on decentralization and controls in Chinese moral education curriculum; presentation of empirical data from my Ph.D. study and finally; key findings from this research supporting this chapter's major argument: Chinese moral education was reconstructed to include diverse voices, views and experiences from both the state and civil society.

Overview of Moral, Values and Spirituality in Curriculum in China

Teaching of moral, values and spirituality is always a focus of Chinese education. In ancient China, moral education was the main function of education. At that time, education was called *jiao hua*, *jiao* meaning education and *hua* to teach moral behavior. Because *jiao* also implies teachers acting as role models and students learning from them (*shang suo shi xia suo xiao ye*) (Xu, 2002)), *jiao hua* can be

understood as the teaching of morality by example. Following the official ideology (from 206 BC to 1911 AD), Confucianism, moral education was accomplished by teaching the "three principal relationships" and the "five virtues" that describe the social hierarchy of interpersonal relationships (Tan, 1999). According to the "three principal relationships," the monarch guides the subject, the father guides the son, and the husband guides the wife (Wang, 2004); in ancient China, therefore, everyone was subordinate to the emperor. In order of importance, the "five virtues" are benevolence, righteousness, courteousness, wisdom and honesty. The nature of a virtue depends on the level of relationship with which it interacts. At the familial level, for example, the essence of benevolence is filial piety; at the societal level, it involves accepting the hierarchy of the three personal relationships.

After 1949, the ruling political party (Chinese Communist Party, hereafter CCP) of the People's Republic of China followed the tradition of emphasizing moral education in education system. *De yu* subjects (*de* meaning morality and *yu* meaning education) were promoted as means to introduce communist ideologies based on Marxist philosophy (i.e., dialectical materialism and historical materialism), Marxist political economy, and Marxist scientific socialism theory to produce citizens loyal to socialism. The *Encyclopaedia of the People's Republic of China (Education Volume)* (X. Li, 2001)explains that moral education means that educators followed certain social or class's requirement, planned, systematically give influences on educatees. In this process, certain social ideology and morality became individuals' ideology and morality. Moral education in China not only includes education on morality, but also education regarding communist ideology, politics, morality, and mental health (Zhu & Liu, 2004). Here, morality is given less emphasis than is education on ideology and politics. Political education has been the emphasis of moral education in China in the past (Fairbrother, 2004). Zhu and Liu (2004) explain in detailed that political education had been emphasized since 1949, eventually becoming the sole content of moral education curricula. In the 1980s, morality began to be stressed. Tan (1999) comments that moral education in China actually reflects the influence of politics in moral education because it has to handle the relationship among ideological, political and moral education. In addition, Li, Zhong, and Zhang (2004) suggest that moral education has a broader meaning, including work-related studies and many other activities pertinent to a student's general education. At the university level, moral education is closer to political science. Therefore, in China, moral education is used interchangeably with terms such as ideological education, political education, ideological-political education, ideological moral education, and moral-political education (Cheung, 1994).

Communist moral education is carried out by all school staff, as well as in extracurricular activities, student organizations, and school subjects. In every school, moral education has become the collective responsibility of the school principal, vice principals, teachers, and the Party Secretary, with the class teacher taking charge of the daily ideological-political instruction and moral education teachers bearing specific responsibility for teaching the students (Vickers, 2009).

Decentralization and Controls in Moral Education Curriculum in China

China's Confucius tradition stresses obedience and loyalty to the state (Sen, 1999) and its adoption of Marxism one-party democracy (Held, 1992) exemplifies a strong political control in moral education (Connell, 1975; Hayhoe, 1993). Political control in moral education is enhanced by a centralized curriculum development mode, with central government deeply involved in every aspect of education (Schneewind, 2006). Communist political knowledge is introduced to all levels of education institutions in China: the Ministry of Education (MOE) follows the guidance of the CCP and state in making education policies; the People's Education Press (PEP) follows MOE policies to create national curriculum standards and national textbooks; and the local education bureaus guide schools to follow all the national guidelines. This centralized approach, although popular among some East Asia countries with similar cultural traditions, has received challenges from the West. Western scholars such as Hegel question the unbalanced power between Chinese state and civil society, pointing out that China is a state without society (cited in Brook & Frolic, 1997). Vickers and Jones (2005) view this approach as a fairly chauvinist national narrative.

However, after the Chinese economic reform initiated in 1978, we witnessed a growing democratized moral education, accompanied with the gradually growth of civil society. The economic reforms have gradually dismantled the CCP's monopoly over commercial activities. As a result, its political dominance over Chinese society has also decreased (Brook & Frolic, 1997), and new and influential economic and social groups and phenomena have emerged to fill the void.

This newly emerged civil society, although not sufficiently strong (Deng, 2008), shows its interests in moral education. Its members no longer view education as something handed down by the Chinese state, but instead as their own responsibilities (Cheng, 1995). They contribute to China's moral education reconstruction by adding more non-communist elements and including diverse voices.

First, the Chinese intellectuals, in the beginning of China's economic reform, were expected by the CCP to improve moral education.[1] In the 1980s, these scholars turned to diverse sources, including sociology, ethics, psychology, and Western political and economic theory, to explain why moral education is necessary. This theoretical research gradually added new elements into Chinese moral education. In the 1990s, with trusts gained from the central government and CCP, Chinese scholars, by bidding for MOE's "8th Five-year National Funded Social Science Project" and "9th Five-year National Funded Social Science Project," were allowed to conduct school-based moral education innovations. These experiments have introduced new concepts, contents, and pedagogies that are quite different from those of the previous moral education (Ban & Xue, 2004; Gan, 2003; Zhao & Zhao, 2002).

Second, the growing civil society has enabled voices from the local governments, schools, and communities included in the moral education reconstruction process to be heard. In the middle 1980s, the CCP released the document *Decision on the Reform of the Educational Structure* (Communist Party of China, 1985),

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which decentralized education financial power to local governments. Over the next 30 years, they ended the state's monopoly over textbook creation (currently, numerous versions of textbooks are created by local university presses; allotted local governments approximately 10% of curriculum time to design local curriculum; and, finally, in 2001, advocated school-based curriculum development (SBCD), which allows schools to participate directly in the moral education curriculum design. After a decade of schools practicing SBCD in moral education, the "10th Five-year National Funded Key Education Project: School-based Curriculum Development and Moral Education Efficiency in Basic Education" reported that SBCD enabled Chinese schools to forge their unique school culture and power, and largely improve their teachers' professional abilities in moral education (Zheng, 2008).

During the decentralization to Chinese moral education, the dominant role the Chinese state could still be observed and the CCP continued to play a role in deciding contents and priorities in school moral education (Law, 2010), thereby again emphasizing communist ideology in moral education. Deng Xiaoping and his successors, Jiang Zemin and Hu Jintao, invested much effort in reconstructing Marxism to answer challenges resulting from economic reform and better meet the needs of Chinese students. Scholars interpreted these efforts as a clear shift in emphasis from China's earlier economic-nationalist approach to a more ideological-institutional approach (Dynon, 2008; Holbig, 2010). Since late 2005, the Hu Jintao government has enhanced the teaching of Marxism in moral education. The CCP found the new Academy of Marxism to innovate Marxism theories and the creation of new Marxist textbooks catering to the tastes of younger generations, according to Hu (2010), to introduce their "re-Marxization" ideology to Chinese youth.

Regardless of the debates on whether Chinese state and civil society conflict in shaping moral education, the growing civil society, together with the state, has deepened the understanding about morality, values, and spirituality education in China by adding new theories, contents, pedagogies, and diverse voices and by adapting the previous communist ideology to contemporary Chinese society needs.

LESSONS FROM EMPIRICAL RESEARCH

The Study

School A's story is an element of the author's my doctoral study into issues of power redistribution in China's moral education. The study's primary aim is to identify power relationships and changes in different stages of curriculum development. A multi-case study approach was adopted in Shenzhen City, which is viewed by both scholars and Chinese Chairman Hu Jintao as a good barometer for change and experimentation with new things in China (J. T. Hu, 2010; T. Wang & Leung, 2000). Each case school was solicited as quality in moral education and illustrative of the different dimensions of power in moral education reconstruction.

The empirical data from School A was gathered by employing four major methods: document analysis, school observations, in-depth interviews with external and internal participants in case schools moral education reconstruction, and a teacher questionnaire. The documents analyzed include the following: a) policies and/or laws and school policies on moral education, and school curriculum development; b) relevant syllabi, teaching materials and teaching timetables; and c) photographs of related school activities. The researcher observed the school environment to gain a general understanding of moral education, classroom teaching practices and related activities. Nine informants were interviewed, including one university curriculum scholar, one local education bureau officer, three school principals, and four ordinary teachers participating in moral education reconstruction at different age levels. The interviews, which were conducted in *Putonghua*, were recorded, transcribed for closer examination, and translated into English. The questionnaire was administrated to 30 teachers participating in the school's moral education reconstruction projects.

School A is a nine-year school (with primary and junior middle parts) in the Long Gang district of Shenzhen; in June 2008, it had 3,800 students and more than 220 teachers. It is committed to moral education curriculum innovation and shows interesting power relationships in its two moral education reconstruction projects (Project I and Project II). This study in School A focused on its junior section (Grades 7–9).The findings reported below are based on data collected from April to September 2008.

FINDINGS

Grassroots-initiated Moral Education Reconstruction Projects in School A

School A's two moral education projects had different foci and curriculum teams. Project I was initiated in 2002 by the then school principal (SA-P1) and a current deputy school principal (SA-P2) as an experimental school project for the 10th National Five-year Social Science (Education) Key-point Project, *Appreciative Model of Moral Education* (only five schools in China were chosen for this project) and the eleventh National Five-year Social Science (Education) Project ─*Teacher–student Relationships in Modern Times* (under supervision of the same project team). Project I focused on enhancing the interest of students in moral education by adding aesthetic elements and improving teacher–student relationships. It was mainly implemented through formal classroom teaching (various subjects), teacher–student communication, and school-wide activities.

Project II was initiated by the current school principal (SA-P3) and a second deputy school principal (SA-P4) in 2007, in an effort to integrate national, local, and school moral education curricula to better meet their students' needs. It was intended to be implemented through formal moral education classroom teaching, school-wide activities and class meetings. Class meeting is a compulsory course for all primary, junior, and senior secondary schools, in which the teacher would teach

moral education based on his/her assessment of student needs, with students being encouraged to express their opinions about class council and issues relevant to moral education), and.

At the time the researcher conducted this study in School A, both projects were under the overall supervision of SA-P3. SA-P2 was in charge of Project I and supervised all subject teachers, class teachers (*ban zhu ren*),[2] and moral education teachers (Grades 4–8). SA-P4 was in charge of Project II and supervised moral education teachers (Grades 1–3 and 9, including those working in Project I) and the Student Affairs Office.

Decentralization and Control in Moral Education Reconstruction in School A

Decentralization and control in the School A's moral education reconstruction projects will be described and analyzed at three stages: curriculum goal setting, content and pedagogy selection, and implementation. The analysis will examine the explanations (influential forces, relationships among curriculum makers) found in both general and Chinese literature.

Moral Education Curriculum Goal Setting

School A sets its goals in two moral education projects differently, reflecting their gradual recognition of the main theme in moral education reconstruction: reorganizing moral education based on school needs.

As the earlier-started project, Project I shaped goals in cooperation with the central government and national Project team. The perceived social needs and aims had already been shaped by these two groups; School A merely turned them into specific goals.

Beginning in 2002, School A actively participated in two national projects conducted by a single university moral education curriculum expert in Beijing, "Appreciative Model of Moral Education" (2001–2005) and "Teacher–student Relationships in Modern Times" (2006–2010). These two projects were funded by the National Office for Education Sciences Planning (NOESP, a part of the MOE). Through provision of national projects areas/topics, approval of projects, and overseeing the implementation, funding and evaluation, the National Office for Education Sciences Planning (NOESP) works to "build a platform for education research, guide the directions of education research, and reflect the needs from the state and society" (NOESP, 2008). In accordance with these general policy goals, the central government suggested major directions in Project I that affected School A's curriculum goals. In 2001 and 2005, the central government set the general aims for national projects, including Project I. In the 2006 and 2010 rounds, unlike in the previous round, the central government provided specific titles, instead of more general areas, for scholarly proposals. In order to retain Project I's central government funding, the scholar in charge changed the project name to "Teacher–student

Relationships in Modern Times," the project title dictated by the central government; as a result, Project I began to focus more on teacher–student relationships.

In regards to the top–down control exercised over Project I, the scholar leading the project (BJ-S1) acknowledged,

> We had more freedom in the first round in the tenth (project). In the eleventh (project), the government decided the topics and we could only bid for it (Interview with the scholar BJ-S1, in Beijing, 2008).

Despite the above, BJ-S1 still had significant influence over the shaping of Project I's goals. Before presenting his Project I goals, his theory on esthetic moral education (which is the basis for the two national projects in which Project I was entered) will be briefly introduced. It is widely recognized that there are three major stages in cultivating virtues in moral education: cognitive, affective, and conative (Clarken, 2006). BJ-S1 claimed that his aesthetic moral education theory differs from other moral education theories in China and other East Asian countries, in that it focuses on affective cultivation rather that indoctrinating cognitive virtues.

Based on his aesthetic moral education theory, BJ-S1 first defined Project I's general aim to be "to enhance human rights, freedom and to emancipate students"through moral education" (School A's website, 2008). Curriculum goals can be categorized into cognitive, normative, or utopian aims (Benavot & Braslavsky, 2007); BJ-S1's goals showed utopian inclinations. He then established three goals: changing the contents and forms of existing moral education to make it easier for students to accept its values; encouraging students and teachers to behave well and beautifully, thereby arousing their interests in morality; and making students view morality as beautiful and good. Later, due to the central government's interests in teacher–student relationships, BJ-S1 proposed a model for student–teacher relationships based on his theory: treat teachers and students as equal partners in moral education; use aesthetics components in teaching and extra-curricular activities; and, adopt fine arts in moral education curriculum (Project Team, 2006).

SA-P2, in her role as School A's deputy school principal for teacher supervision, created the specific goals below, all of which reflect BJ-S1's theoretical suggestions and address teacher improvement: (1) teachers should behave as student role models in and out of school; (2) teachers should love students and supervise their moral behaviors; and (3) teachers should insist on an equal teacher–student relationship in classroom teaching, and adopt aesthetic elements into moral education.

Project II, which was introduced later rather than being directed by the central government and a scholar's theoretical framework, was shaped by identifying difficulties facing moral education in School A (which Project I could not help to solve), and was targeted to systematically reorganize moral education teacher training, resources, and curricula.

Moral education teachers in School A were seen as lacking professional training and identity. Many are teachers of different subjects who do not hold a degree in moral education. In the interview, SA-P4 explained,

Moral education is a subject any teacher can teach. Our class teachers in our school always teach one major subject (Chinese, Mathematics) for one class. To make their task quota reasonable, we let them teach moral education. Moral education only costs them two hours a week, while asking them to teach one more class [in their major subject] would overburden them (Interview with SA-P4, School A, 2008).

The lack of professional training for the professional training and identity of moral education teachers not only lowered the quality of moral education in School A, but also decreased the time spent teaching moral education. SA-P4 suggested that some class teachers even use class meeting and moral education time for Chinese or mathematics teaching. According to a random school inspection in 2008, 17 out of 72 classes in School A did not hold class meetings (10 of these in Grade 8), and one class teacher made students do assignments from another subject.

Textbooks are another problem. The provincially designed moral education textbooks used in School A were written several years ago, and do not reflect the most recent issues facing students. In addition to the formal textbooks, the national and local education bureaus also send schools handbooks for *zhuan ti jiao yu* (themes education about safety, health, and similar subjects not covered in the regular moral education curriculum). However, these handbooks introduce specific knowledge without considering the age, grade, or study process of the students. As SA-P4 complained in his interview, "obviously we can't simply split the handbooks and send different pages to our different grades." Half (50.0%) of the surveyed teachers complained about low textbook quality.

The third problem was caused by the CCP's guidance of moral education. Sudden changes in CCP policies force national and local education bureaus to add, delete, or change requirements for both formal and informal moral education, without first developing systematic implementation plans or content. Tight political control is a persistent feature of Chinese moral education, as discussed earlier.

SA-P3 and SA-P4 both believe that Project I cannot help them solve the difficulties discussed above. The majority (86.7%) of surveyed teachers agreed that Project II was initiated to solve difficulties in moral education. Correspondingly, Project II addressed the following general goals.

First, integrate national and local requirements in formal and informal moral education into one systematic school subject by eliminating redundancies and overlaps; replacing outdated textbook contents with teaching materials; preparing materials for areas lacking detailed content; reorganizing teaching time/contents for different grades (including both primary and secondary sections); and, allocating teaching time for informal moral education themes not covered by the standard curriculum, but frequently addressed by the CCP and education bureaus.

Second, involve all moral education teachers in School A in Project II. Each teacher, based on their background, was asked to study and design relevant materials for one area of the initiative; their involvement was believed to enhance their professional abilities.

Finally, create a database for resource sharing among moral education teachers. School A allocates 500 hours for moral education from Grade 1 to Grade 9. A database is therefore must be sufficiently rich in content to fill those 500 hours, and should help new moral education teachers, whether from other subjects or newly graduated, to prepare their lessons. If Project II can achieve its goals, it should be of great help to School A in solving its difficulties in moral education.

Moral Education Curriculum Content and Pedagogy Selection

As the second stage of moral education curriculum development, the content and pedagogy selection in School A's moral education reconstruction projects involves more school insiders, with discontinuities and continuities to address the goals shaped in Stage One.

Project I was guided by the scholar BJ-S1 and mainly organized by SA-P2 and the Project I team members. One discontinuity was that, although the central government focused Project I's general aims (directions) on improving teacher–student relationships, it lacked the ability to closely affect, and did not become directly involved in content and pedagogy selection. BJ-S1 continued to have a strong influence at this stage. Through lectures, workshops, teacher training, project internal communications, and publications, BJ-S1 promoted content and pedagogy selection principles for visible and hidden moral education that addressed his aesthetic moral education goals. BJ-S1 suggested the principle of selecting beautiful materials and presentation methods for visible moral education in classrooms and school activities. As to hidden moral education curriculum, BJ-S1 constructed two principles: first, shaping teachers' beautiful behaviors and, second, shaping mutually appreciative relationships among students and teachers. Both were intended to ease the transfer of values to students in ways students may prefer.

At this stage, School A deputy principal SA-P2 was the school-wide tasks allocator and examiner, but was still closely supervised by BJ-S1. To ensure BJ-S1's principles were fully implemented, she required all subject teachers participating in Project I to integrate BJ-S1's aesthetic moral education theory into their daily teaching, and to recommend such materials as beautiful essays and films on virtues to their students; in addition, all class heads (Grades 4–8) should focus on improving class culture and linking students' activities to Project I (School A internal material, 2008).

Unlike the goal-setting stage, the selection stage involved schoolteachers. School A teachers, based on their Project I teaching, added a principle to the aesthetic theory: handle conflicts and emergencies using aesthetic wisdom. School A teachers found that handling emergent situations with wisdom reinforced the lessons taught in moral education: when conflicts arise between teachers and students, teachers would help students to understand the problem first, and then agree with certain virtues step by step. The principle of School A teachers for handling classroom emergencies was seen as a good development of aesthetic principles at the classroom level. BJ-S1 encouraged and promoted this principle in his nationally published academic article.

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Unlike Project I, the second stage of Project II included school insiders and mainly focused on content reorganization and selection. School A's selection of Project II content was restricted by the central and local governments' unequal treatment of national, local, and school curricula. Project II was obligated to include compulsory national and local moral education curricula components, even though school leaders and teachers criticized those components for not meeting the needs of students. National policy insists on the completion of national and local curricula tasks as a precondition for school curriculum (Ministry of Education, 2001a). In contrast, school-based curriculum was treated as "an important complement" to national and local curricula. According to the education bureau officer, the main reason Project II was permitted to reorganize local moral education curricula was that doing so highlighted extant problems in moral education throughout the district.

With the national and local moral education curricula as the mandatory core of Project II, and faced with the job of improving the effectiveness thereof, School A insiders concentrated on content reorganization and selection. SA-P3, the new school principal, continued to delegate SA-P4's power in the second stage of Project II, enabling him to reorganize national and local moral education curricula to suit to their school's situation. He divided all moral education content into seven education themes, "Political, Psychological, Safety, Environmental, Ideological, Moral, and Legal," each of which was assigned to a different grade and allocated a prescribed amount of teaching time. The most time was assigned to Moral Education (115 hours), followed Psychological (80 hours), Ideological (80 hours), Political (76 hours), Safety (60 hours), Legal (60 hours) and Environmental (42 hours).

Following SA-P4's reorganization, every teacher in Project II was required to select materials for one of the above-mentioned themes. The material selection, according to SA-P4, was expected to contribute to a moral education resource database for School A, with the expectation that their contribution should be able to help new or less-experienced teachers teach moral education quickly and well. According to SA-P4, this criterion gives School A teachers the freedom to select the material they prefer, whereas the teacher survey found that teachers believed "better meeting student needs"to be their first criterion in material selection.

Moral Education Curriculum Implementation

In the previous two stages of moral education curriculum development, curriculum makers in and outside of School A, due to their administration positions, professional skills, and resources, controlled specific power zones in designing school moral education curriculum. However, in the implementation stage, all curriculum makers faced a more complicated context for power redistribution. Three major characteristics were noted in the third stage of School A's two moral education initiatives.

The first characteristic was the curriculum makers' efforts to balance external supports and school independence in moral education reconstruction. On the one hand, both projects passionately sought the support of external authorities. As a

part of BJ-S1's two national projects, Project I gave School A the curriculum expert professional support in goals shaping, free from national and local supervision of content and process shaping. In the implementation stage of Project I, supports from BJ-S1 directly and indirectly helped School A in terms of teachers' professional improvement and confidence in their abilities, and the school's ambition to forge school strength. Project II, while not directly involving any school outsiders in its first two stages, fostered close and good relationships with the local education bureau. As Ball (1987, p. 285) concludes, school heads must always look carefully to their relationships with the local education authority because good relationships with officials may help to ensure that a school maintains a good front and have continued access to financial and other resources.

School A maintained its independence in moral education reconstruction for two reasons. The first reason is that it serves as the main resource source for both moral education projects. Although the education bureaus are the main financial supporters of public schools like School A, they do not directly fund school curriculum development, and did not offer extra financial supports for moral education reconstruction in School A. Most survey respondents (86.6%) ranked School A as the main supporter. The second reason is that external authorities and experts were not considered capable of supervising Projects I and Project II; School A staff, however, did have the necessary professional knowledge and close relationships with the students, and believed they knew better than both the curriculum expert and the education bureau. The teacher survey data revealed dissatisfaction toward local education policies on moral education; more than half of survey respondents believed local education bureau policies on moral education and SBCD suited their school situation (66.7% and 60.0%); however, nearly one third did not answer the two questions (30.0% and 33.3%). For the above reasons, School A was able to affect local education bureau decisions about moral education, and strategically implement local policies in ways that made them better suit School A. Both deputy school principals in School A indicated in their interviews that they may adopt similar strategies when implementing policies unsuited to their school; SA-P2 suggested that she would implement unsuitable policies flexibly, but in keeping with their basic requirements.

The second characteristic of curriculum makers' interactions in implementing Project I and II was the competition over, devotion to, and development of moral education in School A. According to SA-P3's interview, when SA-P3 and SA-P4 initiated Project II, schoolteachers expressed doubt that School A needed two moral education initiatives at the same time. SA-P3 indicated that he supported both projects in his school because, while they were different, both were important and necessary. Project I was believed to be more helpful in providing theoretical guidance and improving teachers' professional skills, whereas Project II was seen as a more practical extension of Project I.

The coexistence of two Projects in School A made the two deputy school principal compete for school resources; at the same time, however, develop their own projects thus facilitate the development of moral education in School A as a whole.

Project II was newer than Project I and, as Ball (Ball, 1987) suggests, innovations are rarely neutral; they tend to advance or enhance the position of certain groups and disadvantage or damage the position of others. SA-P4's Project II competed with SA-P2's Project I for teaching time, teachers and implementation space.

SA-P4 claims that Project II should not been implemented in moral education classes alone, suggesting that, in the next school term, Project II would take up two-thirds of the class teachers' class meeting time (approximately 10 classes each school term), and thus absorb teaching time currently devoted to Project I. In addition, Project II would be expanded to cover seven aspects of student life at School A: the daily work of class teachers, Communist League work, Young Pioneer work, integration into other subject teaching, school culture, family education, and community education. These overlap somewhat with Project I, and require more teachers to participate in Project II.

According to SA-P2, she showed her devotion to Project I through several strategies. The first was to enlarge Project I's operating space based on her power zone as deputy school principal in charge of teaching and instruction. She monitored the daily work of all teachers, and had the power to select Project I members from all subjects. As such, Project I members included not only moral education subject teachers, but also *nian ji zu zhang* (grade heads) and *ban zhu ren* (class teachers) in Grades 4, 5, 6, 7, and 8, as well as teachers from other subjects (Chinese, foreign languages, music, painting, history and society, psychology). SA-P2 also implemented Project I in more areas, rather than restricting it to moral education classes alone, as in Project II. Project I was used by class head teachers in shaping their class culture and organizing moral education activities, and by subject teachers in their daily teaching in Grades 4–8, and in their daily communication with students.

The third characteristic of the interactions of the curriculum makers in implementing Projects I and II was that teachers enjoyed a high degree of lateral autonomy. This autonomy was expected to facilitate continuous innovation in both Projects, but may have reduced the effects by ignoring some school policies and excluding parents and the community.

School A's teachers, compared to the two deputy school principals, had fewer decision-making powers in the first two stages of Projects I and II. According to survey respondents, in Project I, teachers were mainly responsible for classroom implementation (93.3%), writing research reports (86.7%), selecting teaching materials (83.3%) and evaluating Project I (83.3%). In Project II, teachers were primarily accountable for gathering teaching materials (80.0%), determining teaching aims (76.7%) and creating teaching materials (76.6%).

However, they enjoyed a high degree of lateral autonomy, which gave them a degree of power over the third stage of implementation. Lateral autonomy concerns the extent to which organizations can take decisions without having to inform or seek the permission of others. This is a different form of decision-making capacity from that passed down by others within a vertically integrated hierarchy (Lawton, Reed, & Wieringen, 1997). Both deputy school principals realized that lateral

autonomy was vital to continuous innovation in moral education reconstruction, and gave teachers freedom in the third stage, implementation.

In contrast, the lateral autonomy of the teachers created a problem: teachers selectively ignored school requirements and regulations, and even excluded parents from school moral education reconstruction, which was not the intent of School A. According to survey data, some of the respondents (10.0%) did not follow school policies on Project I teaching time. When asked what they would do if their opinions differed from school policies, teachers indicated that they would add the materials they preferred (86.7%), consult with colleagues to find a better solution (83.3%), delete some materials (70.0%), report their concerns to school leaders and await their decisions (60.0%), or ask students to teach themselves (56.7%). Only 16.7% of them indicated that they might keep silent.

School A principal SA-P3, in his interview, stated that satisfying parents was one of his motives for starting the two Projects. Due to its reputation, parents try their best to enroll their children in School A; thus, developing a moral education curriculum would improve School A's image and may help to fulfill the high expectations of parents. In contrast, School A teachers, based on their autonomy and professional knowledge, tended to exclude parents from moral education reconstruction, which may decrease its effectiveness.

In the previous two stages of Projects I and II, teachers showed little interest in parents' needs when developing curriculum. Among the six criteria for material selection, both teachers ranked meeting the needs of parents second to last.

In the implementation stage, School A teachers viewed some parent as bad influences on moral education, and were thus reluctant to accept their input. SA-T2 described some parents in Long Gang District as rich but not well educated, because, unlike inland Chinese parents, they do not follow the Chinese tradition of respect for teachers. Some teachers even regarded parents as barriers to Project I. One-third (33.3%) of respondents did not comment on the statement "parents support Project I"; 13.3% indicated disagreement. SA-T1 suggested that parents pay attention to every aspect of their child's education, except for moral development. Regarding tensions between teachers and students' parents, the education bureau officer commented, "It's not only a tension between teacher and parents. It is also a tension between relatively outdated ideas a teacher has brought from inland China and the culture of a rapidly developing immigration city." The resistance of teachers to the influence parents not only blocked the attempts of other curriculum makers to use Projects I and II to meet local community needs, but may also have decreased its effectiveness.

To sum up, the first two stages of one moral education project in this case school featured top–down, scholar-led, and teacher-improvement-oriented goal setting, and stressed aesthetic principles in content and pedagogy selection. In another project in this case school, the first two stages featured the reorganization of official moral education curriculum goals based on school needs, and putting official moral education contents in order and creating school's own materials. The third stage

of both projects in School A showed three power struggles: balancing external supports and school independence; competition between and development of the two projects; and, teachers gaining high degree of lateral autonomy. Therefore, this article characterizes the power pattern in School A as state-led power decentralization because it shows a great influence from national external authorities and competitive relationships among school staff. The state plays a key role in controlling moral education reconstruction, and curriculum decision-making power is decentralized level by level.

DISCUSSION AND CONCLUSION

After the description of practices in moral education reconstruction in one Chinese school, one feature stands out: the reconstructed moral education curriculum can be understood as power redistribution between state and civil society. The above section examines the three stages and depicts two dimensions of power relationships. The analyses suggest that power in moral education reconstruction in School A can be regarded as state-led power decentralization.

In the first dimension, power relationship among external authorities and grassroots, the state played an overwhelmingly important role in both moral education initiatives in School A. It made major decisions for the first and second stages of both projects. Based on state and society needs identified by NOESP, the state-directed goal shaping in Project I, and by making school curriculum subordinate to compulsory national moral education, the central government made its curriculum mandatory elements of Project II. It also controlled key participants in Stage Two. Due to the state's financial influence over scholars, BJ-S1 had to adjust and address the structure of Project I to reflect central government interests. Giving the local education bureau the authority to oversee school's accomplishment of national tasks in moral education, placed the development of Project II under their supervision.

Chinese state's influential role in the case school moral education reconstruction, can be explained by the theme widely discussed in literature that the state played a leading role in shaping moral/citizenship education (Green, 1997; Law, 2010). Originally, citizenship education tended to coincide with the creation of nation-states in the nineteenth century in Europe and North America and in the post-colonial period of the twentieth century in Africa, Asia, and Latin America (Ramirez & Rubinson, 1979). For a very long time, it has been both an implicit and explicit objective of governments (Kennedy, 1997). It is constructed broadly to encompass the preparation of the youth for their role and responsibilities as citizens. Citizenship education, according to the study of Kerr (2000) of 16 countries, refers to formal programs of instruction made by the governments, including citizenship, civics, social sciences, social studies, world studies, society, studies of society life skills, and moral education. The citizenship education programs are traditionally associated with nation-specific civic elements (Heater, 2001) and are typically focused on the nation and the supposed natural affinity of citizens to the state (Reid, Gill, & Sears, 2010).

In the second dimension, power relationship among the grassroots, power was gradually decentralized to the school and teachers in a government-led context. As suggested by many scholars, power relationships between state and civil society in citizenship education changed in the global society (Cogan, 2004; Kerr, Smith, & Twine, 2008; Law, 2010; Popkewitz, 1996; Torres, 1998), which explains the renewed efforts in decentralization of moral/citizenship education. Rather than viewing decentralization as a conflict between state and civil society, Chinese civil society began to show interest in moral education to make their voices heard and purposefully organized the decentralization step by step. First, the society's attitudes can be an important barometer for citizenship education. In the Chinese case, trust crisis, criticism, and lower status of CCP-dominant citizenship education exist. These negative attitudes, directly/indirectly initiated reforms in moral education reconstruction in schools. Second, due to different interests, local governments adapted the top–down moral education to better meet local community needs. Similar to the Chinese local government in the empirical study, they asked for a degree of curriculum decision power as exchange to better implement national moral education curriculum. Third, intellectuals played an important role in shaping moral education in national, local, school levels. They, through continuous theoretical studies and experiments in schools made suggestions to the central government, informed schools with new directions in doing citizenship education. Finally, School A purposely chose to cooperate with certain external authorities in the first two stages of moral education curriculum development. It agreed to curriculum goals established by the central government and BJ-S1 in Project I. It incorporated all national and local moral education curriculum contents into Project II. In effect, it accepted having less autonomy in an attempt to improve the school's image, obtain professional training for their teachers, and address school needs. In the third stage of moral education curriculum development, School A carefully restricted the influence of external authorities by being the main financial supporter of moral education and rejecting the local education bureau's requirements, blaming the outsiders' lack of knowledge about School A. School A initiated an internal competition between the two moral education projects, which eventually enhanced both. Finally, power was decentralized to teachers to ensure continuous innovation. In School A, moral education was largely controlled by external authorities; however, school staff gradually gained more autonomy in the final stage of moral education reconstruction by strategically obeying the external authority and shaping competitive school culture.

To sum up, this chapter sees the recent moral education reconstruction in China as a power redistribution between state and civil society. The state still plays a leading role in promoting moral education; however, civil society initiates, facilitates, or even interrupts national moral education in school practices. Their power negotiations in moral education are not ended, but will go on to direct future citizenship education.

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NOTES

1 At the 13th National Congress, the CCP called on intellectuals to undertake an "historic role" in improving the status of moral education.
2 According to the "Temporary Regulations on Class Teachers" document issued by the National Education Committee in 1988, the class teacher is the organizer, moral educator, and supervisor of a class; assists school leaders' in the promotion of their teaching plans; mentors students' moral development; and serves as a bridge between the school, students' families, and the community.

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14. SCHOOL-BASED CURRICULUM DEVELOPMENT IN MAINLAND CHINA

Analysis of literature from 2001 to 2010

INTRODUCTION

On June, 2001, the Chinese Ministry of Education (MOE) officially announced what would later be generally referred to as the "new curriculum reform" (NCR) by issuing *The Guidelines for Basic Education Curriculum Reform (for Experiment)* [*Jichu jiaoyu kecheng gaige gangyao (shi xing)*)] (referred to below as the *"Guidelines"*).[1] China's NCR was a result of a historic encounter in the late 1990s between a newly defined global economy and a China eager to integrate itself into this global economy. The fact that the new round of educational reform was incubated in 1999, merely six years after the initiation of the 1993 curriculum reform, was no accident. The cluster of central government education documents between 1999 and 2001 articulated the vision of China's education in the popular discourse of knowledge economy, and, conceptually, the innovation was a clear indication of China's successful connection to the international track. These concepts and goals were operationalized through the launch of the NCR in 2001 (Wang, 2011).

The NCR is a new nationwide curriculum reform for basic education[2] in the Chinese mainland. The entire educational system, from kindergarten through senior middle school, needed restructuring. In addition, one of the core moves is to shift the curriculum management system from the centralized system to a decentralized and distributed system. Clause 16 in the *Guidelines*, the most important official document of the NCR, stipulates,

> In order to secure and promote curriculum requirements for various areas, schools, and students, three-levels—national/central, provincial/local, school— curriculum management, will be implemented.

> The MOE is responsible for making overall curriculum plans for basic education, formulating curriculum management policy, establishing what curricula are to be included and how many teaching and learning hours are to be dedicated to them collectively and individually in the *national curriculum*, specifying *national curriculum* standards, and actively carrying out the new curriculum evaluation system.

> The provincial education administration departments are responsible for planning the implementation of the *national curriculum* within the province (or within the autonomous region or municipality directly under the central government), planning and implementing the *local/provincial curriculum* in accordance with national curriculum management policy and actual local conditions, and reporting to the MOE for the records. Under the approval of the MOE, provincial education administration departments are entitled to specify *local curriculum* plans and standards exclusively for the province (or for autonomous regions or municipalities directly under the central government).
>
> The schools are responsible for executing *the national and local curriculum.* Additionally, the schools are entitled to develop or choose *the suitable curriculum* by considering local social and economical situations, traditions and advantages of the schools themselves, and interests and needs of their students. Education administration departments at national and provincial/local levels are required to provide directions to and supervise the curriculum implementation and development in schools. Meanwhile, the schools are entitled and obliged to report to the higher level the problems they have in implementing *the national and local curriculum.*"[3]

This clause, called the "three-level curriculum management policy," requires a new curriculum management system that can empower teachers, students, and local governments. In the past, the central government controlled all of the centers of curriculum decision making, and the result was a highly centralized system of curriculum management. The NCR is intended to shift the curriculum management system from the centralized system to a decentralized and distributed system. One of the focal points of the reform is, therefore, the reconstruction and improvement of the curriculum management system by distributing some powers for curriculum decision making to local governments, and then to schools and schoolteachers. The new system was established to ensure that the central government, local governments, and the schools have clear roles and play their parts in curriculum management (Huang, 2004).

The three-level curriculum management policy, which functions as a supporting curriculum policy for school-based curriculum development (SBCD) in China, is gradually making SBCD a highlight of the NCR (Xu, 2011). *An Interpretation to "the Guidelines for Basic Education Curriculum Reform (for Experiment)"* (Zhong, 2001), a semi-official book,[4] has named "the suitable curriculum," which the school develops or chooses exclusively for itself, as stated in Clause 16 cited above, as a "school-based curriculum." It maintains that the national curriculum system for basic education consists of the national curriculum, local curriculum, and school-based curriculum (SBC) (p. 354–355). Notably, the national, local, and school-based curricula need to be developed and managed by national and local education administration departments, and schools, respectively. Hence, the "three-level curriculum" has been converted further into the "three types of curricula," indicating that the central government intends to invite the school and its teachers

to share distributed leadership in curriculum development and to develop the SBC (Xu, 2011). The NCR in Mainland China is well known as a top–down, "policy-driven," and nationwide curriculum reform. Because it was issued in the name of the government, it possesses executive compulsion. Therefore, since the NCR was launched, SBCD has come into being and has gained increasing prosperity. In the development process, schoolteachers have summarized experiences unceasingly, have introduced achievements, and have produced a large number of papers published in various Chinese magazines, such as *The School-based Curriculum Development and Design of Education for International Understanding* (Xiong, 2010) and *Study and Practice of the School-based Curriculum of "Social Comprehensive Course for Lower Grades Students" in Beijing Jingshan School* (Gao, 2010), and so on.

Currently, China's education is receiving increasing international attention, and some papers published in the international journals have shed light on China's educational policy, history, curriculum reform, and the general situation. These papers *Politics and History Curriculum Reform in post-Mao China* (Jones, 2002), *Impact of Curriculum Reform: Evidence Of Change In Classroom Practice In Mainland China* (Li, 2011), and *A Postmodern Perspective on Current Curriculum Reform in China* (Jin, 2011). However, few papers have introduced and discussed the practical situation of SBCD in Mainland China systematically. This chapter reviews the situation of SBCD during the last decade in Mainland China. In addition, specific research issues are addressed: 1) What progress in SBCD has been made in the decade? 2) What are the main problems? 3) How will SBCD move towards?

RESEARCH DESIGN

Research Methodology

Literature analysis includes quantitative analysis method and content analysis method. In this chapter, the authors use both methods. Based on the literature analysis, this research mainly compiles statistics and analyzes the literature to reflect the actual SBCD situation. In short, it studies the statistics and analyzes the dimensions of quantity, themes, types of schools, geographical distribution, developers, curriculum design, and evaluation of the SBCD.

Sample Selection

The Chinese Journal Full-text Database (CJFD) is so far the most complete, top-rated, and most widely utilized journal full-text database in Mainland China. The database includes Chinese academic journals selected as source journals by the evaluative database since 1994, with the whole rating not less than 99%, and coverage rate of other academic journals rating not less than 90%.[5] Therefore, the CJFD is a reasonable barometer for describing the SBCD statuses and trends during the past ten years.

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Table 1. Summary of articles included and excluded

Articles	Number
Total articles identified	3051
Articles excluded	2561
Universities, colleges and vocational schools	360
Special education schools	27
Abroad, Hong Kong, Macao, and Taiwan	38
Announcement regarding SBCD	26
Theories regarding SBCD	2110
Articles included	490

The authors found 2868 articles with the CJFD as the retrieval platform, 2001 to 2010 as the period, and the title "school-based curriculum" for accurate matching, as well as 183 articles with the title "kindergarten-based curriculum"[6] for accurate matching, totaling 3,051 articles, on June 12, 2011.

These 3,051 articles were analyzed according to title, key words, and specific content. An article was excluded in the study if it introduced SBCD in the universities, colleges, vocational schools, or special education schools; analyzed SBCD of overseas or Hong Kong, Macao, Taiwan regions; made an announcement regarding SBCD; or illustrated the basic theory of SBCD. In all, 2561 articles were screened, with 490 articles meeting the inclusion criteria, potentially reflecting the actual SBCD situation in kindergartens and primary and middle schools. Of the 3,051 publications identified, 490 were included in this analysis. Table 1 lists the type and number of articles excluded from this literature analysis.

FINDINGS

Number of SBC

The number of research articles, to some extent, represents the research level and development condition of the area. More details reflecting the actual SBCD situation in Mainland China from 2001 to 2010 are shown in Figure 1.

Figure 1 clearly shows that, although literature number has some fluctuations at the middle and later period, the general trend is a gradual increase. With the promotion of the basic education curriculum reform, the SBC number has grown continually and has increased greatly in Mainland China during the last decade.

In particular, we can see different types of schools that developed SBC from Table 2.

We can see that the middle schools developed the most SBC, followed by the primary schools, then by the kindergartens, and finally by the nine-year and twelve-year schools.[7] Among middle schools, the senior middle schools developed the most SBC, followed by junior middle schools, and finally by some combined junior and senior middle schools.[8]
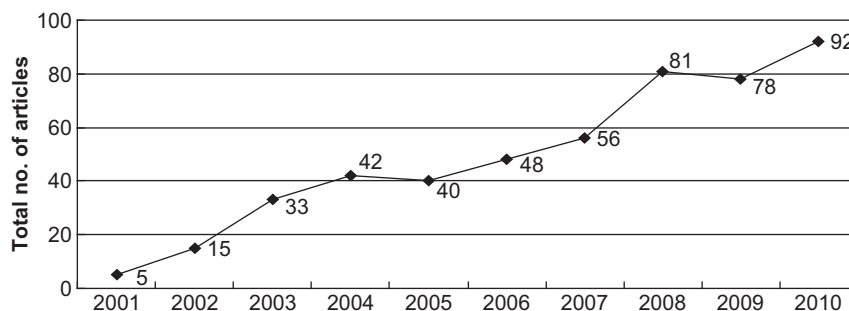
Figure 1. Total articles included in quantitative analysis by publication year, 2001–2010.

Table 2. Total articles of different types of schools

Types of schools	No. of articles	Percentage
Middle school	220	45%
Senior middle school	115	52%
Junior middle school	68	31%
Combined junior and senior middle school	37	17%
Primary school	196	40%
Kindergarten	42	9%
Nine-year and twelve-year school	32	6%

Themes of SBC

According to analysis on the content of 490 articles during the last decade, the themes of SBCD can be divided into eight categories: expanding national curriculum (NC), social life, culture cultivation, art accomplishments, sports activities, science and technology (ST) education, moral education, and "others." Specific statistical results are shown in Figure 2.

1. SBC for expanding NC means extending and broadening the content of the national curriculum. As stated above, in China, the NC needs to be developed and managed by national education administration departments. Therefore, the MOE is responsible for designing the NC. Currently, China's NC has many different courses, such as Chinese, mathematics, chemistry, physics, biology, geography, history, and foreign languages, among others. Accordingly, SBC for expanding NC has diversified subcategories, including Chinese-expanding curriculum, mathematics-expanding curriculum, chemistry-expanding curriculum, and so on. For example, the SBC named "Chemistry in the movies" (Shen, 2010) leads students to learn the chemical knowledge in many movies. Because the chemical

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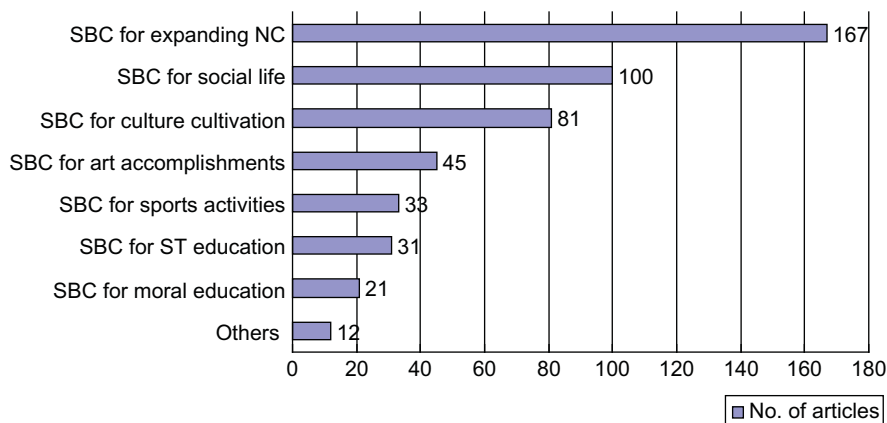
Figure 2. Categories of the Theme of SBCD.

Table 3. Percentage of SBC for expanding NC

SBC for expanding NC	No. of articles (167 articles)	Percentage
Chinese-expanding curriculum	65	39%
Foreign-language-expanding curriculum	27	16%
Biology-expanding curriculum	22	13%
Chemistry-expanding curriculum	17	10%
Mathematics-expanding curriculum	11	7%
Geography-expanding curriculum	11	7%
History-expanding curriculum	9	5%
Physics-expanding curriculum	5	3%

knowledge these students learn is beyond national curriculum standards of chemistry, "Chemistry in the movies," which expands the content of the national chemistry curriculum, can be called a chemistry-expanding curriculum. Of the 490 articles, 167 were of this kind. Specific statistical results can be seen in Table 3.

2. SBC for social life is intended to guide students to better understand, be familiar with, and deal with relationships between people and people, people and nature, and people and themselves in order to live in a certain society healthily and happily. Articles of this type amounted to 100, the top four if which were as follows: 1) practical activity curriculum, namely, leading students out of the classroom and out of the schoolyard, and developing various kinds of practical activities; 2) health education curriculum, including mental health, diet, and prevention and control of myopia; 3) environment education curriculum, including strengthening environmental awareness and ways of environmental protection; and 4) life education curriculum, including cherishing life, loving life, and so on. In addition,

Table 4. Percentage of SBC for social life

SBC for social life	No. of article (100 articles)	Percentage
Practical activity curriculum	30	30%
Health education curriculum	23	23%
Environment education curriculum	13	13%
Life education curriculum	12	12%
Communication education curriculum	8	8%
Independent education curriculum	4	4%
Home economics education curriculum	3	3%
Current affairs curriculum	2	2%
Legal education curriculum	1	1%
Gender education curriculum	1	1%
Media literacy education curriculum	1	1%
Ideal education curriculum	1	1%
Leader-quality-training curriculum	1	1%

communication education curriculum, independent education curriculum, home economics education curriculum, current affairs curriculum, legal education, gender education, media literacy education, ideal education, and leader-quality-training curriculum are included. Specific statistical results can be seen in Table 4.

3. SBC for culture cultivation, based on facilitating students to understand and inherit some culture, be touched, and be infected by these culture, numbered 81 articles. Among them, some schools predominantly developed "local culture" curriculum based on the rich local cultural resources (approximately 80%), such as international understanding education curriculum, tea culture curriculum, traditional festival culture curriculum, Chinese herbal medicine culture curriculum, and Olympics education curriculum.

4. SBC for art accomplishments, which is focused on improving the art appreciation and creative abilities of students, accounted for 45 articles. This SBC type can be divided into four categories: 1) music curriculum (approximately 33%), which includes folk music, folk dance, Chinese opera, ancient Chinese stringed instrument, the lyrics appreciation, Chinese textbook-based music drama, and new interpretations of ancient Chinese poetry; 2) handicraft curriculum (approximately 33%), which includes Chinese paper-cutting, family gardening, shadow puppetry, pottery making, Chinese embroidery, and paper folding; 3) painting and calligraphy curriculum (approximately 25%), which includes calligraphy, woodcut, sketch, bookplate, pebble painting, and collages; 4) and "others" (approximately 9%), which includes movies, Chinese comic dialogue, and comprehensive art, among others.

5. SBC for sports activities, which mainly develops various kinds of sports activities, had 33 articles. Specific subjects include ball games, sports recreations, chess, Chinese folk sports activities, swimming, competitive dance, skating, Lianxiang exercises, roller-skating, martial arts, and bridge the card game. Among them, the ball games and sports recreations were relatively higher (approximately 24% and 21%, respectively). The ball games include table tennis, football, fancy basketball, soft volleyball, dodge ball, and pearl ball, among others. Sports recreations consist of bamboo dance, rubber band dance, and charming shuttlecock, among others.

6. SBC for ST education is intended to improve students' scientific literacy. This type of SBC had 31 articles, consisting mainly of information technology, science and technology creation, astronomy, robot creation, and model airplane courses.

7. SBC for moral education focuses on cultivating the morality of students. This type of SBC had 21 articles. Among this kind of curriculum, the comprehensive moral curriculum was in the majority (approximately 48%), which is curriculum development to cultivate the comprehensive moral character of students. Furthermore, it includes Chinese traditional virtue education, gratitude education, national unity education, honesty education, national defense education, and table tennis sportsmanship education courses as well.

8. "Others" (12 articles) are curricula not incorporated into the above seven kinds of curriculum, including thinking training, library skills training, career guidance, learning guidance, memory training, and innovation ability training courses.

Geographic Distribution of SBC

China is a country with a vast territory that includes Hong Kong, Macao, and Taiwan, with 31 provinces, municipalities, and autonomous regions. This paper focuses on Mainland China, which in itself demonstrates a wide geographic distribution. Specific geographic distributions are listed in Table 5.

As clearly depicted in Table 5, each province, municipality, and autonomous region has drawn varying attention to SBCD. Among them, the literature numbers of Jiangsu, Zhejiang, Guangdong, Shanghai, Fujian, and Beijing are much higher than that of other regions. In addition, notably, of all the literature, only 14 (approximately 3%) articles directly described the actual SBCD situation in the rural schools.

In general, the status of SBCD has a positive correlation with the economy, society, and education development in each area. In developed areas, local governments have attached great importance to SBCD, and significant help from educational experts outside schools is easier to receive (Xu, 2011). Most importantly, teachers are able to actively participate and consciously improve their skills in curriculum development (Li, 2010). However, the remote countryside tells a different story. Surveys have shown that country schools lack basic curriculum resources, such as computer laboratories, specialized classrooms, and art and sports teachers. Unfortunately, schoolteachers bear the sole responsibility of NC implementation without any training on SBCD (Fang, 2008).

Table 5. Geographic distribution of SBCD

Region	No. of Articles	Rank
Jiangsu	76	1
Zhejiang	66	2
Guangdong	45	3
Shanghai	36	4
Fujian	34	5
Beijing	30	6
Hubei	23	7
Shandong	19	8
Guangxi	18	9
Heilongjiang	17	10
Liaoning	15	11
Jilin	14	12
Gansu, Hunan	13	13
Anhui, Hebei	8	14
Tianjin	7	15
Chongqing, Sichuan	6	16
Guizhou, Jiangxi, Henan, Ningxia	5	17
Shaanxi, Yunnan	4	18
Shanxi	3	19
HaiNan, Qinghai, Inner Mongolia, Tibet, Xinjiang	1	20

Developers of SBC

An overview of the SBCD practical situation during the last ten years demonstrates that developers of SBC tend to be multi-faceted. These developers can be divided into three types: 1) individual schoolteacher, which means the SBC is developed by the individual teacher independently such as when, in an article, the author uses the first person "I" frequently to express the development of SBC (Zheng, 2006); 2) groups of schoolteachers, which means the SBC is developed by several teachers; and 3) collaboration between schoolteachers and others outside school, which means the SBC is developed cooperatively by both teachers in school and others outside school, such as student's parents, curriculum experts, and social workers.

The literature content analysis illustrates that the highest number of SBC was developed by groups of teachers, with a total of 276 articles (approximately 56%); collaboration development of SBC was relatively less, amounting to 128 articles (approximately 26%); and SBC developed by individual teacher was only 86 articles (approximately 18%).

Table 6. Multi-faceted developers of SBC of different types of schools

Multifaceted Developers of SBC	Middle schools	Primary schools	Kindergartens
Groups of schoolteachers	54%	54%	71%
Collaboration between schoolteachers and others outside school	21%	34%	24%
Individual schoolteacher	25%	12%	5%

In middle schools, SBC was developed mainly by groups of teachers, followed by individual teachers and collaboration between schoolteachers and others outside school. In primary schools, SBC was also developed most by groups of teachers, followed by collaboration between schoolteachers and others outside school, in the last by individual teachers. In kindergartens, the most number of SBC was developed by groups of teachers, followed by collaboration between schoolteachers and others outside school, and finally by individual teachers. Specific statistical results are listed in Table 6.

Clearly, the highest percentage of developers of SBC for each type of school was the groups of schoolteachers. One of the main reasons for this result is that SBCD, as newly emerging in China, needs the support of professional ideas, knowledge, and skills, as well as a significant amount of time and energy. However, meeting these needs is difficult for the individual schoolteacher. Consequently, SBCD not only requires individual schoolteachers to make great efforts, but also to cooperate with others. Due to the restriction of a variety of conditions, establishing cooperative relations with schoolteachers and others outside the school is difficult. Therefore, schoolteachers are happy to work with their colleagues, building groups, mutually learning, supporting one another, and sharing resources.

Interestingly, compared with the teachers in primary schools and kindergartens, middle school teachers are more like to develop SBC individually, likely due to many complicated reasons. Staff qualification might one of the key reasons. In 2009, among the common reasons senior middle schools employed full-time teachers in China, a bachelor degree accounted for approximately 91%, whereas, among the common reasons junior middle schools employed full-time teachers, a bachelor degree accounted for approximately 59%. In contrast, the requirement if a bachelor degree occupied a lower proportion in primary schools and kindergartens, only approximately 20% and 12%, respectively (MOE of China, 2010). The level of the academic achievement, in a way, influences how much teachers accept the systematic curriculum development training, shaping the curriculum development awareness, knowledge, and ability of the teacher.

Design of SBC

The literature included many excellent SBCD cases, such as "Education for International Understanding" by the Northeast Normal University Affiliated Primary School (NNUAPS) (Xiong, 2010) and "Social Comprehensive Course for Lower

Grades Students" by Beijing Jingshan School (Gao, 2010). These plans, comprising curriculum idea, goals, and content, present deep theoretical foundations with strong elaboration and effectiveness.

However, overall, two kinds of SBC design can be observed in the literature.

The first kind, called the grading curriculum, considers the students' grade, puts forward appropriate curriculum objectives, and chooses and organizes proper curriculum content. For example, the SBC of NNUAPS, "Education for International Understanding," is suitable for Grades 1–6. The curriculum contents from Grades 1 to 6, based on the children' experiment and interests, and considering the international perspective, were organized according to six learning topics: plants, games, holidays, eating, cars, and peace. Their specific designs are as follows:

> The learning topic of Grade 1, "see the world through the ecology garden," is intended to carry out environmental education and symbiosis education based on cultivating the love of plants of first-grade children.

> The learning topic of Grade 2, "see the world through games during recess," is intended to carry out international understanding education of game culture based on cultivating the love of games of second-grade children.

> The learning topic of Grade 3, is "see the world through school festivals," is intended to carry out international understanding education of festival cultures based on cultivating third-grade children' love of school festivals.

> The learning topic of Grade 4, "see the world through *Jilin* dish," is intended to carry out international understanding education of food culture based on cultivating the love of home food of fourth-grade children.

> The learning topic of Grade 5, "see the world through *First Auto Works (FAW)*," is intended to carry out international understanding education of the industrial economy based on cultivating the love of cars of fifth-grade children.

> The learning topic of Grade 6, "see China–Japan relations through *Eight Department*," is intended to carry out international understanding education on peace culture based on cultivating the interest in history and culture of sixth-grade children by making extensive use of the advantage the site of school was the site of the one of the *Eight Departments* in the former puppet state of Manchukuo (Xiong, 2010).

The second kind, called the whole-school curriculum, is quite different from the example stated above. This kind of SBC has extensive curriculum aims, which suitable for all students in school, but without the relatively independent, specific, and clear curriculum objectives and content designed according to the children' grade or level.

Literature on the whole-school curriculum numbered 318 articles (approximately 65%), whereas literature of the grading curriculum only accounted for 172 articles (approximately 35%). In other words, the SBCD described in nearly two thirds of

literature only had general school-wide curriculum objectives, and did not involve specific curriculum objectives consistent with the special learning needs of students at each grade. As a result, how to strengthen the elaboration and pertinence of SBC design must considered and solved urgently.

If we attempt to analyze the reasons the design of SBC must be developed in depth, it may be that the majority of the most curricula were designed by groups of teachers or individual teachers, without cooperation with external curriculum experts outside, and without professional guidance and support. In addition, the curriculum development experience, knowledge, and ability of some teachers may have been relatively limited; thus, so they failed to some extent to understand the basic principles and main techniques of curriculum design.

Evaluation of SBC

Evaluation is a catalyst of curriculum change (Barnes, 2000). Evaluation is universally accepted as one of the basic components of any curriculum, and plays a pivotal role in deciding what the learners learn, and what and how teachers teach in schools (Agrawal, 2004). Thus, clearly, curriculum evaluation is widely acknowledged as a powerful means of improving the quality of curriculum development. Curriculum evaluation refers to determining the merit or worth of a part or the whole of a curriculum. It serves two important functions: first, it provides a means of obtaining information that can be used to improve a course, and second, it provides a basis for decisions on the adoption and effective use of curriculum (Welch, 1969). Accordingly, evaluation of SBC informs and serves the needs of policymakers, administrators, and other members of the society. In addition, it serves as feedback and reference for teachers, curriculum specialists, school administrators, and others involved in SBCD, which can provide motivation to the SBCD developers for its continued improvement.

Literature content analysis found that the SBC evaluation was not addressed in 216 articles (approximately 44%), and that 274 articles involved the evaluation of their SBC (approximately 56%). Among them, the description of SBC evaluation included three types:

1. Overall evaluation implemented, in order to evaluate the holistic quality of SBC. Moreover, the grounds for argument presented in these articles were the honors and awards the schools, teachers, and students received. Owing to lack of interviews and questionnaire, this evaluation is slightly ambiguous.
2. Frame of evaluation provided, to set the framework of curriculum evaluation. These articles described from the aspect and the ways to evaluate SBC, but failed to provide specific evaluation results.
3. Special evaluation implemented, demonstrating students' attitude to the SBC, parents' suggestion regarding the SBC, or the view of experts regarding the SBC, with corresponding interviews, observations, or questionnaire materials as grounds. Specific states are listed in Table 7.

Table 7. Percentage of SBC Evaluation

Types of SBC Evaluation	Evaluation Objects	Evaluation Data/ Tools	Evaluation Results	Percentage
Overall evaluation implemented	Quality of SBC	In SBCD, honors and awards received by schools, teachers and students	SBCD has promoted construction of characteristic schools, facilitated professional development of teachers, strengthened students' teamwork and inquiry ability, or other specific areas of knowledge and skills	61%
Frame of evaluation provided	Students' learning outcomes and satisfaction; teachers' teaching approach and competence	Observation, interviews, and questionnaire are introduced; but no evaluation data are involved	Not involved	28%
Special evaluation implemented	View of students, parents, and experts regarding the SBC	Observation, interviews, and questionnaire	Massive data and material on the attitude of students towards the SBC, parents' suggestion regarding the SBC, and experts' view regarding the SBC demonstrated and analyzed	11%

Clearly, more than half of developers have drawn attention to the evaluation of SBC. In a certain sense, the situation of SBCD during its first decade was a normal phenomenon because, during this phase, developers would think more on how to develop SBC. Using a multitude of perspectives to gather evaluation data on SBC and a variety evaluation tools to improve the SBCD, SBCD will be gradually implemented, enriched, and deepened in the coming curriculum development period.

DISCUSSION

SBC Number is Increasing; SBC for Expanding NC will still be in Full Swing

In all, 490 articles reflected the actual SBCD situation, and with a range from 5 to 92 articles from 2001 to 2010. In this way, SBCD, mainly from "have-not" to "have" in Mainland China, has been a great achievement. Furthermore, from the perspective of the geographic distribution in terms of attention to SBCD, different provinces, municipalities, and autonomous regions have presented a sharp distinction.

Generally, SBC quantity has grown increasingly from scant to abundant in Mainland China during the last decade. However, it needs to be further enriched in China. Specifically, some provinces, municipalities, autonomous regions, and rural areas that have paid less attention to SBCD need to further strengthen development efforts.

Notably, some schools have developed SBC, but were not summarized and abstracted or even published in the journals. With the accumulation of SBC references and the increase of actual experiences and so on, the total SBC number will further grow among the different regions and types of schools in the future.

China is known to have a deeply rooted testing culture. Thus far, the content of final and entrance exams comes from NC, and more importantly, the test scores of students directly influence the performance pay income of teachers, determining their academic awards, promotions, and so forth. Thus, SBC for expanding NC that extends and broadens content of the NC, and that promote and improves teaching and learning outcomes of the NC will be valued by schoolteachers in the long term, and be in full-swing development, especially in primary and middle schools.

In respect to SBC for expanding NC, attention must be drawn to two kinds of momentum. First, people began to warn schoolteachers not to make the SBC for expanding NC into "only extra tutoring of NC," forcing students to learn. However, most students complained about it. Second, students become weary of learning, especially when they go a higher grade and their workload is increased, presenting SBCD with new challenges and tasks. The two kinds of momentum tend to flow together, and began to call on the "interesting" SBC for expanding NC such as "magical chemical" "story mathematics" "humorous physics," and "happy English" and so forth to gradually enrich and highlight effectiveness.

SBC Themes are more Innovative; Curriculum Integration will Gradually Become the Trend

SBCD in China has shaped eight types of themes, including diversified subthemes, during the last decade. However, similar SBC themes can be found in different schools. For instance, currently, children in Mainland China pay less attention to the traditional Chinese culture. Because both locals and foreigners attach great importance to the traditional Chinese culture, SBC for traditional Sinology would become increasingly popular. According to literature analysis, the "traditional sinology" curriculum accounted for roughly a third of all the Chinese-expanding curricula in SBC for expanding NC. The main contents of the "traditional sinology" curriculum are Chinese ancient poetry, *Three Character Classics*, *Di Zi Gui* (in English, the standards for being a good student and child) or "Four Books and Five Classics." In some schools, such as Datong No.6 Middle School in Shanxi Province, developed its "traditional sinology" curriculum as a compulsory course, making Four Books and Five Classics as its main content; thus, the whole school had to learn it (He, 2005).

At the same time, quite evidently, some schools have developed SBC out of the box, pursuing a unique theme. For example, Liuyi Primary School in Shanghai set

up its SBC named "Children Philosophy," for training the thinking ability of students systematically. The school set up two experimental classes to teach "Children Philosophy." It developed SBC in three steps: first, creation of the lecture with students' consultation and discussion; second, creation of teaching material, with the help of educational experts outside school; and third, setting up the general and each grade curriculum goals, and establishing the selecting principle of teaching and learning stories of "Children Philosophy" and carrying out the good practices of "Children's Philosophy." Eventually, the school succeeded and more other schools learnt from its experience (Chen, 2009). The "New Interpretations of the Ancient Chinese Poetry" curriculum in Pinghu Experiment Primary School in Zhejiang, consistent with teaching progress of national Chinese curriculum, led students to compose, create, and sing classical Chinese poetry from the national Chinese curriculum (Zhang, 2009). The "Harry Potter Chemical Magic" curriculum of Xiehe Middle School in Guangdong, borrowed the name Harry Potter from the magical novel series to strengthen innovation of the subject, facilitating SBC through the fascination and attraction of students to the novels (Mai, 2010). Thus, these gradually increasing explorations will become the driving force and referenced resources of SBC theme innovation in the future.

In fact, SBCD is not only the process of implementing curriculum policy, but also the process of exploring curriculum development and school improvement. Exploration means aggressive consciousness, open mind, growth needs, and aspiration of innovation. In the coming development of SBC, when people develop flexible SBC under mutual imitation and learning, how to create more innovative and unique themes of SBC will become the foremost task.

In view of SBCD accumulation foundation of ten years in China, a trend is the integration of existing curriculum resources and the creation of a new theme of SBC. Specifically, two kinds of integration are embodied:

The first is integration between the different disciplines or learning areas. For instance, paper cutting SBC in a school had a certain scale, and schoolteachers hoped to further seek a breakthrough in the theme of SBC; however, they were unsure of how to accomplish this goal. After the expert's guidance, they dug deeper into advantages of the moral education curriculum, attempted to practice curriculum integration, and succeeded. The theme "harmoniousness between morality and art" created by this school trained the morality of students based upon paper cutting, sublimating the state of paper cutting, with morality as guidance, not only made the theme of SBC gradually original, but also constantly enhanced the effectiveness of SBC. In addition, some schools set up a "science and technology painting" SBC, integrating science and technology education and painting.

The second is integration between SBC and NC. Many schools have built their own SBC system, without particularly integrating its relationship with the NC. Considering integrating both can make various curricula in school an integrated whole, and even create original theme of curriculum. For instance, a school set up a "traditional sinology" SBC in the long term. In the deepening process, focused on integration with the national Chinese curriculum, it was suddenly enlightened and

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further constructed the curriculum system called "one main line, two wings." With the unit theme of teaching material in the national Chinese curriculum as the main line, it made the existing "traditional sinology" SBC embody two courses: "Chinese ancient poetry" and "classic beautiful articles." The content was re-designed and enriched as the unit theme of a national Chinese textbook. Of course, more effective integration between NC and SBC and more original SBC themes must be explored and practiced in the future.

SBC Design will be Elaborate; Small-scale Curriculum and Mini Courses are Rising

Students' learning needs are diversified, having both common and specific needs. The greater the applicable scope of the curriculum, the less it may meet the specific learning needs of students. Based upon this, the centralized curriculum development model in China must be broken down, with special emphasis on empowering schools and teachers through curriculum. Nevertheless, the literature content analysis found that nearly two-thirds of the SBC designs are relatively "extensive" in an attempt to develop SBC for all student learning in school; however, no specific curriculum objectives or content designs for specific grades or classes were identified. Undoubtedly, the extensive design cannot effectively meet learning needs of students of different grades or classes.

Remarkably, in order to improve the quality of SBCD, many professional committees on SBC appeared one after another in China. For example, on November 9, 2011, the SBC Professional Committee of Guangdong Education Association was established, consisting of curriculum specialists and schoolteachers. The vision of this committee includes providing professional guidance to SBCD, and holding professional conferences, seminars and workshops on SBCD. In such a context, SBC developers gradually receive professional instructions, learn more theory on SBC, and increasingly deepen their exploration of the practice; thus, the curriculum design will be increasingly normative and elaborate. Developers will set up SBC goals of each grade that are more detailed in-depth, and systematic, and, according to the specific curriculum goal, organize corresponding curriculum content.

In addition, we can expect small-scale SBC to rise in numbers. This kind of SBC, from the perspective of the object, is developed by considering students at a certain grade. From the perspective of time, it can be regarded as curriculum of four years, three years, two years, or one year; it can also be seen as curriculum of a semester, half-semester, or several weeks. From the perspective of function, it can meet the learning needs of students with more pertinence and suitability. Furthermore, the small-scale SBC will also produce the mini SBC, which is a kind of short-term course developed by teachers by considering the special learning needs of students in their classes, lasting for a lesson or half a day (Zeng, 2009). Small-scale SBC and mini-SBC are rising, which will contribute to a more flexible and mature curriculum system within the school, strengthening its function more effectively.

SBC Value will be Clarified, Students' Needs to be more Valued

SBCD, since its birth, has shaped the winding complex relationship with various values of curriculum policy implementation, school characteristic construction, teachers' growth, and students' development. "Why develop SBC?" This issue of value always affects effectiveness and progress of SBCD. Perhaps in the past, someone thought SBCD was intended to cope with inspection and assessment from the education administrative department, whereas others may have thought the key was to build the school characteristic brand through SBCD. However, throughout its ten-year development and exploration, SBC is not only from "have-not" to "have," but also from "have" to pursuing "fineness," and the value of SBC will shift from blurry to unambiguous. People will come to a common understanding of the fundamental value of SBCD as facilitating student development and optimizing student learning.

With guidance of such value, SBCD in the future will attain great importance in the learning needs of students, fully taking account of issues such as whether or not students are willing to learn, whether or not students are happy to learn, whether students gain from leaning, and so on. These issues can be judged through the observations and judgments of the teacher, and even tested through comprehensive questionnaire survey and sampling in-depth interviews for students. Only in this way can we comprehensively understand the feelings and gains of students in learning SBC. Thus, SBC evaluation in the future will not be dispensable, and will become an important component and procedure of SBCD. To some extent, developers will understand how much students like his/her SBC; like or dislike the specific contents of the SBC; like or dislike the teaching approaches of the SBC; what knowledge, skills, and emotional benefits come from the SBC; and so on through more frequent use of questionnaires, interviews, and case analyses. Based upon information grasped through SBC evaluation, developers can make a series of decisions, such as to pertinently revoke or retain the SBC, adjust some course goals and contents, change some teaching approaches, and so forth, thereby promoting effects and value of SBCD substantially.

CONCLUSION

Since 2001, China has advanced SBCD. A number of articles reflecting the practical situation have been published. Our literature analysis has revealed that SBCD has made great achievements. With the gradually increasing number of SBC, diversified themes of SBC, wide regional distribution of SBC, multi-faceted developers of SBC, different SBC designs and evaluations have emerged. Meanwhile some problems persist, including the lack innovation of SBC themes, the need to deepen SBC design, and the need to pay greater attention to SBC evaluation. From the perspective of further development, we can predict the general orientation as follows: 1) the total SBC number will grow further, and the SBC for expanding of NC will still be popular; 2) SBC themes will become more innovative, curriculum integration

will gradually become the trend; 3) SBC design will become more elaborate, small courses and mini courses will rise; and 4) The value of SBC will shift from blurry to unambiguous, and students' needs will be more valued.

NOTES

[1] *The Guidelines* contain the following: objectives of curriculum reform; curriculum structure; curriculum standards; instructional process; teaching material development and its administration; curriculum evaluation; curriculum administration; teacher education and training; and organization and implementation of curriculum reform.

[2] "Basic education" is public education for students from 3–18, including kindergarten, primary school, junior middle school, and senior middle school.

[3] See www.moe.gov.cn/publicfiles/business/htmlfiles/moe/moe_711/201001/xxgk_78380.html, accessed January 20, 2012 (emphasis added).

[4] "Semi-official" means that *An Interpretation* was written under the trust of the Basic Education Department of the MOE, the governmental executive department for initiating NCR. The copyeditor of the book is the associated director of the Basic Education Department. The editors are from the university entrusted with the task of seeking theoretical foundations and practical strategies for the NCR. The editors and chapter writers were directly or indirectly involved in drafting policy documents related to the NCR.

[5] See *"China Academic Journal Network Publishing Database" Series Standards Collection*, issued and implemented by China Academic Journal Electronic Publishing House since 2006.

[6] A kindergarten's school-based curriculum is often referred to as kindergarten-based curriculum. This article later uses the unified the term "school-based curriculum."

[7] Nine-year schools are established for Grades 1–9, and includes primary and junior middle grades. Twelve-year schools are established for Grades 1–12, and includes primary, junior, and senior middle grades.

[8] Combined junior and senior middle schools are established for Grades 7–12, and includes junior and senior middle grades.

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15. TEACHERS' USE OF DIFFERENTIATION STRATEGIES IN THE HONG KONG CLASSROOMS

INTRODUCTION

The 21st century has brought dynamic changes around the world. In the field of education, different revolutions and reforms have been initiated. One such reform is a growing trend toward inclusive education. Students come to class with different experiences, characteristics, abilities, beliefs, and needs. According to the Education Commission (2000), schools should diversify teaching and evaluation methods to match the individual needs and differences of students. Within the complex educational context, schools need to differentiate their curriculum to meet the needs of all students, including those with special needs, intellectual giftedness, or unique backgrounds (Ashman & Merrotsy, 2009).

Differentiation can be dynamic and flexible, with which educators can have a set of strategies from which to build a list of appropriate provisions for the individual needs of students in diverse classrooms (Smith, 2008). However, what kinds of differentiation strategies are commonly used in Hong Kong primary schools? What obstacles do teachers face when they implement such strategies? In response to these questions, the researchers conducted a preliminary study to explore these issues.

DIFFERENTIATION: CONCEPTS AND CHALLENGES

Concepts of differentiation

The concept of differentiation is not new. The differentiation movement has spotlighted the idea of meeting the needs of all students in the classroom. Differentiation involves finding multiple ways to structure a lesson so that each student is provided with an opportunity to work at a moderately challenging level. Differentiation is an organized yet flexible way of proactively adjusting teaching and learning to meet the ability level of students, while helping all students achieve maximum growth as learners (Tomlinson, 1999).

Differentiated instruction is a way of thinking about teaching and learning. According to Cooper and Tomlinson (2006), differentiated instruction works under the following assumptions:

- Students differ in their readiness to learn, in their interests, and in the way they learn.
- Student variance affects the learning process.

- Learning must happen within students, not "to" them.
- The job of teachers is to teach students and teach content.
- Each student needs and deserves a teacher who actively helps him or her to identify and build upon personal strengths, recognize and address areas of weakness, and develop a sense of self-efficacy that comes from accomplishing important goals.
- The most effective teachers use assessment information to develop and modify instructional plans so that the classroom "works" for the diverse students in it.
- Classrooms effective for academically diverse populations define "fairness" as making sure that everyone acquires what he or she needs to succeed, not as treating everyone exactly the same.

Differentiation is a term used to describe "the process of making educational expectations match individual students' different learning needs" (Matthews & Foster, 2009). On the macro-level, suitable modifications may be made in curriculum planning, including the following:

- removing unnecessary or repetitive chunks of content;
- enhancing existing units of study by reorganizing or intensifying content; and
- connecting a unit of study to other subject areas or disciplines.

On the micro-level, teachers could adopt one or more of the following ideas when working with the program:

- using flexible grouping practices based on the strengths, interests, and weaknesses of students;
- increasing breadth (i.e., more choices and learning style variations); and
- increasing depth (i.e., different levels of content for different ability levels).

Challenges in Implementing Differentiation

Adaptive teaching in mixed-ability classrooms is a difficult task. Catering to learner diversity is a great challenge for all teachers. According to the vast literature, teachers tackle many obstacles to implementing differentiation (e.g., Fletcher-Campbell et al., 1999; Lo, Morris & Che, 2000; Schumm & Vaughn, 1995). Schumm and Vaughn (1995) listed five main obstacles to differentiation in practice:

- Planning for differentiation is time-consuming.
- Implementing different groups, procedures, and tasks while managing the whole class is difficult.
- Simplifying the curriculum or slowing the pace of instruction may compromise the progress of higher-achieving students.
- Using different tasks and resources may draw attention to students with difficulties.
- Simplifying everything and making success easy to achieve does not reflect the real world, for which the students need to be prepared to function.

Van Tassel-Baska and Stambaugh (2005) also highlighted some impediments to curriculum differentiation: teachers' lack of knowledge of subject matter, classroom management skills, knowledge about modifying the curriculum, planning time, administrative support, and relevant pedagogical skills; their attitudes and beliefs about learning; issues regarding responding to diverse populations; and difficulties in the effective use and location of resources.

However, are these challenges faced by Hong Kong primary schools? How is differentiation practiced in these schools? Studies on the practice of differentiation in Hong Kong primary schools are limited. The present exploratory study aims to explore the differentiation strategies used in Hong Kong primary schools. The authors play the role of external teacher educator in providing professional support to schools. Thus, the aim is to draw some implications to support the practice of differentiation in Hong Kong classrooms.

DATA COLLECTION

School Context

The study was conducted in two local subsidized primary schools. School A has been established for over 60 years, and School B for 50 years. School A has 20 classes and 41 teachers, whereas School B has 11 classes and 22 teachers.

Participants

School A.   Twenty-six completed questionnaires were received from School A, a response rate of 63.4%. Of the respondents, 79% were female. More than 77% were over 31 years old. Most of the teachers (80%) had received a bachelor's or master's degree. More than 80% of the teachers had been teaching for more than six years. Less than half had received special education training (34.6%) and gifted education training (15.4%).

School B.   Twenty-one completed questionnaires were received from School B, a response rate of 95.5%. Female teachers accounted for 66.7% of the respondents. More than 80% were over 31 years old. Most of the teachers (95%) had received a bachelor's or master's degree. Over 90% of the teachers had been teaching for more than six years. Quite a few had received special education training (19%) and gifted education training (14.3%).

Instrumentation

This quantitative study modified and used the questionnaire by Chan (2001) because the questionnaire design is based on the Hong Kong context. The questionnaire has three parts. Part one includes 35 examples of differentiation strategies covering

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curriculum changes, teaching methods, teaching materials, learning environment, and assessment or grading procedures. A rating scale of 0 (never) to 5 (always) was used for each item asking the frequency of the use of differentiation strategies of the respondents. Part two includes four open-ended questions asking teachers to list the obstacles, concerns, and support received during the implementation of differentiation strategies. Part three inquires about the demographics of the respondents. The questionnaires were administered to Schools A and B in April and August 2011, respectively.

DATA ANALYSIS

Data collected from the questionnaires were analyzed through SPSS. Mean ratings and standard deviations were calculated from the raw data in the study. The self-reported strategies were then ranked in descending order of frequency of usage under five broad categories (Table 1). ANOVA was used to examine the correlation between the frequency of the use of differentiation strategies of teachers and their demographics. Data from the open-ended questions were analyzed through content analysis. Factors identified as obstacles to differentiation were then grouped under the same categories.

RESULTS AND DISCUSSION

Frequency of Using Differentiation Strategies

As for the categorization of differentiation strategies, within the total sample of teachers from both schools, the most commonly used strategies fall under "changes to class organization or grouping" and "adapting the teaching approach" (see Table 1).

Overall, the differentiation strategies of "seating a student with poor attention near the teacher," "deliberately assigning a student with difficulties to a peer for assistance," "displaying students' work in class to motivate lower-ability students," "making use of students' own interests as part of the lesson," and "using computer-aided teaching and learning" had higher than 4.0 as the mean degree of frequency. In other words, these strategies are frequently used in the classroom.

More specifically, teachers from both schools reported that they frequently used the strategies of "deliberately assigning a student with difficulties to a peer for assistance," and "carefully planning the sequence of lesson content from easy to difficult" (an average rating higher than 4.0 for each strategy).

However, the frequency ratings of the most commonly used strategies in the two schools have some differences. For School A, the differentiation strategies of "using cooperative group work," "carefully planning the sequence of lesson content from easy to difficult," "displaying students' work in class to motivate lower-ability students," "making use of students' own interests as part of the lesson," and "tailoring curriculum content to match students' abilities" are likely to be more common.

Table 1. Self-reported use of differentiation strategies of teachers in both schools (N = 47)

Categories	School A (N=26)		School B (N=21)		Overall (N=47)	
	Mean	SD	Mean	SD	Mean	SD
I. Changes to class organization or grouping	3.97	0.44	4.00	0.39	3.99	0.42
1.1 Seating a student with poor attention near the teacher	4.23	0.86	4.24	0.83	4.23	0.84
1.2 Encouraging peer tutoring in class	3.38	0.75	3.71	0.78	3.53	0.78
1.3 Deliberately assigning a student with difficulties to a peer for assistance	4.04	0.92	4.38	0.59	4.19	0.80
1.4 Using cooperative group work	4.08	0.74	3.81	0.81	3.96	0.78
1.5 Displaying students' work in class to motivate lower-ability students	4.19	0.85	3.86	0.79	4.04	0.83
1.6 Using ability grouping within the class	3.92	0.93	3.95	0.97	3.94	0.94
II. Adapting curriculum content	3.80	0.65	3.88	0.56	3.83	0.60
2.1 Making use of students' own interests as part of lesson	4.15	0.78	3.86	0.79	4.02	0.79
2.2 Using graded worksheets and assignments	3.73	0.92	4.14	0.85	3.91	0.90
2.3 Carefully planning sequence of lesson content from easy to difficult	4.46	0.65	3.95	0.80	4.23	0.76
2.4 Tailoring curriculum content to match students' abilities	4.00	0.75	3.81	0.81	3.91	0.78
2.5 Reducing the amount to be studied by some students	3.23	1.03	3.00	1.10	3.13	1.06
2.6 Providing extension work for abler students	3.54	1.17	3.67	0.80	3.60	1.01
2.7 Setting differentiated tasks for different groups within the class	3.46	0.95	3.57	0.75	3.51	0.86
III. Adapting teaching approach	3.94	0.52	3.96	0.50	3.95	0.51
3.1 Dividing lesson to smaller steps and teaching at a slower pace for some students	3.62	0.80	3.76	0.70	3.68	0.75
3.2 Re-teaching or revising information more often for certain students	3.88	0.77	4.05	0.80	3.96	0.78
3.3 Providing more practice examples for some students (for homework or during lesson)	3.88	0.71	4.00	0.71	3.94	0.70
3.4 Providing additional guidance to ensure task completion	3.85	0.73	3.71	0.90	3.79	0.81
3.5 Using computer-aided teaching and learning	4.46	0.65	4.10	0.94	4.30	0.81

(*Continued*)

*Table 1. Self-reported use of differentiation strategies of teachers
in both schools (N = 47) (Continued)*

Categories	School A (N=26)		School B (N=21)		Overall (N=47)	
	Mean	SD	Mean	SD	Mean	SD
IV. Modifying materials and resources						
4.1 Simplifying language of printed instructional materials	3.31	0.97	3.33	0.97	3.32	0.96
4.2 Pre-teaching difficult vocabulary in textbook for class or homework	3.88	0.86	3.81	1.03	3.85	0.93
4.3 Enlarging print size in handout notes	3.23	0.99	3.19	0.87	3.21	0.93
4.4 Designing different teaching materials for less able students	3.35	0.69	3.24	0.94	3.30	0.81
4.5 Providing two or more levels in graded worksheets or assignments	3.19	0.75	4.10	0.89	3.60	0.92
4.6 Using more challenging textbooks for abler students	2.77	1.03	2.95	1.28	2.85	1.14
4.7 Using textbooks of different readability levels in the classroom	2.27	1.04	2.33	1.15	2.30	1.08
V. Modifying assessment and grading methods	2.79	0.63	2.86	0.68	2.82	0.65
5.1 Tolerating a lower level of neatness for some students' bookwork	3.23	1.07	3.29	1.01	3.26	1.03
5.2 Allowing some students longer time to complete assignments	3.46	0.90	3.67	1.06	3.55	0.97
5.3 Providing direct guidance to some students during assessment tasks	3.15	1.16	3.05	1.02	3.11	1.09
5.4 Grading students' work according to effort and quality of product	3.85	0.83	3.76	0.89	3.81	0.85
5.5 Requiring some students to complete less work or do easier work for assessment	2.85	1.22	3.05	1.43	2.94	1.31
5.6 Allowing some students to answer examinations orally rather than in writing	1.62	0.98	1.52	0.93	1.57	0.95
5.7 Allowing some students not to take examinations	1.38	0.85	1.38	0.74	1.38	0.80

However, "using graded worksheets and assignments," "providing two or more levels in graded worksheets or assignments," "re-teaching or revising information more often for certain students," and "providing more practice examples for some students (for homework or during lesson)" are more common in School B. These differences may be related to the mandatory extra graded worksheets routinely provided to students by School B teachers to cater to individual differences.

Table 2. ANOVA between frequency of use of differentiated strategies and teacher training in gifted education

		Sum of Squares	df	Mean Square	F	Sig.
Category I: Changes to class organization or grouping	Between Groups	0.005	1	0.005	0.027	0.871
	Within Groups	7.551	43	0.176		
	Total	7.556	44			
Category II: Adapting curriculum content	Between Groups	1.588	1	1.588	4.521	0.039
	Within Groups	15.102	43	0.351		
	Total	16.689	44			
Category III: Adapting teaching approach	Between Groups	0.414	1	0.414	1.594	0.214
	Within Groups	11.172	43	0.260		
	Total	11.586	44			
Category IV: Modifying materials and resources	Between Groups	0.000	1	0.000	0.000	0.986
	Within Groups	12.265	43	0.285		
	Total	12.265	44			
Category V: Modifying assessment and grading methods	Between Groups	0.105	1	0.105	0.240	0.627
	Within Groups	18.799	43	0.437		
	Total	18.904	44			

Interestingly, the least frequently used strategies in both schools are those related to modifying assessment and grading methods, which allows some students to be assessed quite differently from others, a result consistent with Chan et al. (2002). The resistance to varying assessment methods may reflect the traditionally heavy emphasis on public examinations in the Hong Kong education system, as well as the concern of teachers about the equity of assessment systems among students. Thus, the readiness and willingness of teachers to exchange the fairly traditional, teacher-centered, and textbook-driven instructional approach for a more diversified and student-centered differentiation practice is a crucial matter.

ANOVA was employed to examine the correlation between the use of differentiated strategies and the demographics of the respondents (Table 2). Significant differences were found between the adaptation of curriculum content and teacher training in gifted education. These differences may be related to the nature of gifted education, as considerable attention is paid to the learning profiles of students (i.e., interests, abilities, and learning styles) and to instructional design (i.e., according to content, process, or product) in practicing differentiation for gifted children (Tomlinson et al., 2006).

Perceived Obstacles, Concerns, and Support in Practicing Differentiation

The teachers in this study were asked to list the factors they perceived as obstacles and concerns when implementing differentiation. Tables 3 and 4 indicate the pooled results from all the respondents of Schools A and B, organized into naturally occurring categories. The response ratings of School B were higher than those of School A. The most common obstacles to and concerns about differentiation were the lack of school support and the wide diversity of students. The findings of this study are consistent with previous findings (e.g., Schumm & Vaughn, 1995; Chan et al., 2002).

The teachers in the current study emphasized that more administrative support should be given to put the idea into practice. Some teachers wrote:

> There are large learning differences among the students. It is difficult to develop the learning potential of higher-ability ones. There is not enough time as we need to prepare materials for weaker students. (T2, School A)

> There is limited time to co-plan the lessons and prepare the teaching materials. There should be agreement among different school members if there's any

Table 3. Perceived obstacles and concerns of School A teachers regarding differentiation (N=26)

Major obstacles and concerns	Total responses	%
Lack of support within school	5	19.2
Implementation problems caused by a wide range of student abilities	4	15.3
Limited time for planning and preparation	3	11.5
Implementation made difficult by large class size	3	11.5
Incentives reduced by teachers' already heavy workload	3	11.5
Rigid curriculum and syllabus	2	7.7
Students' negative reactions to differentiation	2	7.7
Teachers' lack of skills in differentiation	1	3.8
Teachers' lack of motivation for differentiation	1	3.8

Table 4. Perceived obstacles and concerns of School B teachers regarding differentiation (N=21)

Major obstacles and concerns	Total responses	%
Lack of support within school	8	38.1
Implementation problems caused by wide range of student abilities	5	23.8
Teachers' lack of skills in differentiation	5	23.8
Limited time for planning and preparation	3	14.3
Classroom management problems during group work	3	14.3
Students' negative reactions to differentiation	2	9.5
Teachers' lack of motivation for differentiation	2	9.5
Rigid curriculum and assessment policies	1	4.8

change in assessment methods. Temporarily, no one initiates such ideas. (T25, School A)

Materials should be modified and designed with different levels. There should be some reference teaching plans for us in implementing differentiation. (T21, School B)

We need administrative support to provide time and space for teachers to do differentiation. Teachers also need to have professional development and sharing about good practices in differentiation. (T9, School B)

Many teachers tend to resist differentiation because they perceive it to be highly time-consuming. Planning thoughtful differentiated units and lessons does take longer than presenting a one-size-fits-all curriculum (Herberg-Davis, 2009). The school should give more support to teachers as they adopt differentiation strategies through thoughtful planning. Some recommendations are discussed below.

Interestingly, School B teachers did not cite "limited time for planning and preparation" and "incentives reduced by teachers' already heavy workload" as obstacles to implementing differentiation strategies, but did consider "classroom management problems during group work" as such. This result may be due to the differences in existing areas of concern in the school context.

DISCUSSION AND IMPLICATIONS

Meeting the diverse needs of students in the general education classroom is a crucial concern for education professionals. The vast literature shows that although many teachers recognize the need to cater to learner diversity, they still find difficulty in implementing differentiation by adopting curriculum and content, modifying instruction, or varying assessment methods. The teacher-respondents in this preliminary study reported a fairly frequent use of only a few basic differentiation strategies. These teachers also observed that they need more support to implement differentiation strategies.

For effective differentiation, different stakeholders should work collaboratively to address the issue. First, effective differentiation relies on the attitudes and beliefs of teachers about differentiation. Teachers should identify and understand the needs of their students. They should be aware that students differ in the way they learn and that the best teachers are actively responsive to these differences. They should know what works best for their students. As facilitators of learning, teachers should be knowledgeable and reflective regarding the flexible use of different differentiation strategies. They should have the skill and will to conduct multiple tasks simultaneously at least some of the time, and should be able to use time, space, groupings, tasks, and so on flexibly rather than according to the one-size-fits-all perspective (Tomlinson et al., 2006). Professional development is crucial to teacher success in effectively differentiating instruction for students. Differentiation in an academic year is not achieved through a single day of professional development. Differentiation is a

long-term goal that requires constant refinement, new information, and continued assessment to chart its effectiveness (Tomlinson et al., 2006). Therefore, continuous professional growth and opportunity for inquiry are necessary elements to foster within the context and culture of a school.

According to the present study, differentiation in practice has some obstacles. The emphasis on "teaching to the test" standardizes expectations for the curriculum rather than allowing the differentiation of the curriculum. The emphasis on prescribed curriculum and pacing charts that define what is to be taught and when inhibits opportunities to vary the curriculum and pacing necessary for differentiation. The emphasis on the belief that equity in education is met by teaching whole-class or large-group lessons inhibits opportunities for small group and independent learning, which are crucial to the differentiation of curriculum and instruction.

Therefore, schools should provide adequate support to put differentiation into practice. School leaders should ensure an organizational change and a leadership that create a supportive school climate. A collaborative culture should be fostered to support differentiation in practice. A continuum of curriculum planning and development of differentiated strategies through ongoing discussions among different stakeholders should be implemented. The effectiveness of the curriculum, instruction, resources, and other services in supporting differentiation should be evaluated occasionally. Teachers should be encouraged and supported to participate in continuous professional development, and should be given time, resources, and space to implement the change. Effective communication should be promoted between schools and parents for them to share the vision for differentiation. Parents should be well informed about school policies and should collaborate with the school to put differentiation into practice.

LIMITATIONS

Several limitations must be acknowledged in this study. First, the questionnaires required self-reporting from the teachers. The self-reported use of differentiation strategies of the teachers may not accurately reflect their actual use. The data in Tables 1, 3, and 4 should be regarded as the estimated actual usage of the various differentiation strategies. Second, the study was conducted only in two primary schools in Hong Kong. The sample sizes were not large, and thus, the findings may not be generalized to other countries or necessarily apply to all teachers in Hong Kong schools.

Despite these limitations, some findings of this study are consistent with similar investigations of teacher practices in other countries. Further research is suggested to explore the issue of differentiation practice in Hong Kong.

ACKNOWLEDGEMENTS

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CHEN BOHUA

16. CONCEPTIONS OF TEXTBOOKS BY CHINESE TEACHERS IN MAINLAND CHINA

LITERATURE REVIEW

Over the past two decades, the beliefs and conceptions of teachers have been debated by scholars, educational officials, and even parents in the teacher research field. Unless stereotype conceptions of teachers are transformed, any ideal blueprint of curriculum reform will unlikely be achieved. After examining the conceptions of teaching of 13 academic teachers using semi-structured interviews, Samuelowicz and Bain (1992) have identified five qualitatively different conceptions of teaching, listed in descending order as follows: to support student learning; as an activity aimed at changing students' conception of the world; to facilitate understanding; to transmit knowledge and the attitudes towards this knowledge within the subject discipline; and to impart information. Many similar studies exist (Kember, 1997; Kember and Kwan, 2000; Murray and Macdonald 1997; Kember, Kwan, and Ledesma, 2001; Åkerlind, 2003, 2007; Chan, Tan, and Khoo, 2007). Most studies depict teaching as transmission of knowledge towards student development. In fact, a consensus focusing on teachers and their strategies towards student learning has been reached (Gonza´lez, 2011).

Additionally, in the investigation by Kember and Kwan (2000) of conception of teaching among 17 university teachers, the teachers were expected to reflect on their concept of "good teaching," the kinds of motivational strategies they used, their expectations for student learning, and their understanding of effective teaching. Elley (2006) recruited 23 university teachers ranging from lecturer to associate professor rank, who were asked to describe how they prepared certain recent class presentations. Tuul, Ugaste, and Mikser (2011) adopted a semi-structure interview to investigate 31 experienced pre-school teachers' perceptions of the curriculum before and after the Soviet era. Teachers generally comprehended the meaning and conceptions of the curriculum designed by the curriculum makers and theorists; however, they lacked assistance in implementing the autonomy and self-responsibility imposed on them by the curriculum. A research conducted by Jackson (2010) reconstructs the university's conception of life-wide curriculum using a work-integrated learning (WIL) scheme. Such studies facilitate changes in curriculum, teaching, and learning to some extent.

In response to worldwide wave of curriculum reform, the Ministry of Education in China launched a new round of school curriculum reform in 2001, spurring teachers to change their traditional ideas and conceptions of teaching, learning, and curriculum

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materials in favor of the dynamic and long-lasting reform slogan "for every student's development and for student's every aspect's development." Many scholars have published numerous articles on changing existing teacher conceptions, especially on curriculum and textbook, which were previously focused on pure transmission of knowledge based on responsibilities prescribed by traditional teaching. Liu and Luo (2004) assert the conceptions of ecological curriculum, whereas Wang (2010) advocates hermeneutical curriculum. Chen (2007) proposes constructive curriculum, whereas Yang (2002) puts forwards the conception of a curriculum of transcending knowledge, and so on. Undoubtedly, these studies facilitate the theoretical development of the curriculum and subject matter. These studies may also stimulate teachers to abandon their traditional conceptions of teaching and textbooks. Unfortunately, purely theoretical exploration of curriculum, as mentioned above, cannot provide a compelling account of, much less, solve, the practical perplexities faced by teachers in the classroom. Many political and reform slogans that isolate teachers' daily teaching routines, such as the one mentioned previously, are bound to suffer resistance from teachers. Although no strong opposition is evident from the teachers, the effectiveness of out-of-practice research remains questionable. Schwab (1970) asserts that the idealized conceptions of curriculum, mostly originating from theory, could be mistaken for "real things real acts, real teachers, real children…" He adds that a curriculum "will deal badly with real things if it treats them merely as replicas of their theoretic representations" (p. 27).

Although the discussion of conceptions of curriculum and teaching has exploded, few concerns pertain to the conception of subject matter or textbook. In addition, many realities remain concealed due to the lack of exploration on teacher conceptions of textbooks, which directly affect teaching behavior and effectiveness. In order to enhance the implementation of curriculum reform, provide constructive advice on compiling and developing instructional materials, and address concerns in teacher conceptions of textbooks, researchers should adopt a shift in paradigm from theoretical epistemology to grounding accounts. Exploring teachers' conceptions of textbooks (TCT) in specific schooling contexts is vital.

REASEARCH QUESTION AND METHODOLOGY

Research Question

What is the conception of textbook (CT)? To answer this question, let us first review the definition of a textbook. Different people hold different opinions. Rather than cling to any of these, this researcher will initially present various conceptions of textbooks. Since Crech educationist Comenius published the first children's reader "Orbis Sensualium Pictus" (World Graphic) in 1657, the evolution of textbooks has changed dramatically. At that time, the textbook was regarded as an encyclopedia that learners must learn and master. Therefore, learning the prescriptive knowledge is prioritized in textbooks. As Grand (1987) claims, the traditional textbook attempts

encourage students to learn the language as a system. Once learned, the students are expected to apply this system in any situation they encounter. However, Purves (1993) contends that a textbook is a subset of teaching media. The textbook itself should complement other media such as hands-on materials, anthologies, offprint, databases, and others. In this sense, textbooks embrace content that surpass the one-dimensional official or academic texts. Textbook coverage is further developed as the world moves rapidly into a high-tech virtual reality and the information era. Instructional packaging is gradually becoming a cardinal element of textbooks. Calfee & Chambliss (1999) claims that textbooks not only provide integrated instructional packages bolstered with diverse supplements, but also cover ample content for learners to study or experience. She highlights the function of textbook to be both instrumental and mind-nurturing. Current research is inclined towards using the term "curriculum," rather than "textbook," because the former is wider than the latter in terms of both content and categories. For instance, Marsh (2011) lists six prevalent definitions of curriculum, ranging from secular knowledge to contemporary living, learning experiences, learning site, and human situations. Because curriculum and textbook have similar, sometimes interchangeable, meanings, and some definitions of curriculum are also suitable for textbooks from a broad perspective. Walker (2003) contends that the curriculum includes at least three elements: content, purpose, and organization. Tyler (1949) has constructed four steps for creating a curriculum: educational purpose, selection, organization, and evaluation of learning experience. These steps include the objective, origination, construction, and evaluation of learning content. As mentioned above, the terms curriculum and textbook can be interchangeable in a broad sense. Therefore, the CT can be viewed as the comprehension by teachers of a textbook, including both its features and function. This conception contains knowledge content, nature, function of learning experience, and expresses the views of the values, roles, assessment criteria, and adaptation of textbooks (Ren, 2003) in terms of the goal, content, structure, and teaching performance. Therefore, the TCT can be assumed as their perceptions of objectives, contents, structure, and adaptation of textbooks.

This study endeavors to address the following questions:

1. What types of CTs do the teachers hold?
2. What are the characteristics of TCT in four dimensions: objective, content, structure, and teaching of textbook?
3. What is the overview of TCT?
4. What are the relations among different TCT?

Methodology

John Dewey, a renowned thinker in education, suggests that our experiences are central to our work. He further claims that experience is a crucial factor in interpreting matters behind surface phenomena, and helps us analyze and understand

the type of learning, as well as the manner by which it takes place in the classroom. Experience also facilitates our understanding of human thinking. Unlike quantitative research, which deals with numbers and employs statistical model to illustrate data, qualitative research strives to avoid numbers, and deals with "interpreting" social reality through the language, gesture, voice, image, and so on. Because conception is implicit, invisible, and even blurred, a statistical survey hardly explores the deep implication of the conceptions of human being. Therefore, qualitative research approach is used in this study. Six Chinese teachers, aged 29–34 years old were selected from a pool of volunteers at a primary school in Pearl Delta of South China. Two methods were chosen to aid teachers in the explication of TCT: (a) semi-structured, in-depth interviews; and (b) stimulated recall interviews covering the use of videotapes of lessons taught by the teachers to prompt them to recall aspects of their TCTs. Considering the integrated school year, a one-year longitudinal research with four formal interviews and some informal ones was conducted. The interviews included the following questions:

(a) What is your opinion of current textbooks?
(b) How do you understand the objectives of textbooks?
(c) What is your idea of the content of textbooks?
(d) What do you think of the ideal organization of a textbook and what elements are involved in the organization? In your opinion, what content should be embraced in the textbooks?

Each question above was divided into many subtopics in the interviews. The data were recorded by recorders and video cameras, transcribed verbatim, and coded then and recoded according to the relationship among their conversations, the teaching observations of the researcher, and between these two aspects.

FRAMEWORK OF THE RESEARCH

As mentioned previously, the framework for this study consists of four dimensions: CT objectives, content, structure, and teaching. These dimensions are based on Ralph W. Tyler's (1949) basic principles for curriculum and instruction: (a) seek school educational purposes, (b) select educational experiences, (c) effectively organize educational experiences, and (d) assess the purposes attained. Shi L.F (1996) has put forward procedures for curriculum development (including setting curriculum objectives, selecting and organizing curriculum content, implementing curriculum, and evaluating curriculum). A comparison of the two kinds of curriculum development shows that Shi's framework is similar to Tyler's rationale. From the perspective of curriculum development and implementation, what should be taught should be first decided, followed by development and selection of learning opportunities, design and organization of classroom activities, and finally, evaluation of learning outcomes (Mcneil, 1996; Doll, 1995; Pratt, 1994).

CT objectives. Objectives refer to the learning outcomes that students are expected to achieve after a period of learning within and outside the classroom. Many synonyms, such as "outcomes," "goals," "aims," "purpose," and "intention," are used (Marsh, 2009); however, the major terms are undoubtedly "objectives," "standards," or "outcomes." Pratt (1994) contends that objectives can consist of knowledge, skills, attitudes, processes, and experiences according to what learners should learn, how they perform their responsibilities, and how they feel about themselves and others. In light of learning continuity, these objectives need to be aligned with an integrated streamline. According to the perspective of sociologists, textbook objectives should adopt a coherent curriculum, comprehensibility standards, and student-centered instruction as their evaluation criteria (Calfee & Chambliss, 1998). These objectives embody textbook coherence, comprehensibility of knowledge, and learnability of instructional content. From the view of pragmatics, the textbook objectives refer to a standard that provides learners with basic facts, concepts, and generative inference in further learning. These objectives can be divided into "behavioral objectives, enacted purpose, and performance objectives". With regard to the studies above, we assert that CT objectives comprise the teacher's understanding of the function of the textbook itself, behavioral objectives, and formative objectives conducted in the classroom.

CT content. Based on the objectives of textbooks, what should be taught in the classroom is developed: the textbook content, which deals with the range of topics contained in the textbook. Wang (2003) believes that textbook content reflects what is taught, for example, the teaching and learning materials within the textbook. Borrowing the three origins of educational objectives from Tyler's rationale (Tyler, 1949), this study views textbook content as encompassing both external content (graphic system, arrangement, and material sources) and essential content (thinking system, knowledge system, etc.). This research mainly focuses on essential content.

After the selection of textbook content, the textbook is ready to be organized logically, psychologically, socially, and contextually, in line with the principles of textbook compilation and curriculum organization. Thus, textbook structure, which pertains to the compilation system, is the third stage and an important part of textbook creation. It integrates subject structure with instructional structure, both surface and in-depth (Ding, 2001). Subject structure involves the knowledge, skills, and methods in textbooks, while teaching structure pertains to the placement or arrangement of knowledge, skill, method, affect, attitudes, and values embodied by the textbook. The in-depth structure consists of the elements of knowledge and affect, whereas the surface structure includes the system of characters and graphs. Because knowledge structure of textbook will be explored in textbook content, the current study only explores the teaching structure and in-depth structure of textbooks in this research.

Teaching is the implementation of curriculum and instructional materials, especially the implementation of the textbook distributed by the government and commercial publications. How to understand the use of textbooks, or teaching, relates to the events that transpire in the authentic classroom that bring a lasting impact on the quality of student learning. Consequently, CT teaching is closely

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associated with, and follows, the textbook content. TCT portray how the teacher handles his/her teaching in the classroom. They describe what kind of teaching a teacher expects (Gao, 2004). Likewise, they reflect the relationship between the individual learner and his own experience. Based on the definition of conception of teaching, CT teaching shows how the teacher selects the instructional content, and his methods and strategies for redesigning instructional materials.

FINDINGS

Conservatism-oriented Conceptions of Textbooks (CCT): I Yield to What the Educational Authorities Require Me to Do.

Teachers who uphold CCT strongly asserted that the local government's semester test is a priority among all teaching objectives because the teacher's appraisal system is based on this test; the appeal of educational scholars for the wholistic development of children is neglected. As Teacher A confessed, "Although test is not the exclusive target of textbook, it is still the fundamental goal for teachers and students. If your students fail in their exams, or the textbook doesn't contain all the testing contents, we deem the textbook [as] useless." Undoubtedly, the textbook should cover the basic knowledge, skills, and methodology that students need to master; at the same time, textbook objectives are expected to be based on the subject matter syllabus/standard which presents the basic testing standards for all students. Teachers expressed belief that testing by local educational authorities is the dominant objective of textbooks; hence, textbooks must be strictly followed regardless of the possible defects of the test itself (e.g., stereotyped, outdated questions), which may hinder student development.

Because the requirements of national curriculum standards are unclear, when the test paper does not totally follow the textbook, the teacher is assumed as "all at sea, completely at a loss," to quote a Chinese proverb because they do not know how to select other instructional materials outside the textbook. Curriculum expert Oliver (1977) contends that curriculum reform is always confronted with resistance from the teachers because of stereotypes, and the feeling of insecurity, incompetence, insufficient time and funds required in its implementation. American scholar Harvey (1990) lists 12 factors impeding the implementation of curriculum reform, one of which is "insecurity" among teachers. From the point of view of teachers, the goal of the textbook not only facilitates students' development as human beings, but also helps in their acquisition of knowledge and development of skills. According to Teacher B,

"In addition, the textbook must help students purify their souls…they can be affected through text learning. For example, I remember the topic of one lesson I taught was blood transfusion. It describes one child was dying because he lost too much blood. The other boy, although being scared of seeing the blood losing, was willing to transfuse his blood to the dying child. The story not only inculcates that we need to help others when they are in trouble or in emergency situation, but also let students be affected through learning. As a result,

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their minds can be nurtured, affected, and awakened and the significance of education will be deeply ingrained in their minds."

Rather than highlighting the nurture of children, Teacher C affirmed that the most important function of a textbook is in serving as a doctrine for the teacher to teach and the learners to learn, in order to cater to local government mandate on tests (proper reference is needed.) As Teacher C asserted,

"Frankly speaking, the textbook has two fundamental functions: the bible for teaching and the scale for test. We don't know what and how to teach without official textbooks because for one thing we can't find other curriculum resources, and for the other thing the teachers are reluctant to collect and search off-textbook materials because it costs a lot of time that the teacher cannot afford. The spurring motivation for us to attend textbook analysis training hosted by educational authority is to learn about what the testing contents of this semester will be. Who cares [about] the other issues such as facilitating students' development, creatively adapting textbook in classroom? "

Textbook content mainly covers illustration, text, teacher book, and, form of workbook, including words, phrases, sentences, paragraphs, and texts that comprise knowledge content. As Teacher A remarked, "As a basic vehicle for other subjects' learning, Chinese course plays a critical role in helping learners learn new words, understand its implication within the text, and comprehend the logic[al] relationship among paragraphs or sentences. Only with this can it serve for other subjects' learning." In terms of the knowledge content, textbooks should contain words, phrases, sentences, paraphrases, and text. When asked, "How do you choose textbook content?" that the teachers replied that they neither had an idea nor the freedom to select textbooks, but merely complied by adopting the institutional textbook mandated by the educational authorities. When asked, "How do you understand the origin of textbook content?" Teacher C, after some deliberation, smilingly replied, "Does it not come from experts' hands like yours? What matters to us is how to teach the textbook, not where it came from. But one thing is certain: the content must connect with students' daily life and authentic social context. Currently, most of the textbook content is acceptable but some of it is obscure, obsolete, and tedious. For example, some ancient prose can be very abstruse, or topics such as snow are far from the southern children's daily life, because they have never seen the snow in their homeland of south China." Teacher A seemed to hold the same opinion, "I hope more content will be relevant to real life, especially children's lives. Part of textbook content deviates from current social life; it is hard for students to learn, and their learning motivation cannot be spurred."

When textbook structure was discussed, most teachers expressed support for theme-based textbook organization because this allows students to learn systematical knowledge from each unit. This technique is also very flexible for students to learn due to the flexibility of content embraced in the textbook. In their eyes, the textbook

structure covers passage/text and exercise. All must be associated with one topic within a unit and a book. As Teacher A revealed,

"In order for teachers to better understand the textbook designer's intention, and at the same time, develop students' logical thinking and cultivate their systematic knowledge, an axis must be threaded through both each teaching unit and the whole book. We know that English textbook has a clear clue unlike the Chinese textbook, for example, if you open the English textbook (published by both Oxford press and People's Education press), you will see the topic "tiger" distinctly running through the book. It leads you to the park and to conducting a dialogue with him, and it also shows you some games. However, Chinese textbook contents are complied in isolation and we cannot find the continuity or coherence in the textbook."

As Chambliss (1998) suggests, "coherent structure is a critical feature for effective text design. Structure provides the linkages that hold the design together." Influenced by traditionally pedagogical conception, these teachers seemed more concerned with the academic knowledge in textbooks rather than affective education and perseverance quality which may have a profound impact on students' present growth and future achievement. In addition, influenced by the innate conception of schooling, these teachers stressed academic knowledge over affective, methodological knowledge when the researcher asked regarding the kind of knowledge that they believed the textbook needed to cover in terms of structure. However, the latter may have a profound impact on students' present mental growth and future success in their vocation.

How do the teachers illustrate CT teaching? Without hesitation, they answered "teaching paper by paper, syllabus by syllabus." They expressed that teaching resources are exclusively documentary textbooks and teachers' books, and thus dominate what and how they should teach. Teachers prefer being told directly what the teaching method is from the textbook instead of exploring the method by themselves. In short, they seemed most concerned about whether a textbook is suitable for teachers to imitate mechanically and use it in their own class. As they frankly revealed, "no textbook, no teaching." We often expect the teacher to transcend the textbook while teaching; however, some teachers still hold a traditional view of textbooks. As one teacher explicitly stated, "Only under the instruction of textbooks can we not lose our way in completing the preset teaching objectives in the textbook." In their eyes, "textbook" and teaching were equivalent terms.

Eclectic CT: Two Steps Back and One Step Forward

Teacher D revealed that the objectives of a textbook not only cultivate positive values and philosophy of life in juveniles, but also simultaneously improve their competence in literacy and writing. Similar to teachers with a conservative CT, teachers with an eclectic CT agreed that textbooks are ample measures for testing because the teachers' appraisal system is associated with the learners' testing scores. Only when "the

livelihood" (test) is met can the teacher handle other objectives, such as students mental, affective and continuing development. Consequently, the teacher prioritizes improving student grades over cultivating their competence. In this sense, when confronted with conflicts in enforcing tests from local educational authorities, in realizing the teaching objectives of the textbook, and in promoting individual development, the teacher has to weigh the significance of each alternative against two issues: how to cater to the external test standard and at the same time facilitate students' wholistic development. Undoubtedly, the teacher often prioritizes the former over the latter.

The teachers expressed agreement of textbook content as having a broad spectrum of knowledge resources across interdisciplinary subjects and areas involving knowledge on both urban and rural, contemporary life, and future life preparation of learners. For instance, in the text entitled "The first snow" (an excerpt from a Chinese language textbook for Grade 3 students, People's Education Press of China), although the Pearl Delta of Guangdong Province (South China) has never experienced snow, the text is acceptable and necessary for the learners in gaining knowledge outside their daily lives for their future. Such a scenario is different from the conservative conception of textbooks in which the teachers only care about the current and visible life that they can experience by themselves. A teacher with an eclectic conception of textbooks views such content as containing mass culture, in addition to the elite culture. However, the ideological culture must be reduced to a great extent. For example, a text entitled "The Bridge" (Book 9, Grade 5, Chinese language) portrays a communist as saving other people's lives at the expense of his own life. However, the topic is quite discrete from the daily lives of students because adolescents aged 12–13 years are unlikely to understand the obscure political ideal and spirit of self-sacrifice. Although they may be willing to sacrifice themselves in order to save another person, the act of sacrifice should not be imbued with such blind, self-sacrificed morality, which is far beyond their capability and thinking. Many innocent lives could have been saved had we cultivated teenagers properly.

How should textbook structure be understood? Teacher D expressed support for theme-based compilation and combining spiral principles into textbook writing, given the learning differences among individual students. The CT held by Teacher D can be regarded as pedagogical organization.

In CT teaching, Teacher D expressed strong belief in the authority of the textbook. "I'll teach what the textbook shows me" is ingrained in her mind, although she occasionally extends beyond textbook materials when frustrated by students' questions in the classroom. In addition, she adds and deletes content when adapting a textbook in order to suit the learning demands of various students.

Data from interviews, classroom observation, lesson planning, and teaching reflection shows that Teacher D proposed that the textbook should guide and meet teachers' demands in both teaching methods and content. The teacher should find materials to supplement textbook content. Although Teacher D adheres to the authority of the textbook in teaching, she considers the development of competence in students in preparation for their future lives and career. Teachers with such conception do not

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thoroughly abide by the textbook, neither do they delete or add to the context of the textbook; they simply employ a trivial adaptation of the textbook while teaching.

Generative CT (GCT): Beyond the Ordinary Teachers' horizon

Teachers with GCT asserted that the fundamental goal of a textbook is to enhance the wholistic development of learners, including knowledge acquisition and skill development, positive affective experience, and the spurring and maintenance of learning motivation. Teacher E expressed belief that the textbook plays an important role in preparing the life-long development of students, in addition to providing basic knowledge and developing basic skills. Learners do not live by books but through application of knowledge into their lives. Whole-person education pursues the overall development of the human being, and considers the "integrated person," upholding the integrity of the human body, mind, vitality, and spirit as a unit; the stimulation of affection, mind, inspiration, and intuition; the development of imagination, innovation, and multi-intelligences; and the harmonious development between human being and nature, person and person, people and society. In conclusion, the teachers with GCT not only seemed to possess a comprehensive and profound understanding of the three dimensions of curriculum objectives of the Chinese Basic Education Curriculum Standards, as launched by the Ministry of Education in 2001 (e.g., knowledge and skills; learning process and method; affect, attitudes, and values), but also seemed to place a high regard on the instrumental and humanity functions of textbooks.

The teachers expressed belief that the textbook needs to be connected with the students' lives and that such connection should be a priority in selecting textbook content. As clarified by Teacher E, student survival skills, peace, justice, and knowledge extension should be incorporated into textbook content. Second, content should cover interdisciplinary knowledge such as history, literature, poem, geography, and others since human beings are social creatures that construct social significance through living experiences and social interaction. Both classical text and the values of different social classes are considered. According to Teacher F, teaching content is a firm foundation for students' life-long development, extending beyond the limitations of a "documentary" textbook, constituting morality, behavior habits, history, high technology and so on. Third, both commonplace and elite cultures are reflected in a textbook. Teacher F claimed that a textbook should include, not only great figures and elite living, but also the ordinary person and civilian life. Occasionally, some form of masterpiece can be directly infused into the learning content. Going "beyond the ordinary," Teacher F explained, is going beyond what is in the textbook. In Western countries such as the US, the UK, and Canada, anthologies are widely used as textbooks in elementary and middle schools. However, the schools in China seldom adopt anthologies due to long-term dominance of textbooks prescribed by the governments and the highly unaffordable book fees. The teachers expressed awareness of the significance of extending textbook content

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and of learning from masterpieces or classics such as "Journey to the West" (written by Wu Cheng'en) and "Romance of the Three Kingdoms" (written by Shi Nai'an). British curriculum expert Lawton (1983) views curriculum "as a selection from the culture." As the main carrier of the curriculum, the textbook should present the preferences or values of the different social classes. According to John Dewey (1916), subject matter (textbook) "consists of the facts observed, recalled, read, and talked about, and the ideas suggested, in [the] course of develop[ing] a situation having a purpose." The life-oriented textbook typically reflects Dewey's experienced CT. Thus, textbook content not only covers knowledge pertaining to social and cultural experience, but also accommodates student differences, background, or experience.

In terms of textbook structure, Teachers E and F expressed support for the integration of cyclical and spiral compilations . Their claims were somewhat similar with the opinion of other teachers. Teacher F suggested that a textbook can be compiled by integrating a theme-based unit with spiral organization. Such compilation caters to student demands for acquisition of systematical knowledge, psychological development, and cultivation of learning interest.

With regard to the conception of teaching, the generative conception of a textbook regards the textbook as an example or guide for teaching, which means the teacher can add, delete, or integrate instructional materials in accordance with the students' learning process and pace. As Teacher E claimed, "[A] textbook only shows us the basic guideline for teaching and learning, thus the teacher can and should supply some materials for the students within their comprehensibility and learnability." She also asserted, "Students may 'steal' some model essay while they are learning writing. 'Steal' doesn't [imply] copy[ing] but learn[ing] the writing techniques and strategies which can be adopted in their own compositions." Teacher F gave a similar comment, emphasizing the whole perception of text when students learn, and not being limited to trivialities. In short, teacher should not split the text into trivial fragments such as words, phrases, and paragraphs. The teaching should begin with, and be based on, the learning demand and prior knowledge of learners. German scholar Martin Wagenschein (1951) was the first to put forward the concept of exemplary pedagogy, with "essential, basic, and exemplary" as its main feature, highlighting prior knowledge, experience, and intellect of students in learning. An "example" is a bridge connecting a learner's subjective world with the external objective world. The textbook conceptions expressed by Teachers E and F demonstrate exemplary and scaffolding traits: the textbook, a guide for teaching and learning, does not include all the teaching content; the teacher instructs and students learn because teaching is always a process of creating meaning and rebuilding knowledge of the text based on the existing knowledge of learners. Intellectual growth and nurture of the mind follows such conception.

Features and Relations Among Different TCT

We have illustrated six types of TCT. Their features and relationships are summarized in Table 1.

Table 1. Traits and relationships among TCT

Teacher \ Dimension	Conception of Textbook Objectives (CTO)	Conception of Textbook Content (CTC)	Conception of Textbook Structure (CTS)	Conception of Textbook Teaching (CTT)
A	Prioritizes the examination by local educational authority over student development	Official textbooks including the student's book, teacher's book, and workbook	Theme-based compilation	Textbook and teacher-centered, inculcation method
B	Knowledge acquisition, skills training, mind nutrition, formation of learning habits	Official textbooks that mainly include life-oriented content (focusing on current rather than future life)	Classification organization	Textbook- and teacher-centered
C	Mastering testing coverage, developing skills, fostering good learning habits	Textbook is the core content in teaching and concerns students' current and future lives	Spiral organization with a theme running through the whole textbook	Textbook-centered, telling 'me' what to teach in class
D	Cultivating positive values and beliefs for life; facilitating students' literacy, reading, and writing skills	Integration of elite and civilian cultures, rural and urban lives; reduction of ideological text	Integration of the Grading system with topics; focuses on students with poor and average learning	Expository method is used often, while the heuristic method is sometimes used.
E	Achieving two language functions: language as a vehicle for communication vehicle and for fostering the human mind; Caters to learners' current and future lives; promotes knowledge acquisition and skill development	Textbook knowledge is important, but should be integrated with the lives and skills of learners	Theme-based grading: from easy to difficult, simple to complex	The textbook is a guideline and model for teaching, not a doctrine with which to abide; textbook analysis should be connected with students' prior knowledge and experience; the demands of individual learners' demand should be considered
F	Combines the tool function and humanities function; addresses the current life of learners in and preparation for their future.	Reflects both the learner's life and the subject matter	Theme—exercise—extension logical arrangement	Reduces teaching time; highlights learners' self-understanding; advocates flexible teaching methods.

Table 1 shows that different teachers hold different opinions but share common ideas with regard to their conceptions of the textbook. For example, most teachers agreed with theme-based textbook compilation as their conception of the textbook structure. However, some obvious divergence exists among them in the three other dimensions, especially in the conception of textbook teaching. Teachers A and B claimed that they absolutely rely on the textbook; however, Teachers E and F stated that they regard it only as a guide or example while teaching. From the table above, we can infer that the conception of the former can be regarded as textbook-dependent orientation whereas the latter is textbook-enacted orientation. In conclusion, we describe Teachers A, B and C's conception of the textbook as "conservative," Teacher D's as "eclectic," Teachers E and F's as "generative." A summary of their typical features and relationships follows.

Among the three teachers with conservative conceptions, Teacher A highlighted the testing function of the textbook as "I will teach what you test." Teacher B expressed a desire to change the traditional approach to teaching, but is concerned that the cooperative teaching approach may inhibit the regular teaching schedule thus affecting classroom management. For the sake of "safety," or controlling the teaching pace, she teaches what is contained in the textbook rather than address what students want, and the difficulties they encounter. Teacher C revealed using the "tips" provided by the textbook and only "paints dipper according to gourd" In terms of textbook content, Teachers A, B, and C expressed belief in what an official textbook contains because it is authoritative. However, Teacher D claimed that, although the textbook is an imperative curriculum resource, she intends to add, delete, and replace certain content in adapting the textbook. In her eyes, the textbook is crucial, whereas other curriculum materials are only supplementary in teaching. Teaching content can never deviate from the textbook, otherwise the teaching schedule would be out of control.

Teachers E and F asserted that the textbook is an example or model of the teaching content, and that the teacher needs to extend from the textbook, and provide knowledge and methods more suitable and connected with student life. For example, fiction, anthologies, a collection of poems, and even new papers can be used in class in order to enhance student knowledge and writing competence. Compared with the first two conceptions of the textbook, the generative conception of the textbook espouses the exemplary role of the textbook and reconstruction of teaching.

In terms of textbook structure, most teachers abide by the theme-based organization, except for Teacher C, who expressed support for the spiral structure, omits the theme-based organization for each unit. The views expressed by the other five teachers were also different to some degree. Teachers A and B only expressed support for theme-based writing, whereas D and E revealed that they consider the mental development of students. Teacher F expressed belief that the textbook should allow knowledge extension, following the theme—exercise—extension logical organization.

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With regard to the conception of textbook teaching, Teachers A, B, and C firmly asserted their belief in "teaching with, through, and by textbook" because they deem the authority of textbook in teaching and testing as one that cannot be swung, hence should not be replaced by other teaching materials. The textbook-centered teaching method is deeply ingrained in their minds and is adopted in their entire teaching process. Teacher D often uses transmission method in teaching and sometimes employs other methods. However, unlike Teachers A, B and C, she expressed concern regarding absolute obedience to the textbook because not all the methods recommended are appropriate for teachers and students. Compared with other teachers, Teachers E and F expressed completely different claims. They advocate the whole language method, reducing teaching time, encouraging and motivating student thinking, and integrating multiple methods in favor of the different learning styles of students. Their basic creed for teaching extends beyond the fixed teaching method within the textbook.

In general, according to Teachers E and F, the development of an ideal and exclusive panacea in teaching seems to be impossible because the context and students often differ according to period. Consequently, method-based teaching is inadequate to meet the challenges of everyday teaching. Teachers attempt to develop a "method" of their own in the classroom, mainly based on their intuitive ability and experiential knowledge. Indian-American linguist Kumaravadivelu (2005) points out that, due to the woeful deficiencies existing in method-based teaching, we need to seek a better solution. He proposes the post-method, which is "sensitive to a particular group of teachers teaching a particular group of learners pursuing a particular set of goals, within a particular institutional context embedded in a particular sociocultural milieu." He continuously cites Elliott's (1993) claim that the idea of pedagogic particularity is consistent with the hermeneutic perspective of situational understanding, which suggests that a meaningful pedagogy cannot be constructed without a holistic interpretation of particular situations, and that it cannot be improved without a general improvement of those particular situations.

Neville Grant (1987) exemplifies three opinions about textbooks among teachers. Teacher 1 is the teacher who does not use a textbook. He prepares all of his teaching materials because he believes he knows his students better than any course book writer does. According to Teacher 2, "I could not teach without a textbook. I use it just like a recipe. Follow it page by page, and you cannot go wrong," whereas, according to Teacher 3, "I find my course book very useful. I use it most of the time, but not all the time." The first CT can be regarded as a flexible conception because the teacher proposes various instructional materials to be integrated into teaching content based on students' learning demands. The second can be regarded as a bible-oriented CT, which is adopted as an exclusive teaching resource. The last conception is eclectic as it regards the textbook as the main basis in teaching but extends or employs supplemental instructional materials occasionally. The views of Teachers A, B, and C can be associated with Teacher 1's conception, that of Teacher D can be associated with Teacher 3, and that of Teachers E and F is the flexible conception of the textbook.

CONCLUSION AND IMPLICATIONS

The previous discussion has explored six CTs among teachers using a four-dimensional framework. The typical characteristics, divergences, similarities, and relations of conceptions of the textbook among teachers are clearly seen. This researcher will next attempt to depict the following (a) the extent to which these teachers' conceptions of textbooks have changed; (b) the relations among the three conceptions of textbooks; (c) this researcher's own perception of the features in view of the research analysis, and compared with the assertions and criticisms of scholars.

First, with the ongoing school curriculum reform in China, most TCT have changed in various degrees. Excellent teachers who hold generative CT, including Teachers E and F, have not been significantly affected by the curriculum reform. Their CTs have not changed prominently because their open, creative, and enacted conception of the textbook is in accord with new curriculum reform ideas presented by the Ministry of Education. However, Teachers as A, B, C, who are considered to be at the low teaching level, have been affected more heavily than the so-called excellent teachers (E and F). Medium level teachers or those with an eclectic CT have been less affected than this group. Teachers considered to be at the intermediate teaching level are more willing to change and accept the new ideas than teachers at the low teaching level.

Second, although many differences in CTs exist among teachers, some similarities exist in terms of the four dimensions. In their divergent views of textbook objectives, textbook content, and textbook teaching, the biggest difference lies in textbook teaching. As expected, teachers share some common views on textbook structure. For instance, most teachers agree with a theme-based textbook structure and all teachers support textbook content that is life-oriented.

Third, TCT are implicit, complicated, and inextricably pendulous. Their conceptions contain features that are intricately interwoven with the other conceptions of textbooks. As mentioned, the three TCT share similarities and differences in terms of the four dimensions explored. Compared with the CTs claimed or criticized by educational scholars (e.g.. bible-oriented, constructivism-oriented, and materials-oriented) TCT are relevant, practical, and not radical. Neither are they wholly bible-oriented nor Constructivism-oriented, but lie in the middle.

Although the basic education curriculum has undergone reform for over a decade in China, the change in TCT remains austere in achieving success in the reform blueprint. Zhong (2007), who leads the national school curriculum reform, emphasizes that the critical stage of education reform is curriculum reform, whereas the critical stage of curriculum reform is the teaching and learning that occurs in the classroom. In addition, the critical stage of classroom teaching is teachers' professional development. Without a change in teachers' conceptions, any ideal curriculum reform is virtually utopia. TCT are not only influenced by the quality of teachers (personal and educational background, prior knowledge, educational philosophy), but also by their intrinsic bias, which is embedded in their traditional

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way of thinking and conflicts between university scholars and school teachers when faced with similar research problem having incompatible solutions.

To effectively promote curriculum reform, some long-term studies, such as those on dynamic teacher professional development system, the potential factors of which impact correct formation of TCT, are increasingly gaining importance and necessity. Meanwhile, encouraging and empowering teachers to directly engage in curriculum development and textbook writing, especially at national and provincial levels, also facilitates the implementation of curriculum reform and the development of instructional materials. Only with these cogent measures can blind obedience to institutional and programmed curricula be eliminated, and the perceived conflicts among administrators, scholars, teachers, and learners dissolved, while spurring teachers' participation in, and reflection on, curriculum reform and textbook adaptation. When such measures are advocated by both researchers and teachers, and confirmed by the educational authority, then the goal of students' wholistic, positive, harmonious, and individualized development is ultimately realized.

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17. SMALL CLASS TEACHING IN HONG KONG

A Hong Kong Case of School Revival

INTRODUCTION

Growing evidence in the United Kingdom and the United States supports that a relationship between small classes and pupil attainment exists, that is, as class sizes reduce, pupil attainment rises (Blatchford & Mortimer, 1994; Blatchford, Bassett, Goldstein & Martin, 2003; Molnar et al., 1999; Smith, Molner & Zahorik, 2003). In addition to an increase in attainment, more high order questioning and feedback on work, but less time spent on managing classroom discipline are observed in small classes (Hargreaves et al., 1998). Pupils receive more individual attention (Bennett, 1996). Furthermore, pupils are better behaved and more on-task (Finn, Pannozzo & Achilles, 2003).

Teachers in Hong Kong have to cope with a large number of students (i.e., 32 to 37 students) in a primary class due to historical reasons. The situation is worsened by the need to deal with the tight lesson schedules and a packed curriculum. Consequently, most teachers do not have the time and stamina to try to get a better understanding of an individual student's talents and background. The debate over whether small class teaching (SCT) should be implemented in primary schools has remained a highly contestable issue in the past. A number of schools are urging the government to take advantage of the opportunity brought about by the decline in the birth rate to implement SCT, whereas the government is holding the view that a class size reduction is not cost effective based on various measures to enhance the effectiveness of teaching and learning. However, on October 10, 2007, the Chief Executive of the Hong Kong Special Administrative Region (HKSAR), Mr. Donald Tsang, announced the implementation of the SCT policy by phases in primary one of suitable public primary schools, having a class size of 25, starting from the academic year 2009–2010.

One year before the implementation of the SCT policy, the school in the present study suffered stern enrollment problems. Only seven primary one students enrolled in the school [the minimum number of primary one pupils required by the Hong Kong Education Bureau (EDB) in 2008–2009 was 21]. Avoiding closing down the school led them to conduct private primary one classes that would need a HK$3 million deposit to ensure that students complete six years of primary study, that is, primary one to six. EDB said to the school that the opening of private classes was

only a temporary measure. The school could only be allowed to open subsidized classes if the school was able to attain the minimum required number of primary one students for the academic year 2009–2010.

In September 2008, the management of the school reconsidered and re-established their learning environment under the leadership of a new principal, who was the previous vice principal of the school and became the principal after the former principal decided to retire when the school faced the closure problem. The new principal was well aware of the problems of the school and decided to bring life to the school by optimizing student learning in a small class environment. Since the re-establishment, pupil enrollment has been on the rise, which is creeping up to a number of 68 student intakes in the primary one admission for the academic year 2011–2012.

The successful revival of the school has been extensively reported by local Chinese mass media. This study explores how a failing school has revived since adopting SCT. Specifically, the study attempts to answer the following three research questions:

1. How has the school established a "happy home away from home" for the students?
2. How is the school reconstructed into an environment conducive to student learning?
3. How are the teachers empowered to adapt their teaching in small classes?

RESEARCH DESIGN

Methodology

This paper is a case study, and data were obtained using documentary analysis, observation, and interview. Essential documents of the school, such as school plans and meeting minutes, were analyzed. Site observations were carried out within the school, including classrooms, special rooms, library, hall, garden, corridors, and canteen. Teachers and students were also observed in their lessons and during recess. Semi-structured interviews were conducted for the principal, teachers, and students to follow up and triangulate with the observations.

Sample

Established in 1983, the sampled school is a government subsidized co-educational primary school. The learners are aged six to 12 (i.e., primary one to six students). The school, with 171 students, is small compared to most of the other schools in Hong Kong. The school is located at a public housing estate, where the students are mainly from families with a low socio-economic status. Some of them are new immigrants of Mainland China, some are from single-parent families, and some are from South Asian countries. These under-privileged students who receive relatively less care and support from their family are at risk of losing interest in their studies.

Twenty teachers and eight staff members are working in the school. A total of 16% of the teachers have attained a master's degree or above, 79% received a bachelor's degree, and 5% are tertiary non-degree holders. All of the English and Putonghua teachers meet the Language Proficiency Requirements, and 76% of the teachers are professionally trained in Special Education. A total of 75% of the teachers have attained the Upper level in IT competency, and 15% attained the Advance level in IT competency. One administrative staff is working as a teacher assistant to look after the holistic development of the students.

FINDINGS

Establishing a "Happy Home away from Home" for the Students

The school has launched a number of activities before, during, and after school to create a homely environment for the students. For students who need to be at school early, they can join the Reading is Fun program. During 7:15 a.m. to 8:10 a.m. and before classes commence, students can choose books of different interests to read and share afterwards. Aside from the lunchtime activities, students can join the Student Gardener Team to look after the plants in the school garden and the community garden during recess. Every afternoon, the students have 40 minutes of self-study to work on their homework, and they may get help from teachers if their parents are working or unable to help. A two-hour period is also provided at the end of the school day for tutorial classes on academic and creative subjects. These activities give a family feel to support and allow students to work effectively and consistently to ensure that each student fulfills his or her potential in a happy and secure environment. The students in return can hopefully bring warmth to the needy. At the end of 2009, some students went to the northern part of Guangdong to serve the people in need. In addition, some students visited and played with students studying in special schools by participating in the Volunteer Service Program for the Special School Grade One Students. The Program has been awarded as one of "The Best Ten Volunteer Service Programs" by the Social Welfare Department, HKSAR.

One of the central focus areas of the school is to develop all students to be caring and committed citizens. Thus, a caring culture is being widely promoted in the school. The principal is very passionate in promoting the caring culture, as evidenced in her motto "to love, to serve, to grow." The principal, teachers, staff, parents, and students work together to foster a sense of togetherness by engaging in different school events that might even take place during holidays and school breaks. Everyone voluntarily participates to make the events a success.

Orientation Programs for Newcomers are provided at the beginning of the school term to help the newly arrived students from Mainland China to become familiarized with the school. The school highly appreciates the students' efforts and their accomplishments throughout their learning process. Birthday parties, graduation ceremonies, and various programs are held to celebrate the efforts of the students.

Commendations are not only for their academic achievements, but also for their good behavior, conduct, and other virtues. The "Good Students Follow School Rules and Behave Well" scheme encourages students to cultivate good virtues and positive values. Students and teachers can write down their words of praise and appreciation for each other on the school boards. The school also nominates students for public award schemes, and encourages two-thirds of the total students to take part in outside school competitions. Great importance is also placed on enhancing the students' care for the community and pupils from the South Asian families. The following teams have been set up to facilitate the nurturing of the caring culture: Prefect Team, Big Brother Big Sister Team, Student Librarian Team, Community Service Team, Environmental Conservation Ambassadors, Boy Scouts and Girl Guides, as well as Volunteer Service Team.

More than 20 Caring Groups have been set up starting from the 2nd term of the school year 2009–2010 to develop a caring culture. Each Caring Group consists of approximately eight to 10 mixed-age students, and is led by a teacher or staff. Students are allowed to change groups each year. Different kinds of group activities are held once a month on Tuesday evenings. The group members can discuss the kind of activities they want to do with their friends and teacher, for example, playing badminton, catching crabs at the beach, and having a social gathering at McDonald's.

"Caring groups gave students a very good opportunity to better understand teachers from another angle. The relationship between teachers and students is closer than before," said one teacher. "Focus of Caring groups are not about teaching and learning; rather teachers will consider these groups as a good chance to stay with students as though they are family members. Pressure will not be posed to teachers as well," said another teacher.

The school has organized a wide range of workshops and extra-curricular activities to ensure the students have a fruitful and joyful school life and strengthen their multiple-intelligence. In line with seeking to provide learning experiences required by our current world and the opportunity for students to excel in sports or arts, the school is implementing the "One Athletic/Artistic Skill for One Pupil" policy. Each student is asked to choose one athletic or artistic interest, such as swimming or Chinese painting, and practice this skill for at least one semester. The students can then change to another interest or continue with their interest until they graduate after six years. All these intentional efforts are well-recognized by the community and have achieved good results in many fields, such as choral speaking, dancing, and sports. Interests include lion dancing, Chinese painting and calligraphy, bamboo flute, taekwondo, ping-pong, choral speaking (Chinese, English, and Putonghua), painting, swimming, ball games, and reading. Moreover, various activities are held every Friday afternoon to develop the students' multiple-intelligence. These activities include watercolor painting, science, English drama, cooking, magic, handicraft, storytelling and sharing, gardening, and Kung Fu.

During an observed lesson, a teacher used cooperative learning strategies (jigsaw) to teach the students how to pronoun "i," "e," and "u" in Putonghua. Having learned

the pronunciation properly and quickly, a more able student A, volunteered to help a less able student B. A patiently taught B word by word. At the end of the lesson, all of the students were requested to complete an individual quiz to test their learning mastery level. Both A and B got good results in the quiz.

Teacher and student interviews were conducted after the lesson. All six students said that they greatly enjoyed the lesson. Some said that they could learn from their classmates, and others said that they were happy to help others.

"I felt very happy if I can lend a helping hand to my classmates," said one student.

B said that he was happy because A encouraged him during the discussion.

"We are so happy to stay together in classroom. We are just like in a family. Students will share their happiness; I feel so happy about that," said another student.

School Reconstructed into an Environment Conducive to Student Learning

A number of construction works for improving the school environment have been done to the classrooms, special rooms, library, hall, garden, corridors, and canteen. The new learning environment is dynamic and of high quality, which enhances the students' multi-faceted abilities in achieving a holistic development.

In every classroom, a mini performing stage and reading corner were added to provide an arena for catering leaner diversity. Desks and chairs of different colors were grouped in fours to arouse student interest and facilitate discussions in groups. Reminders, students' worksheets, their wishes, as well as their performance in various aspects were posted on the walls. Moreover, the classrooms are equipped with wireless IT facilities to provide the students with immediate access to online learning facilities and interactive devices. In recent years, the school has admitted some students who live in Mainland China, just over the Hong Kong border. Visiting the school to get an understanding of their children's performance is difficult for these students' parents. The well-equipped IT environments enable these parents to observe some of the lessons on the web and to see how their children perform at school.

A Distance Learning Classroom (Real Time Distance Classroom-conference room) and a Smart Classroom were built. The Distance Learning Classroom enables the students to learn from their counterparts from local schools and schools in Beijing, Shanghai, and Guangzhou. Distance learning devices have widened not only the students' exposure, but also their interest in learning. Moreover, the teachers can carry out a lesson observation and share among their peers who are not physically on-site. Using the children's love for computer games as a kind of learning motivation, the school has set up a series of electronic educational programs on the computers in their computer room. Through these electronic interactive programs, students not only learn from games, but also develop self-learning skills.

The library offers a brighter and more tranquil study place for students and provides computer-based facilities. The more spacious setting allows students to have a place of solitude for conducting projects. The computerized library system enables an easier access to the library database, thus implying an easier access to knowledge and books. Moreover, the library is relocated to the first floor for easy access.

Reading materials and books are placed around the Hall to promote a reading culture. Students can come in and read books anytime after school. Positive signs and encouraging posters as well as banners are posted around the Hall, providing an inviting environment. The Hall is also used for conducting physical education lessons, as well as community and school activities.

Promoting the students' writing is the main theme of the Story Garden. The school has made an effort to become a green garden school, and is highly aware of the positive effects that plants and gardens have on the school environment. The Story Garden is an inviting place for students to create their writings and share them with others. The writings of students from different grades are posted on the walls next to the garden, after their teachers laminate these writings. The garden has won the award for the best school garden in Hong Kong. The garden, which is designed based on the pattern of the Hong Kong Regional Flag, is frequently used to teach civic education.

Encouraging and invitational posters and banners as well as positive signs and mottos are put up along the corridors all over the school to create an inviting environment for the students. Attractive student works and pictures are posted on boards to showcase the efforts of the students. Students' drawings and art works are displayed in the Gallery of Arts. Aside from these art works, local artists' works are also displayed regularly in the Gallery. A number of English vocabularies and Putonghua expressions have been placed around the campus. At the reception corner, the school has published "Star of the Month" certificates to students with a commendable performance in various aspects. Candidates are elected by their classmates. Photos of the teachers being elected by the stakeholders as "Teacher of the Year" are also posted at the front entrance of the general office. Students have been working hard on various fields, including academic subjects and extra-curricular activities such as art, sports, and music. Their efforts should be recognized and appreciated. The Gallery of Glory and Hall of Fame are places where trophies and certificates from different competitions are displayed.

The Space Canteen is designed to promote creativity. Space-related drawings are posted on the walls inside and outside the canteen. The canteen, which has a water dispenser, offers a clean and pleasant place for students to enjoy their lunch. It also serves as a place for students' after-school tutoring. The school offers intensive tutoring services, especially to the students from Mainland China and South Asian countries.

Students obviously love and take pride in their school. Eighteen students had been interviewed. All of these students said that they love to stay in school, especially

in the library. They love to sit on the padded floor, holding their lovely toys while reading. Some mentioned the Story Garden as their favorite place because they enjoyed planting trees and vegetables. Some were excited about the after-school activities because they could learn and play creative activities with their peers.

Teachers Empowered to Adapt their Teaching in Small Classes

Teacher empowerment was enhanced through professional development. A Professional Development Team of the school was set up and is responsible for coordinating the different kinds of training activities in response to educational reform and the needs of the school. Teachers have participated in various modes of professional development activities, including seminars, workshops, experience-sharing sessions, and different school-based professional support services. In the school year 2009–2010, the average number of learning hours each teacher spent on these professional development programs was 96 hours. In addition, the Teachers' Development Day is organized every year to provide the teachers a better understanding of the school's future development plans. Regular meetings and sharing sessions were also held among the teachers from different schools to enhance the teaching quality. According to one teacher:

> Principal will arrange different trainings to teacher actively. For examples, trainings for small class teaching, for Putonghua and other trainings are arranged to colleagues regularly. She hopes these professional development or trainings can mobilize the learning passion and create the learning atmosphere in schools. When teachers learn something new from outside, he or she will attempt to integrate these new knowledge and skills into daily practice, it is good for teachers' professional development.

An effective teaching strategy acquired through professional development and adopted in the daily teaching is cooperative learning. When cooperative learning is organized, students work in groups to help each other learn toward a common goal. Most of the research conducted on the use of cooperative learning across age groups, ability levels, and cultural backgrounds suggests that cooperative learning develops students' higher-order thinking skills, enhances their motivation, and improves interpersonal relations. The school has restructured all classes in primary one to six, divided the students into small groups with typically three to four group members. These are heterogeneous groups formed according to their academic performance. Each group is composed of some more-able and some less-able students. The heterogeneity of the groups enhances cooperative learning in which students work together to maximize their own and each other's learning.

Collaborative lesson planning, peer lesson observation, and sharing have been heavily emphasized in the school since 1998. An SCT planning group has been formed to oversee and promote SCT development within the school. Two teachers were nominated by the school to attend the in-service professional development

courses for SCT organized by the Hong Kong Institute of Education (HKIEd). After returning to the school, the teachers shared their learning experiences from the courses with their colleagues. Furthermore, by joining the SCT Leadership Project organized by the Centre for SCT of the HKIEd, a learning circle of schools was set up to provide the teachers with opportunities to participate in lesson observation, mutual sharing, and teacher support from nine other participating leadership schools.

According to the principal, "Inner school learning circle is good to my school teachers; however, learning circles from outside is also very important for teacher development. The learning passion can be mobilized in school from the new initiative of outside trainings and learning circles. Outside learning circles and professional trainings can broaden their horizon and enrich their teaching practices."

The school has joint partnerships with different professional organizations, such as the Education Bureau on Mathematics and Visual Art program, the Hong Kong Chinese University on Healthy School Program, the Hong Kong Institute of Education on Small Class Teaching Pilot Project and Small Class Teaching Leadership Project, Hong Kong Shue Yan University on Counselling Internship, E-class partner schools on e-learning and e-lessons, as well as Battelle for Kids USA on Assessment for Learning. These organizations belong to different local and overseas education sectors, including the government, tertiary education, and schools. Finding schools in Hong Kong that enter into joint partnerships with many organizations of other education sectors is uncommon. The school demonstrates its active role in promoting teacher development through networking. These partnerships are important to the school because they help teachers to learn how to adapt their teaching in small classes.

DISCUSSION AND IMPLICATIONS

Success of SCT as a Catalyst for School Revival

The school has demonstrated a successful turnaround from a failing school to one that can attract sufficient students. The findings of this study suggest a series of well-planned reform activities that are closely knitted together to produce synergy. These activities include establishing a "happy home away from home" for students, reconstruction of an environment conducive to student learning, and teacher empowerment for teaching adaptations in small classes. These reform activities require not only the cooperation and dedication of various stakeholders, but also the wisdom of the principal. Literature reveals that leadership styles may lead to a dramatic change in successfully turning around a failing school. "Leadership… emerges, then, as being crucial to effective turnaround" (O'Shaughnessy, 1995). "Turnarounds are when leadership matters most" (Kanter, 2003). As Shelley and Jones (1993) assert, "only strong leaders can guide their organizations through troubled times." "Leadership is the most important element in institutional transformation" (Gerstner, 2002). Moreover, "though many variables are involved in turnaround

success or failure, competent management can impact most of them" (Zimmerman, 1991; Trompenaars & Hampden-Turner, 2002). "The effective leader not only triggers change, he [also] changes the climate of the company [and] its vision, and gives it new direction" (Grinyer, Mayers & McKiernan, 1988). Considering that principal leadership is not a focus of the present study, the discussion below will concentrate on the three reform activities mentioned.

Establishing a "happy home away from home" for students can be regarded as a strategy for strengthening the parents' belief to continue to send their children to study in the school. Helping these students to continue to study in the school led to the development of a number of programs in the school year 2008–2009, which were offered to students during and after school hours. These programs include Reading is Fun, Caring Groups, and One Athletic/Artistic Skill for One Pupil. These programs have proved to be successful in giving students a homely atmosphere in a school environment. The 2010–2011 school survey showed that more than 80% of the students indicated that they love their school. A significant difference is obtained compared to the percentage of the findings from previous years.

Given that the school is determined to attract enough students to be able to be supported by the EDB and operate in the subsidized mode, the reconstruction of the school into an environment conducive to student learning is an appropriate strategy for attracting students to enroll in the school. Construction works for improving the school environment have been done to the classrooms, special rooms, library, hall, garden, corridors, and canteen. The new hardware of the school has proved to be effective in enhancing the teaching and learning in the school. A school review was conducted by the EDB in 2009. The EDB inspectors visited the school five times from November 2009 to December 2009 to review the school quality. The inspectors' judgment was that the school was making good progress, the morale among staff was raised, and the school could make good use of external support and resources to benefit the students. Other achievements include winning the Inviting School Award (2008–2010), International Alliance for Invitational Education Caring School Award (2009), and the Hong Kong Christian Service–the Best Ten Volunteer Service Programs (2009).

Through professional development, the teachers are empowered to adopt cooperative learning for students to work together and maximize their own and each other's learning. This strategy is in line with the school mission to create a secure and caring environment for their students; cultivate mutual trust and respect; build high self-esteem and an optimistic, positive attitude; foster a spirit of cooperation, teamwork, helping, and serving; recognize the importance of developing the potential of each individual student; and enhance development through self-learning, self-experiencing, and self-practicing.

Implications to Schools Implementing SCT

The success of the school in this case study can serve as a reference for other schools with similar backgrounds and facing similar difficulties. Schools that are different

from this school could also draw implications from the study. They should now be able to understand that a prescribed set of teaching methods in SCT does not exist. Prior to the introduction of the SCT policy, teachers are trained to teach in large classes. A number of teachers report that teaching approaches with classes of different sizes were lacking in their initial training courses (Jamison, Johnson & Dickson, 1998). This finding gives an impression that teaching in small classes requires a set of strategies different from that used in large classes. Teaching strategies that can be used in large classes (i.e., cooperative learning) can be used more effectively, if not equally, in small classes. Learning how to adapt teaching in small classes should be one of the major topics in professional development programs.

"Hong Kong Small Class Teaching Study," which is a four-year pilot study, was conducted in 2004. The final report recommends six effective teaching principles in small classes. These principles include setting objectives such as process objectives, using extended questioning techniques, enhancing pupil participation in whole class teaching, fostering cooperation using cooperative learning, giving informing feedback, and using assessment for learning. Teachers are puzzled whether these six principles should be used all together, and what their purpose is. In the present study, although the major teaching strategy used is cooperative learning, this strategy can achieve what the school has targeted. The implication to teachers becomes clear in that they should use the principle(s) to achieve the vision and mission of their school (e.g., catering for learner diversity through assessment for learning, and enhancing critical thinking using extended questioning techniques). Teachers should even go beyond the six principles in implementing SCT, rather than being bounded by such principles.

Another implication is that the benefits of a small class environment will not come automatically if teachers do not adapt their teaching in small classes. A number of studies have shown that teachers tend to remain unchanged in their teaching practice when they change to teach in small classes (Shapson, Wright, Eason & Fitzgerald, 1980; Galton & Simon, 1980; Hargreaves, Galton & Pell, 1998). In the Student Achievement Guarantee Education project in the U.S., for example, many of the methods that teachers used were those that they had used in regular-sized classrooms, except that the methods were applied more frequently to individual students (Molnar et al., 1999). Professional development training should be provided for teachers to help them adapt their teaching in small classes (Blatchford, 2003).

CONCLUSION

The present case study has shown how SCT as a catalyst can bring life to a school and save it from closure. Saving the school is accomplished through three reform activities: establishing a "happy home away from home" for students, reconstructing the school into an environment conducive to student learning, and empowering teachers to adapt their teaching in small classes. These activities

are carefully planned and closely knitted to bring about synergy. These activities require not only the cooperation and dedication of the different stakeholders, but also the wisdom of the principal. Class size reduction will not automatically enhance student learning because it is only a contextual factor. Teachers should adapt their teaching in small classes to benefit from SCT. Seeking professional development is important for teachers to make changes to their teaching. Lastly, schools should have a clear goal of how to use the class reduction to achieve their vision and mission and go beyond the six effective teaching principles in implementing SCT.

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18. SCHOOL-BASED CURRICULUM INNOVATIONS

A Case Study in Shenzhen City Mainland China

INTRODUCTION

Decentralisation of curriculum decision-making has been a subject of key debates in international discussions on change strategies for enhancing school improvement, teacher development, and pupil learning. This movement impacts on policy changes in curriculum and pedagogical orientations in mainland China. However, there is a dearth of empirical research proving the manner by which schools have come to respond to challenges imposed by the central agencies. This paper documents an investigation of a school in Southern China, focusing on the structural and strategic measures employed by the school and its teachers in responding to these challenges. The paper concludes with moderate reservations on the effect of policy change based on empirical data from interviews with the school leadership and teachers.

Context of Change

Decentralisation of curriculum decision-making has been the subject of key international debates on change strategies for enhancing school improvement, teacher development, and pupil learning in the past several decades (Skilbeck 1984; Hopkins 2001; Fullan 2001). The urge for decentralisation has resulted from the central agencies' failure to design and plan new curricula for implementation in schools. It is likewise triggered by the call for professional teachers' democratic participation in school and curriculum decision-making in the 1960s and 1970s in developed countries such as the USA and Australia, with the exception of England. The latter opted to move towards a comparatively more centralised system of managing school curriculum practices (e.g., Wang 1995; Lawton 1993; Australian Education Union 2004).

Decentralisation entails the exercise of authority over the process of determining which relevant courses to teach, how to teach more effectively, and how to assess more accurately. These are all geared towards edging closer to where learning occurs to meet the pupils' diverse needs in mixed ability classrooms, which resulted from the introduction of compulsory education in the 1970s. Therefore, it likewise entails shifting the roles of educators — from being traditional curriculum users to curriculum developers — and assuming increased responsibilities in formulating

curriculum decisions for pupil learning (Wallace, Nesbit, and Miller 1999; Stenhouse 1975; Ovens 1999; Marsh 1997; Harris 2003).

This decentralisation movement has impacted on the reorientation of curriculum policies and change strategies in mainland China. Curriculum reform has been prevalent among countries around the globe in their bid to produce graduates fit for globalisation and the knowledge-based economy and (Chan and Mok, 2001).

In an educational policy document, "An outline of curriculum reforms for basic education (tentative)" published on 8 June 2001, the Chinese Government admitted that its current curriculum policies and practices are outdated, thus failing to meet the needs of the 21st century. The document outlines the curricular goals of education in mainland China and proposes that these should be re-designed to respond to the needs of international scholarship and trends in education and curriculum. The reforms' objectives are as follows:

1. Cultivation of nationalism, socialism, community spirit, and traditional values;
2. Promotion of democratic and lawful consciousness among students;
3. Acquisition of world views and proper values;
4. Awareness of responsibility to others and to the community;
5. Importance of creativity, practical ability, awareness of environmental needs, and knowledge in science and the humanities;
6. Acquisition of lifelong learning skills and knowledge; and
7. Healthy body, balanced psychology of the human mind, aesthetic appreciation, and a balanced life style.

The document has likewise outlined the directions of change, which are summarised in the table below.

There has been a dearth of empirical research on how these policy changes in curriculum and pedagogy have impacted on schools, particularly when change challenges traditional practices (Zhong 2006; Xu 2009; Huang 2004). This paper begins with a case study in an attempt to document how a school and its teachers have responded strategically and structurally to a host of challenges that have recently come up.

RESEARCH PROCEDURES AND METHODS

A case study approach was adopted, and a subject was selected in light of its close partnership with a national institute of research and its uniqueness in possessing a clear and explicit educational philosophy. The school is located in a new but experimental area in Shenzhen city, with little historical and cultural background and traditions (Interview with Head Teacher Wu, 11 July 2007, reading: 02'28- 03'33'). It is touted as a city of the future, which former Premier Deng Xiaoping referred to in a a 1992 speech as a city to be modelled freely upon the Western capitalist concept and upon its colonial sister city, Hong Kong (XinHuaNet, n.d.).

Table 1. Reorientations of curriculum policies and change strategies in Mainland China

Dimensions of innovations	From	To
Approaches to teaching	Didactic and unidirectional	Highly self-motivated and taking initiative in learning; learning to learn; emphasis on values
Curriculum contents	Complicated, extremely difficult, academic-oriented and outdated materials	Emphasis on students' life experiences, scientific experiences, and individual interests and needs
Learning processes	Receptive learning Rote learning Mechanistic training	Active participation Enquiry-based learning Data collection Process information Hands-on experience Ability to construct knowledge Analytical skills Problem-solving Communication and collaboration
Assessment	For selection, elitist philosophy	Enhancing student learning Developing teachers Improving teaching
Administration	Centralized system	Tripartite relationship among central government, provincial agencies, and schools

In the present study, two field visits and interviews were conducted. The first visit on 11 July 2007 aimed at collecting relevant documents and information related to the school's policies and organisation. Among those interviewed were the principal, Mr. Li and his vice-principal, Mr. XXX Chen. We likewise interviewed the head teachers and regular teachers of the faculty. A profile of participants in the school hierarchy was thus drawn.

The interview revolved around three research questions:

1. What are the educational and curricular changes in policies and practices in mainland China, and how do stakeholders view these changes?
2. How does the school respond to these policy changes?
3. What are the expectations on future educational innovations?

After preliminary analysis of transcriptions and documents, the second visit and interview were slated on 20 March 2008. During the second visit, among those interviewed were head teachers and students, as well as the research assistant, Miss Hu Jing, who attended a subsequent lesson and pedagogical research meeting. The

meetings were videotaped; the school head also consented to the paper's future publication in international journals.

A Case Study in ShenZhen City

Shenzhen City is located in the Shenzhen Special Economic Zone, one of the first exclusive zones for foreign investments as promulgated in the Fifth National People's Congress on 26 August 1980 (The Standing Committee of the National People's Congress, 1980). The city's economy has flourished since its inception, attesting to the success of introducing capitalist practices and management styles in a country with deep communist traditions. Proof to this is the average annual income of individual citizens that has consistently topped the list of major cities such as Beijing, Shanghai, and Guangzhou (National Bureau of Statistics of China, 2002).

Adjacent to Hong Kong, the city's population reached approximately 8,460,000 in 2006. Of this number, over 76% are "immigrants" from other provinces and nearby cities. The influx of migrants has brought the population to 10 million as of the present.

The city has the second largest number of ethnic minorities, which has a total of 56 groups, just trailing behind the Chinese capital Beijing. Shenzhen is young and energetic, possessing a symbolic and pragmatic relevance to modernisation and the open-door policy engineered by former Premier Deng Xiaoping in the early 1980s while in the throes of Communist China. Further, Shenzhen is one of two cities aside from Shanghai which was allowed to establish a stock exchange in 1990.

Shenzhen Nanshan School, whose 40 classes comprise approximately 1,725 students and 131 teachers, was established in July 2002 by the China National Institute for Educational Research. The institute is directly under the Ministry of Education of the People's Republic of China in Beijing (China National Institute for Educational Research, 2008), in partnership with the local Nanshan Educational Authority. The power relationship can be exemplified by the principal's direct appointment by the National Institute; the vice-principal was appointed by the local Nanshan Educational Authority (Interview with the vice-principal, 11 July 2007, reading: 05'07–05'34').

The school's accountability, which is removed from the local educational authority and its monitoring system, allows greater flexibility in employing qualified teachers. This new form of partnership allows a certain number of "paying" students in addition to the 1,700 students who are publicly funded by the school, thus infusing additional resources and support for the management (Interview with the vice-principal, 7 January 2008, reading: 04'00–04'28'; Shenzhen Nanshan School 2004, chap. 1). It is worth mentioning, however, that the disparate student composition, comprising both high and low socioeconomic classes, is aggravated by the fact that the majority are assigned by the central allocation system, with no intervention from the school authority. Though a fair system, this has resulted in a student population divided by contrasting socioeconomic backgrounds (Interview with the vice-principal, 7 January 2008, reading: 00'16–00'43').

There are three main reasons behind the choice of this school for the present study. First, Shenzhen is the first city purposely engineered by the mainland government according to capitalist standards and management models. It would be interesting to determine the extent to which education as a social policy has exemplified China's intention of closing the gap with international norms and practices. Second, the local Nanshan educational authority in Shenzhen is among six authorities specifically assigned by the Ministry of Education as the first batch of educational authorities to conduct experimental studies on the new educational and curriculum reforms approved in 2001 by the Central Government (Bureau of Education of Shenzhen City, n.d.; Interview with the vice-principal, 11 July 2007, reading: 12'11–12'26'). A case study of a school in this local educational authority will provide important empirical evidence on the extent to which the current educational and curriculum reforms will impact upon the school's mission, infrastructure, and strategic innovations. Third, Shenzhen is half an hour away from Hong Kong by train, and its proximity has allowed the researchers to conduct interviews, observations, and school visits.

Mission and Leadership

The school was established to play an essential role in educational research and innovations in modern China. Its mission is stated in its school regulations:

> "[U]sing school establishments as a major structure, establishing educational research bases at [the] national level, focusing on research, enhancing development by innovations, establishing more liberty, more freedom, more enriching cultural values in schools……establishing these schools as the gateways and bridges between the Chinese basic education and foreign cultural exchange." (Shenzhen Nanshan School 2004, chap. 2)

The school head, though merely in his 40s, draws on a wide spectrum of experiences in academic theory and practice. He has been a practitioner in the "field education" theory, combining modern movements in academic principles such as phenomenology, Marxist educational philosophy, postmodernist thoughts on critical thinking, and traditional Chinese educational principles. As former vice-principal of an experimental primary school on Chong Ming Island off the coast of Shanghai, he values the humanistic aspects of education and its transformative functions; he also values the importance of interaction between children and their social and natural environments in accumulating experience (Li 2007; Li 2005; *Tian yuan jiao yu dui hua, "A Dialogue with Field Education"*). His theories and practical experiences in "field education" have evident impact upon this philosophical reorientation of the school when he was appointed by the China National Institute for Educational Research, the sole management board of the school, in January 2004.

Mr. Li viewed himself as a "designer" of school education and its practice. He drafted "a framework of the school curriculum reforms" and negotiated with government officers on curriculum design to maintain a stable system. According

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to him, "… he is probably the only school head who has been able to attend most of his teachers' lessons and joined most of the collaborative lesson meetings with his teachers" (Literal translation, Interview with the school head, 11 July 2007, reading: 05'30'-09'32'). His annual target was to attend 100 lessons and join 50 lesson planning sessions with teachers. The school head referred to this as "spiritual leadership in action," as he viewed himself as a leader of multiple roles and talents (MacBeath and Myers, 1999; MacBeath, 2004, 1998).

Mr. Li was well respected by his teachers (Interviews with Teacher Li1, 20 March 2008, reading: 42'30'-48'00'; and Teacher Wang, 20 March 2008, reading: 29'50'- 30'20'). In the interviews with the other teachers and vice-principal Chen, his leadership was cited as a key factor in the quality of the school. His academic philosophy was clearly delineated among his colleagues. He earned the respect of his teachers because of the "liberal attitude," he espoused which allowed teachers to express different viewpoints and different teaching styles. Under his leadership, the school flourished and developed into an "accommodating" institution (Interview with Teacher Zhou, 11 July 2007, reading: 10'08'-10'30').

The impact of Mr. Li's leadership was likewise evident in the consensus among stakeholders regarding the school's curriculum objectives and implementation, thereby cultivating an "ethos" which positively influenced the teachers' work (Interview with Head Teacher Wu, responsible for Pedagogical Research Centre, 11 July 2007, reading: 28'03'-28'57'). His efforts at engineering consensus and enhancing motivational level among teachers were vividly described in an interview with members of the Pedagogical Research Centre, the unit that manages and initiates pedagogical innovations.

> "…[T]his school head has been doing a lot more effective work on building team spirit among teachers than other heads…" (Literal translation, Interview with Head Teacher Wu, 11 July 2007, reading: 16'50'-16'58')

> "…[T]he success of our school relies, first, on the establishment of a sound orientation and conceptual framework… I believe a good school should have a good school head…like every Friday, we have a 'culture meeting' for teachers, watching films, all classic and great films are chosen by the school head, together we enjoy…" (Literal translation, Interview with Teacher Zhou, 11 July 2007, reading: 08'50'-09'30', 11'27'-11'40')

In the interview, Mr. Li expressed a critical attitude towards curriculum reforms initiated by the government in 1999, particularly the lack of a critical approach to the underlying cultural values in the reforms. He asked the concerned officials to clarify whether the new reforms were based on the values of traditionalism, modernism, or post-modernism (Interview with the school head, 11 July 2007, reading: 00'48'-01'56').

School Structure

The structure of the school organisation is characterised by a two-tier system:

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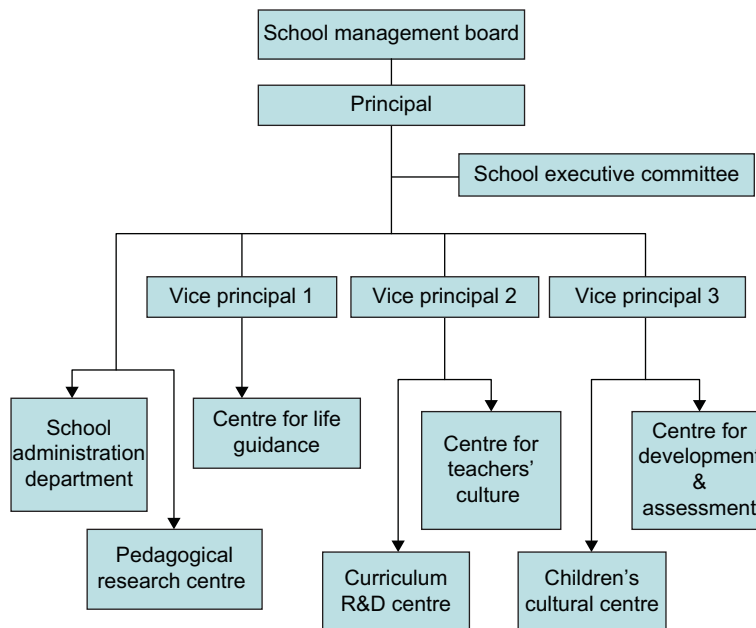
Figure 1. Organizational Structure of the Shenzhen Nanshan School.

1. The school's management board
2. Communist Party management

Under the school's management board, there are seven centres supported by an administrative unit. The tree diagram in Figure 1 outlines the school's structure:

This study focuses on the elements of the school mechanism directly related to curricular and pedagogical innovations and teachers' professional development. Therefore, there is a deliberate effort to concentrate on the school mechanism, with special responsibility in the following important areas:

1. Curriculum;
2. Pedagogy; and
3. Teacher development

Development of School-Based Curriculum Policy and Principles

The Curriculum Research and Development Centre was established with a clear aim of providing organisational leadership in curriculum research, development, and evaluation. A curriculum document for all teachers has outlined in great detail the school curriculum's aims and principles, with emphasis on culture, humanism, unity, and diversity. It has likewise outlined the relationship among the national

curriculum framework, regional curriculum requirements, school-based curriculum activities, and professional role of teacher participation in curriculum development. The document likewise highlights key curriculum reorientations such as moving the current curriculum practices towards more integrated studies. There is a special focus on the application and problem solving aspects of learning as a response to criticisms against traditional and fragmented subject-based curriculum issues. It reiterates the importance of deep learning, with emphasis on the acquisition of generic skills such as collaboration and problem solving for lifelong purposes, rather than producing alienated citizens because of critical thinking and creativity (Shenzhen Nanshan School, 2004).

Further, the document highlights the policy of introducing school-based curriculum activities into the formal school curriculum, differentiating instructions organised by each individual school and another mandatory segment required by the Central Government. It outlines the necessity of annually organising three to four theme-based learning activities anchored on a whole school approach to strengthen the impact on student learning (Shenzhen Nanshan School, 2004).

Pedagogical Research and Innovations

The capacity to conduct pedagogical research in schools has been considered an essential ingredient in achieving school effectiveness in modern education and reforms (Marshall, 2004). The school has adopted a structural approach to integrating research activities among teachers with pedagogical innovations. First, it has purposefully institutionalised research activities as part of the functional roles of key leaders in the school hierarchy. Second, it stipulates mandatory teacher participation in the research activities. Third, it has established a Pedagogical Research Centre as a core unit within the school infrastructure to provide leadership in planning, reviewing, designing, and conducting research activities within the school. In the formal school document, lesson design, classroom behaviours, instructional design, support for learning difficulties, and assessment are all considered as the essential functions of this centre. It emphasises that the classroom should be the base of all research activities. The centre is expected to extend support as teachers conduct research related to field studies, situational analysis and pedagogical enhancement, using methods such as action research, reflection, and case studies.

The organisation of research-based pedagogical activities is complex yet subject-based. Each subject team plays a dual role of managing daily administration and conducting pedagogical research work. Two examples illustrate each subject team's pedagogical function. Every week, each subject team conducts a meeting on lesson preparation focusing on planning, reviewing, designing, and assessing the objectives, pedagogical strategies, learning activities, learning outcomes, and objects of learning.

Another type of pedagogical meeting is conducted, with discussions focusing on a "public lesson." Organising "public lessons" is a common feature of schools in

mainland China (Tu 2007). For example, in this school, every teacher is expected to schedule two lessons for public viewing every semester. All teachers, including subject leaders and school heads, are free to join and conduct observations. After viewing, meetings are scheduled for public discussions on their effectiveness.

One "public lesson" and its corresponding meeting focused on design issues, problems with textual attractiveness on power-point presentations, and instructions for student activities (Public lesson [video-taped], 20 March 2008, 00:00:15–00:42:15; teacher evaluation meeting [video-taped], 20 March 2008, 00:00:01–01:01:22).

Examples of pedagogical research projects conducted by the teachers are "Design and production of cartoons for children," "Using stories in the newspapers in teaching children," "Reading aloud as a form of singing – a case study," "A study of Moon Culture in poems during the Tang Dynasty," and "Folk beliefs and scientific culture." Internal meetings among teachers were also organised for presenting these projects and findings for professional development purposes (Shenzhen Nanshan School, 2007). Majority of these research reports are available in the school's Web site, http://www.szyangxiao.net/list.aspx?cid=45.

School-Based Professional Development Activities

Previous descriptions of activities conducted by the two centres, the Curriculum Research and Development Centre and the Pedagogical Research Centre, imply a strong orientation towards professional development in pedagogical and curricular innovations. The school authority, however, has undertaken specific measures in its organisation, emphasising the school's role as a professional development centre with additional but formal responsibilities in developing teachers.

The Centre for Teachers' Culture was thus established specifically with modern schools' changing role in contemporary world education in mind; it aims to transform the school from a solely teaching community to a learning community as well (Bainer, Cantrell, and Barron, 2000; Lachance, Benton, and Klein, 2007). The centre focuses on the teaching community's "acculturation" in the school, organising school-based professional development activities covering the broad perspectives of the teaching culture.

Through activities such as film appreciation days, culture salons, and culture fora, the centre aims at enriching the teaching community's cultural horizon and experiences, adding an extended version of professionalism to its members (Newton and Hoyle, 1994; Hoyle, 1982). For example, programmes under the culture salon include self-initiated and organised meetings on discussion topics such as teachers' rights, God as a geometrician, teachers and philosophy, opening doors for children, and so on. These meetings aim at creating opportunities for critical thinking and promoting a broad perspective among teachers (Shenzhen Nanshan School, 2007). These meetings may take various forms such as blogs and are conducted in comfortable venues such as cafés and clubs. Attendance is free, thus attracting as

many as 40 to 50 participants per session. Teachers from nearby kindergarten and primary schools are likewise occasionally invited (interview with Teacher Li1, 20 March 2008, reading: 04'15'-04'53').

Another teacher, teacher Li attended three meetings covering the following topics: "What is education?" "What is the future education for Chinese?" and "Eternal Fairy-tales for Children."

> "…[E]ach meeting has a hot topic in China, very attractive. The theme is flexible, atmosphere is exciting, very focused. Not everyone can join the discussion, but it is open [to] parents, teachers from kindergartens, … teachers in the Nanshan region. … The leaders are stimulating, participants like speaking up. [The] leaders are humorous [and there is a] harmonious atmosphere. … There is no distinction between leaders and ordinary teachers, [and you[can object to the views of the school head. [It is designed] for academic and research…" (Literal translation, Interview with Teacher Li2, 20 March 2008, reading: 07'34- 12'22'.)

The impact on other teachers has been well recorded (Third Teacher Culture Salon, "Eternal Fairy Tales" [school internal circulation]). In the first round of interviews, teacher Zhou was asked regarding a personal example of an experience which impacted on his personal professional development in school. Choosing culture salon programmes as an example, he and six other teachers received additional resources from the school to organise a series of "meetings" on the topic, "Do teachers need philosophy?" (Interview with Teacher Zhou, 11 July 2007, reading: 12'25- 13'04'). He expressed appreciation for the freedom accorded to them by the school.

School-Based Curriculum Innovations

The following is a selection of the key curricular and pedagogical innovations developed by the school in the past few years, in response to educational policy changes and students' diverse needs. The selection illustrates the school and its leadership's capability to review, plan, design, and evaluate its current curricular provision in light of the changing educational and societal milieu, and the subsequent challenges they bring. The selected innovations are regarded by interviewees as the most salient features of the school's achievements.

A Whole School Approach to Theme-Based Integrated Learning

The curriculum reform, which began in 1999 in mainland China, is expected to eliminate the boundaries of subject-based curriculum, encouraging various types of integration between subjects and among different learning elements (Ministry of Education of the People's Republic of China, 2001). In this manner, learners are expected to appreciate the interconnectedness between different learning components and elements in all subjects. Further, integration is expected to focus on developing

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generic skills such as critical thinking and study skills among learners for lifelong purposes (Jacobs, 1991; Beane, 1995).

The reforms stipulate that each school should allocate a certain proportion of time for curriculum activities organised and designed in accordance with the schools' own needs and environment (Appendix 1). School-based curriculum development in mainland China is understood as learning activities undertaken by schools or teachers (Zhou, 2006; Cui, Wu, and Fu, 2003). However, to address the conflict between the central curriculum's demands and the perceived need for a curriculum that is diverse and flexible enough to meet the needs of individual schools and children in different localities, the educational policy suggests adopting a "separation" model. This allows the curriculum to accommodate the needs resulting from the identification of the two curricula: central and school-based.

Majority of schools in mainland China have adopted a separation policy, featuring both subject-based and school-based curricula, the latter being integrated in the curriculum organisation. However, many innovation projects are related to the central curriculum (Huang, 2004; Gu, 1999). The school studied in this paper shares this similarity and trends with other mainland schools and allocates a proportion of curriculum time for weekly integrated studies.

For example, the school has organised an entire learning module for each semester. The curriculum is theme-based and integrated, combining all possible learning elements in the semester. Themes such as "Voice of Spring" and "Rhythm of Autumn" are two examples. The learning dimensions for these themes include mathematics, culture, information technology, sociology, and so on. Learning activities include games, school competitions, Web design, and essay writing. At the same time, teacher-led research-based activities are also organised. Methods include situational analysis, action research, and case studies. These activities are designed for teachers' reflection and improvement as part of their professional development (Culture Learning Module, "Rhythms of Autumn," [school internal circulation]).

Reading Culture Programmes

Another school-based innovation unique to the school is a reading programme for all students. The school strongly believes that reading creates a new culture as well as life possibilities for children. Thus, establishing a culture of reading is deemed an effective means of cultivating moral and civic thinking among the younger set (Shenzhen Nanshan School, 2004). The reading list covers both Eastern and Western classics, ancient and contemporary works, as well as science fiction and reports on human tragedy. To date, the school has released two edited and illustrated volumes of select readings, underpinning the close relationship between reading and the development of moral thinking in Chinese culture and the history of education.

Thirty-five moral themes have been chosen for this programme, with texts classified according to low, medium, and high levels of difficulty. These themes include collaboration, children's heart, optimism, democracy, responsibility, wealth,

confidence, life, conscience, love, and characteristics of being a gentleman. These are geared towards initiating children into a world of broad life experiences, full of possibilities and imagination, and with deep respect for culture and ethnicity. The reading drive is expected to produce a generation immersed in rich discourse, possessing spiritual enlightenment and civilized morality. For example, texts contain the history of other nations such as India, Hawaii, and Muslim countries, ghost stories of China and the West, love stories of Chinese minorities, and Western classics such as Swan Lake. The reading programmes combine aesthetics, imagination, minority culture, local folk culture, and world history (Li, n.d., n.d.).

The reading programmes' impact is evident in interviews among teachers and students. Head Teacher Wu reported on the reading club's progress and stated that inviting both teachers and students to read the same books was "a new gesture" that helped develop critical thinking. Conclusions were derived from discussions and any conflicting opinions were not resolved by coercion nor power relations. In addition, the students were also encouraged to develop a new perspective (Interview with Head Teacher Wu, 11 July 2007, reading: 15'13'-16'06').

Teacher Zhou commented that inviting famous authors and writers to meet and converse with the students' created a direct and personal impact on the latter's life experiences (Interview with Teacher Zhou, 11 July 2007, reading: 17'50'-18'09'). When asked regarding the school's key feature, three primary-six students confirmed the extensive reading programmes' impact on them (Interview, 20 March 2008, reading: 06'10'-07'37'). A junior-three student expressed critical observation when asked regarding the same question:

> "…I think this school has created a reading culture. [It] is ok, though it may not be very effective, the school has been doing a lot to improve this aspect. The school has done a lot of activities. I feel [that] the school emphasises on the reading culture…" (Literal translation, Interview with One junior three student, 20 March 2008, reading: 14'10'-14'27'.)

DISCUSSION AND CONCLUSION

The school's striking characteristics affirm a number of research findings and observations on effective schools in other parts of the world (Marshall, 2004; Lachance, Benton, and Klein, 2007). This is not to say that effective schools are necessarily causally related to those actively engaged in research. What this paper presents is a case in mainland China, a country which has been emerging in contemporary world politics and economy as an influential entity that aspires to achieve international standards and morality.

Leadership has been committed to an education which is deeply rooted in an integration of principles from the West and the East. It focuses on child-centred approaches in organising learning activities and developing generic skills for lifelong learning, and infuses approaches to moral training and cultivation of civic

responsibilities (Interview with Vice-Principal Chen, 11 July 2007, reading: 25'30'-27'10'). Freedom is likewise an important element in its leadership. Power coercive models of eliciting change among teachers have been tempered by a re-educative approach. Teachers have been accorded freedom in organising activities aimed at developing a broad outlook, specifically a global culture, in an extended version of professionalism.

> "… Talking about [the] personal development of a teacher like me, this one and a half year under the leadership of the school, I feel the ethos is liberal and free, can hold different views and styles, personalities. [The] school head and the school authority are very accommodating. We can read many books. We can listen to the invited speakers, many of [whom] are from other disciplines, having achievements of different kinds, with broad knowledge. This is a form of liberal studies. This is important to me, enhancing my horizon, [allowing me to think deeply]. I think in [the] long term, our teachers here will be very different from other schools…" (Literal translation, Interview with Teacher Zhou, 11 July 2007, reading: 10'10'- 11'26'.)

School-based development activities have been well organised with a specific purpose in mind. Teacher lesson preparation aims at cultivating team spirit at a pedagogical level, with emphasis on improving teaching and learning. This is supported by another type of professional development meetings aimed at developing a broader outlook and a professional community with critical-mindedness and openness to criticisms. These activities create a community with reflections on both personal and institutional levels (Interview with Head Teacher Wu, 11 July 2007, reading: 24'20'- 25'20').

The school-based innovations, whole school theme-based learning, and extensive reading programmes focus on innovative pedagogies, moving the traditional assessment-oriented curriculum towards a school-based one, which is broad enough to meet the diverse needs of students.

In mainland China, the school curriculum is commonly divided into compulsory (organised according to centralised guidelines) and regional or school-based (emphasises local curriculum initiatives). According to the school head, the school-based curriculum was reorganised into three categories to accommodate internal conflicts between a curriculum for all, which might suppress the development of individual talents, and a curriculum which is biased and elitist. In this new curriculum, students are allowed to select electives from different categories of learning components (Interview, 11 July 2007, reading: 01'20'- 03'33'). This specific curricular strategy creates equal opportunities for both the advantaged and the less privileged. However, the policy per se and its impact on student learning require further investigation.

Engineering an education which may be considered radical in traditional Chinese education is innately problematic. Like other countries who underwent educational reform, resistance from teachers has been recorded in China, owing

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mainly to confusion in role differentiation as well as additional tasks occasionally being assigned. Being a user or developer of a curriculum is a complex issue for many teachers (Interview with vice-principal Chen, 11 July 2007, reading: 32'23'-33'56'). The traditional argument for a school-based model in both curriculum and professional development rely heavily on consensus among teachers that participation is "good." However, this underlying assumption appears to face serious challenges. A certain form of division of labour will result in increased work focus. However, would this re-orientation of school-based models change the original arguments for school-based curriculum development? How to sustain innovation and change is a chronic issue in school-based innovation.

> "… Traditionally, it is [the] Beijing Duck type education (spoon feeding), now it aims at independent learning. This is good among the reforms. Student participation enhances their abilities, at least with some improvements in being aware of the essential learning approaches, but this must be long term. Only implementing for a time is not enough. The new innovations must become permanent behaviours and habits, or students and teachers will return to the old traditional practice…" (Literal translation, Interview with vice-principal Chen, 11 July 2007, reading: 38'18'- 39'40'.)

Other problems have likewise emerged in reforms in mainland China, such as the mismatch between the demands of an innovative curriculum and the traditional role of assessment in a highly selective and competitive system. This mismatch can be observed in the teachers' qualities and the newly integrated curriculum's demand for those who can teach across subjects. Increased autonomy was highlighted in interviews with teachers as well (Interviews with Head Teacher Wu, reading: 19'55'-20'55', and Teacher Zhou, reading: 23'36'- 24'15', 11 July 2007).

With an evident pessimism, Teacher Zhou expressed criticism over the current reforms' effectiveness. He expressed concern about pragmatism among teachers and a general lack of commitment. He likewise expressed concern over the superficial changes in the use of the latest pedagogical strategies, which he believed was less effective than a deep approach to adopting the new pedagogy and enhancing learning among students.

> "… They model some surface techniques from the veteran teachers, some changes in techniques, but I feel they have not changed their concepts and perceptions…" (literal translation, Interview with Teacher Zhou, 11 July 2007, reading: 04'25'-05'58'.)

Teacher Zhou stated that the clash between the traditional approach to Chinese language learning and the innovative version lay in the emphasis on culture and humanism learning, de-emphasising language learning and its pragmatics in the innovative curriculum (Interview with Teacher Zhou, 11 July 2007, reading: 06'28'-08'33').

These observations may be true among many teachers in mainland China. Their experiences in planning, designing, and implementing the current educational and curricular reforms are possibly similar to educational systems in both developed and developing countries. The case study above affirms these observations.

This case study, however, cannot be adopted to generalize the manner by which other schools in different Chinese counties and provinces have been responding to challenges imposed by the Central Government, such as increased responsibilities. However, this case study presents a concrete evidence of the way a number of educators at the grassroots level have been contributing to the betterment of education by using their own academic theories and practical wisdom. This, in the author's judgment, effectively illustrates how East meets West and vice versa.

ACKNOWLEDGEMENTS

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Appendix 1. Curriculum plan of the nine-year compulsory education in Shenzhen city

	Duration	Year									Total class hours	Proportion of total class hours in nine years (%)
Subject discipline		1st	2nd	3rd	4th	5th	6th	7th	8th	9th		
Morality & Life		2	2								140	7.3
Morality & Society				2	2	3	3				350	
Ideological & Moral Education								2	2	2	206	
Chinese Language		9	8	7	7	6	6	6	5	5	2055	21.2
Mathematics		3	4	4	5	5	5	4	4	4	1322	13.9
English Language				3	3	3	3	4	4	4	832	8.7
Science	Integrated			2	2	2	2	4	5	5	760	8.0
	Biology							2	2			
	Physics								2	3		
	Chemistry									3		
History & Society	Integrated							3	3	3	309	3.2
	History							2	2	2		
	Geography							2	2			
Physical Education		4	4	3	3	3	3				700	10.6
P.E. & Health								3	3	3	309	
Arts	Music	2	2	2/1	2/1	2/1	2/1	1	1	1	906	
	Fine Arts	2	2	1/2	1/2	½	1/2	1	1	1		
Information Technology					1	1	1	1	1	1	208	7.3
Integrated Practical Activities				2	2	2	2	2	2	2	486	
Total		22	22	26	28			31	31	31	8583	90.1
Elective Course								2	2	2	206	
Local and school-based curriculum		4	4	4		2		1	1	1	733	9.9
Total weekly class hours		26	26	30		30		34	34	34		

Note: For details on the guidance for setting up the local, school-based curriculum, please refer to *"Shenzhen Shi Yi Wu Jiao Yu Ke Cheng Ji Hua Shuo Ming"* (Descriptions on Compulsory Education Curriculum Plan of Shenzhen City).
(Source: Shenzhen Government, 2008).

KAN WEI

19. AUTONOMY OF HISTORY TEACHERS IN MAINLAND CHINA

BACKGROUND

Systemic educational change has become a global phenomenon. In China, the basic curriculum reform established in 2001 is without doubt one of the most controversy-plagued and complex changes in the largest school system. Not only does this reform mark a dramatic change in the underlying theory and practices of curriculum design and teaching in China, but it has also been established within a country that highly stresses the authority of teachers and examination scores. Notably, the document *Guidelines for Curriculum Reform in High School* (MoED, 2001) requires the following: promotion of a decentralized curriculum system, added emphasis of the quality of learning experience of students through group learning, reorganization of subjects into key learning areas to develop a broad knowledge base among pupils, development of the ability of students to think critically and innovate, fostering of global awareness and outlook, and raising the levels of professionalism among teachers (Ibid.).

Following such broad education reform proposals, China has developed a new framework for the high school history curriculum standard. This new framework breaks away from the previous system of repeating junior high school history content, with somewhat more depth, in senior high school. In 2003, senior high curriculum was changed from taking a chronological approach to a thematic narrative approach. Apart from the content knowledge, the new high school history curriculum standards focus on the "encouraging pupils to see history from the perspectives of history sense, civic awareness, and global views," while inheriting the topic on "international conflict and co-operation." The new curriculum has dropped the parts pertinent to the "political functions of history" and now focuses on cultural, scientific, and technological developments and their impact on human life, as well as curriculum goals from the "three-dimensional teaching goals": "knowledge and ability," "process and methods," and "interests, attitudes, and values" (Zhu & Wang, 2003, p. 14). Not only are science, technology, and the environment now viewed from a global perspective, they are also studied in a global context. In addition, a sense of respect for and understanding of the diversity of cultures in the world are also fostered among the pupils (Huang, 2004). Hence, judging from the revised and additional contents listed above, clearly, "going through the ancient and modern

history" and "integrating the domestic and foreign history" break away from the traditional history syllabuses that have evolved in Mainland China. For instance, the mandatory (*bixiu*) section of the curriculum standard is structured along the three major fields of history: political, socioeconomic, and intellectual/cultural. The 25 subtopics repeat mandatory narratives and paradigms of Chinese history, and discuss aspects of both Chinese and foreign history. Compared to the previous structure, the new structure is more concerned with the fostering of the analytical skills and historical knowledge of the students.

The teaching requirements juxtapose the history curriculum standard with those of what it calls fostering ability, which refers to teaching that is merely the transmission of years, figures, and events from teacher to students. By contrast, the new curriculum stresses employment of a diversity of teaching methods as a general principle, and urges teachers to assume greater roles in the enhancement of the teaching activities. Particularly, it promotes interaction between the teacher and the students. Teachers should engage in critical dialogue with the students, help them identify problematic issues, and, rather than taken-for-granted knowledge, reflect back these problems as the driving force for collaboratively constructed knowledge. During the dialogical engagement between teacher and students and among the students themselves, the life experiences of students are emphasized, through which the students recognize one another as sources of knowledge.

With the dramatic changes in curriculum, history teachers are required to be involved in the process of teaching development. History teachers need more autonomy and freedom in order to adapt their lessons to the needs, interests, and demands of their students.

TEACHER AUTONOMY

Studies on the autonomy of history teachers in Mainland China remain thin; however, for the past three decades, Western researchers have recognized the importance of autonomy in the professional development and classroom teaching and learning of teachers. The concept of autonomy has become part of the mainstream research and practice in the field of education. Enhancement of the professional autonomy of teachers needs to be considered in the implementation of educational reforms. Granting autonomy to and empowering teachers can be appropriate starting points to deal with the current school problems (Pearson & Moomaw, 2006). Therefore, various studies have been conducted on the support of autonomy and control of behavior of teachers, as well as its effect on the learning processes, developmental outcomes, school performance, and academic achievement of students, covering various academic fields and all ages of learners (Reeve et al., 2002). Although no consensus has been reached regarding the autonomy of teachers, the different definitions point to one common aspect: autonomy requires the endowment of greater power and freedom to the teachers in their professional activities. Scholars describe this as enabling teachers to "control their work environment," "encouraging

and strengthening the power of teachers," or giving them the "freedom to make certain decisions" (Pearson & Hall, 1993, p. 173).

Research into teacher autonomy in the field of curriculum change has had a short history in China. One of the first scholars to discuss it was Little (1995), who, in her references to responsibility, control, and freedom, drew clear parallels with learner autonomy:

> Genuinely successful teachers have always been autonomous in the sense of having a strong sense of personal responsibility for their teaching, exercising via continuous reflection and analysis the highest degree of affective and cognitive control of the teaching process, and exploring the freedom that this confers (Little, 1995.p. 179).

Therefore, teacher autonomy is a broad concept that refers, not only to the teacher's power in the planning and implementing of the teaching activities, but also to his or her involvement and participation in the decision-making process at the level of school management. Friedman (1999) states that teacher autonomy has two main aspects: the pedagogical aspect, which focuses on such issues as curriculum development and student teaching and assessment, and the organizational aspect, which focuses on issues such as staff development or budget planning. The term teacher autonomy, however, is analyzed in this study in a narrower sense that focuses on curriculum. The organizational aspect falls outside of the scope of this research. Therefore, as used in this article, the term teacher autonomy, points to the power and freedom of the teachers in the selection of the subjects to be taught, methods and materials to be used in the teaching activities, and the implementation of the decisions taken.

In China, an individual sees himself or herself as a part of hierarchical human relations in which people respect authority. For teachers, curriculum standards and textbooks represent authority from the editorial community. Hence, teachers have generally been considered as the authority of knowledge in the classroom and students have been viewed as dependent and passive learners when compared to Western teachers and students, who are seen as independent and self-directed learners. Therefore, works that attempt to support teachers in overcoming such constraints, whether internally or externally, can be found in the literature. For example, the study of Qi (2008) offers a valuable example of a teacher finding her way through the maze of external controls to achieve something she wishes to achieve. However, although constraints may be evident to the teacher, they may also be hidden from the teacher due to the existence of impenetrable educational or social structures, or even the teacher's own socialization, thus becoming internalized in his or her belief system. A resonance with political–critical conceptions of autonomy thus occurs, with teachers being caught up in hegemonic practices in which power and ideology are embedded in the structures, attitudes, and commonsensical, taken-for-granted social arrangements of schools and other educational institutions (Lukes, 1974). Going even further, the work of Foucault (1977. p. 198) suggests that the school is

characterized by a "disciplinary technology" designed to create "a docile body that may be subjected, used, transformed, and improved."

This study aims to analyze whether and how teachers deal with the requirements of the new high school history curriculum. Therefore, the study intends to explore whether the current history teachers adequately display their autonomy in the process of delivering the curriculum standards that play a crucial role in teaching development.

RESEARCH METHOD AND DATA ANALYSIS

The study took place in a top high school and an ordinary high school in Beijing[1] from October 2011 through November 2011, with some subsequent email follow up, and some additional data collected from end-of-year course evaluations in December 2011. This investigation constituted "a small-scale investigation within [an] existing curriculum and institutional structure" (Ohara et al., 2001. p. 5). With the consent of the students and the teachers, all classes were audiotaped and selected classes were videotaped. Data for the present study also included audiotaped interviews of the teachers (conducted in Chinese), their reflections on the class (written in Chinese), end of school-year course evaluations from school management, and email exchanges with teachers, as well as my field notes and journals. All the taped data were transcribed, and the Chinese transcriptions were translated into English by the author.

Data were analyzed using the procedures of constant comparison. All sources of data were reviewed in light of an a priori concern with manifestations of the autonomy of teachers. Sections of data were coded thematically, and initial generalizations regarding such groupings were made as tentative hypotheses, some of which received support from successive cycles of data collection analysis (cf. LeCompte & Preissle, 1993; Strauss, 1987). All names used hereon are pseudonyms to protect the privacy of the participants.

1) Case Study 1: "Thematic Discussion" of A Grade 10 Class

The first history classroom observation was in history discussion at a Grade 10 class of a high school in Beijing, China. The students were mostly from a middle-class neighborhood and were high academic achievers. The theme of this class was "Life in the Song Dynasty." It only had one period, which was held from 1:30 pm to 2:15 pm. The sample class students were divided into six groups, with one member in each group presenting their topic. Mr. Yao, as young history teacher who had just graduated from university, addressed some rules of presentation, after which the students began their discussion.

The major part of the course consisted of the presentations of five students and one was left to next session. One group gave a presentation on "City Life in the Song Dynasty" using student-generated PowerPoint materials, whereas another group gave a presentation on "Travel Poetry in the Song Dynasty" according to poem recitation with excellent in voice and affection. The students collected most

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of the necessary pictures and documents from the Internet, and did not utilize the content from their textbooks.

In his interview, Mr. Yao stated,

> In class, I tried to create an innovative curriculum contents for the students' learning as the course enabled more curricular flexibility as inquiry learning ways. I was more interested in exploring the possibility of dialogue between students and myself, considering the constraints of the current limitation of curriculum (Interview data, October 15, 2011, Mr. Yao).

Presentations were intended to foster the interests and abilities of the students, as well as to establish collaboration among students and identify for possible topics for future investigation. After-class discussions enabled the students to have an idea of the presentations. PowerPoint was used to promote communication of the topic between the students and teacher and to better illustrate the points of the discussion. Mr. Yao strove to help students develop their ideas by providing them with discussion questions. He also provided some comments regarding the ideas of the students in order to ensure that development of the abilities of students to integrate historical knowledge was not neglected.

In Mr. Yao's class, the students showed great interest in discussing the topic(s) they had prepared. They were very active in presenting their PowerPoint materials. Reflecting on these events, typical student comments were as follows:

"Today's discussion was excellent. We liked their PowerPoint slides very much. It was particularly good when Sunpin [a student] showed some pictures she had taken from the Internet. We wanted to hear more from her and we had lots of questions and comments to one another in this class" (Wangfang, student, translated).

> "The good thing about this class was Mr. Yao and ourselves discussed the topic after the presentation. Therefore, we dealt with the topic we were interested in, not the one from the textbooks and the participation was much more active" (Chenlin, student, translated).

To this young history teacher, the new structure of the history textbook was not a challenge as he just finished his studies at the university and was more familiar with the "thematic ways" of the textbook. This lesson planning of "City Life in the Song Dynasty" was designed by this young teacher, who preferred presentations and group works. By his understanding, presentation or group work "does not mean neglecting history knowledge. It means organizing history knowledge experiences that are immediate to students" (Interview data, September 20, 2011, Mr. Yao). He stressed that teachers should provide opportunities for students to develop their data collection and analysis abilities and improve their critical thinking, rather than memorizing the historical events, times, and figures.

Mr. Yao also admitted that the opportunity for history curriculum change was very limited, even though the school he worked in provided sufficient support for the change. The school is a top school, and most of students are children of middle-class

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families. As a young teacher, he was encouraged to explore the teaching methods in class; however, he also worried about the pressures of examinations, even history class is "marginal subject" in school.

As described by Mr. Yao, "I am a real lucky one because my students are pretty good. They have very strong motivations on learning and more important. I only have two classes for each content. I cannot image that I could complete the basic learning goals for students as I have no time; however, the atmosphere and teaching traditions in this school deeply affects the my philosophy and performance in class; they always support my teaching changes. However, I also realize that my attempts will soon end at the beginning of next semester because the students will face the pressures of examinations. Unfortunately, although the new curriculum standard has been issued, the implementation time is pretty short. Every teacher knows the reality of examinations in school; apparently, that only those curriculum designers neglected or they knew but they just pretend not knowing it at all" (Interview data, October 15, 2011, Mr. Yao's translation).

2) Case Study 2: "Taught History Class" of A Grade 11 Class

Another history class was observed in another high school in Beijing. The class was taught by Mrs. Xu, who was a senior history teacher with 15 years of teaching experience. As a community high school, the school served students of Grades 10–12, was smaller than regular schools, and had a reputation for placing strong emphasis on examinations. Similar to other Chinese senior high school students, the students of this school were under strong pressure to prepare for the college entrance examinations. Thus, their teachers did not have much time to allot for the presentations of their students. The history course was taught twice a week for a class using the traditional ways of teaching. The course consisted of three parts: (1) self-learning using textbooks (*Yandu*); (2) asking questions based on information from the textbooks; and (3) the comments and explanations of the teachers. Students were asked to learn the textbooks for fifteen minutes and then propose their questions in groups. After answering and discussing the queries, Mrs. Xu commented and stressed some key points.

The student-generated questions were based on their understanding of the contents of textbooks. Mrs. Xu would interpret the related historical events, times, and figures to help students learn the structure of the ancient China economic development history. However, after class, students showed their different views on the "history class."

"Is it a history class? We don't think so. It might be just a reading class. We were asked to read the (history) textbook and ask questions. The topic was ancient China's economic development, which was pretty abstract, and we were not familiar with the topic or very interested. We learned some basic knowledge, but very little. You know, history class is often replaced by the core curriculum and, as a history teacher, Mrs. Xu should provide us with some basic clues" (Heping, a high school student, translated).

In her interview, Mrs. Xu honestly said that she was not used to the new structure of high school history textbook. As a middle-age teacher, she experienced difficulty integrating her history knowledge with the new curriculum structure, even though

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the school district provided training programs for teacher understanding of the new curriculum structure.

In addition, she admitted that her teaching approach was not accepted by her colleagues and students; however, she was confident that her way would work. She said that current history curriculum provided detailed explanations on the overall goals and principles; however, no further classifications on the teaching content were provided. As a senior teacher, Mrs. Xu honestly said, that most of time, she would simply copy the literature regarding "knowledge and ability," "process and methods," and "interests, attitudes, and values," but would have no considerations regarding them. However, she had a strong commitment and professional attitude towards teaching. She was very enthusiastic about enhancing students' ability on learning and alternatives on curriculum contents. The following excerpt from an interview with her indicates her understanding on autonomy:

"We only have limited opportunity for changing, you know. It is true that there are some new ideas in history curriculum and teaching,, but for teachers, we have to follow the guidelines from the teacher-books. You know, as the curriculum does not offer any specific avenues on teaching, it is understandable that we take some easier ways. Say, to make all the students learn the history textbook first. Then, we discuss the related questions. Traditionally, teachers just teach and students just sit there and listen to our voices. Are they really involved in the learning process? As a history teacher, I am about to change this. You know, if a singer carries his message through his songs, teachers use their teaching" (Interview data, October 20, 2011, Mrs. Xu's translation).

Mrs. Xu's understanding of history teaching and learning reflected her autonomy regarding the curriculum change. It was progressive in that she was seriously striving to engage her students in self-learning, with the goal of enhancing their knowledge and abilities. Mrs. Xu's goal for her students was to enable them to "explain the concept of historical phenomenon in their own languages and understand how the related issues and conflicts occur, and what the causes and results were, and what they could learn from the history events."

FINDINGS

1. The Tremendous Opportunities for Autonomy of Teachers Results in Polarized Teaching Methods in Different Schools

The obvious characteristics of the new history curriculum standard are its ambition and assertion to offer a radical transformation in history education; however, it has no specific strategies and suggestions for teaching in the classroom. As the case study of Mrs. Xu indicates, the new curriculum allots tremendous space for the autonomy of teachers. However, although the overall requirements are broadly explained, the new curriculum standard does not make clear and obvious references to the teaching approaches or to other related concepts. Its emphasis is on the cultivating the ability

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of students to integrate, collect, and analyze history knowledge while neglecting the means to further the pursuit of capacity building of teachers and the active participation of students. Particularly, the situations vary among different level high schools, as reflected by the above two case studies. Therefore, although the curriculum standards provide immense opportunities for teacher autonomy, it does not offer a visible and concrete structure for autonomy of teachers in the planning and implementation of teaching contents and activities. As a result, the different approaches to teaching used by Mr. Yao and Mrs. Xu were largely dependent on their own working context. Mr. Yao's colleagues provided him with more support, whereas Mrs. Xu could not obtain support in her school.

2. The New History Curriculum Fails to Consider the "Subject Statues" of History Class in High Schools.

In China, history subjects have been traditionally located in the "non-core" subjects, compared with Chinese, mathematics, and English classes. The new curriculum standard was designed for three-year learning process; however, teachers always prioritize subjects according to the examination arrangement in Grade 11. In Mr. Yao's case, he only has two classes for each subject (compared with 4–5 classes of mathematics and English class), and completing the basic goals is hard, leaving no room for the teachers to take initiative and responsibility with their autonomy. This lack affects not only the teachers, but also the students. The students have no time to collect data, photos, and related information from the Internet.

3. The New Program Brings Some Changes to the Three-Level Teaching Goals ("Knowledge and Ability," "Process and Methods," and "Interests, Attitudes, and Values") But Neglects to Train Teachers on How to Reach These Goals

The new history curriculum standard details the three-level teaching goals, representing a positive and progressive change. However, this new curriculum has no significant effect on the degree of the teacher's role in planning the teaching content. The curriculum standard does not clearly emphasize how to access the "knowledge and ability," "process and methods" and "interests, attitudes, and values." Notably, because the teachers are not provided any obvious references on goals, they prefer to download references from the Internet and develop some "goals" in class. In practice, however, the teachers follow their own experiences. Thus, the new program has failed to create a greater opportunities of autonomy for the teachers to take an important role in the curriculum development process.

4.Examination System and Personal Educational Background May Affect the Planning and Performanceof Teachers In Classroom.

The examination arrangement is contradictory to the new curriculum standard. Teachers and students are confronted with the pressures of examination. As a result,

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the functions of the history curriculum reform have been greatly reduced, and an obvious gap exists between the curriculum designers and the examination system. Therefore, the true curriculum changes and teacher autonomy merely occur in the first year of high school during the selection of teaching methods. We can argue that, compared to teaching content planning, the new history program provides a certain degree of autonomy to teachers in the areas of teaching methods and activities planning. With regards to the selection and planning of teaching methods and activities, the situation is very different between Schools A and B. As already noted, the new curriculum offers a new teaching approach based mainly on student-centered activities. It also outlines a number of assignments and duties for the teachers in the implementation of the envisaged works. It places emphasis on the use of different and efficient methods in the classroom, asking teachers to pursue innovative tools to make sure that the students actively participate in class activities. However, it only briefly touches upon the autonomy that the teachers need to fulfill their duties and assignments. As a result, in School A, teachers are able to implement these activities as they are or change these activities for greater efficiency. However, field work in School B shows that the new curriculum does not provide guidelines for Mrs. Xu, who came from a community high school, to develop teaching activities; instead, she insists that examinations would determine the activities in class.

CONCLUSION

The history curriculum reform emerged as an ambitious initiative to resolve the issue of poor quality in history teaching in Mainland China. It stresses the new structure of compiling "three-dimensional teaching goals" and employing a diversity of teaching methods as a general principle in order to urge teachers to assume greater roles in the enhancement of the teaching activities. We can argue that the new high school history curriculum standard provides a certain degree of autonomy to teachers in teaching methods and activities. However, the sphere of authority with which teachers can select and plan their teaching approaches is not clear. In other words, general principles are provided in the new curriculum standard; however, no concrete guidelines and suggestions are given for teachers to take a further role and greater initiative in decision making regarding teaching methods and activities. Moreover, teachers who come from different educational background have various responses to the new structure of the high school textbooks. Young teachers are more easily able to accept the new curriculum, indicating that the training program for the new curriculum is not sufficient. Because the gap between the goals of the history curriculum reform and the reality of the school system is wide, it constrains the autonomy of teachers in the selection and planning of teaching content, methods, and materials. Therefore, the new high school history curriculum standard introduces limited progress with regard to the autonomy of teachers in curriculum planning. Considering the ambitious goals of the curriculum reform, however, this progress is insufficient.

NOTE

[1] Secondary schools in China are divided into "top" and "ordinary" schools. Designated key schools are schools distinguished from ordinary schools by their academic reputation that are generally located in the urban areas. The original purpose of such schools was to quicken the training of highly needed talent for China's modernization post-1950s; however, another purpose was to set up exemplary schools to improve teaching in all schools. This stratified structure gave key schools numerous privileges with regards to enrolling pupils with high scores and assigning high-quality teachers during 1980s and 1990s. Although MoEd implored educationalists to stop using the term "key schools" at the end of 1990s, for the top schools, accounting for 20% of secondary schools nationwide, were still maintained under the name of "demonstration schools" which were given more resources, enabled to provide higher standards of facilities, assigned better school buildings, and had better students. Meanwhile, the "ordinary schools" ere renamed as "characteristic schools" and continued to be confronted with the obvious differences on pupil achievements and the quality of teachers.

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20. THE USE OF NETWORK INSTRUCTION IN ENGLISH LANGUAGE LEARNING IN MAINLAND CHINA

INTRODUCTION

Cultivating the ability of college students to use English is an important part of college English instructional reformation in Mainland China, which is mainly reflected in their pragmatic English ability and social language skills. As a result, the focus should be set to the cultivation of the listening and speaking skills of college students so that they can effectively express themselves and make cross-cultural communication in English in their future education, work, and social interactions. The priority of English research in college is to explore a new instructional mode in an English context network platform and to enhance the ability of college students to learn independently and make cooperative communication to cultivate their practical ability to use English aided by technology (Department of Higher Education of the Ministry of Education of PRC, 2007).

LITERATURE REVIEW

Educators and instruction researchers have gradually focused on designing and developing a network learning environment that contributes more to training the practical ability of college students to use English. They have also focused on conducting effective network instructional activities in this network learning environment. College English is taught in three types of network instructional environments in Mainland China. The first type specializes in the English instructional platform. The Ministry of Education of the People's Republic of China (PRC) commissioned the Foreign Language Teaching And Researching Press and three other publishers to develop four network platforms, such as the New Horizon College English Platform (NHCE). Most Chinese mainland colleges and universities adopt one or two of the four network platforms to teach English. An outstanding feature of these platforms is that they support the teaching materials (Yu & Zhang, 2009). These materials are curriculum- and instruction-oriented and do not emphasize openness. The second type is the comprehensive network instructional management platform, such as Blackboard and Moodle. When teaching English in college, teachers use the platform to organize online instructional activities, such as online classroom

teaching, courseware uploads, assignments and evaluations, and online discussion by students (Wang, 2011). The content and interface of these platforms depend on each other Due to the constraints of traditional Web techniques on the network instructional environment. Therefore, these network instructional environments comparatively lack expansibility, flexibility, and interactivity. Moreover, their dynamic effect is not intense enough. They also fail to fully support more means of expression and communication within the network media, the interactive mode, and the presentation of dynamic scenarios, among others. The application of intelligent agent technology and real-time two-way verbal interaction is insufficient (Cheng & Hu, 2010). The third type is the college English network instructional environment specifically aimed at language training and communication. MyET, a network learning environment developed by AI technology Co., Ltd. in Taiwan, specializes in the training in listening and speaking English in college. MyET emphasizes language training, and its main feature is the use of the Automatic Speech Analysis System. This system analyzes the deficiencies in the spoken English of every learner according to the four aspects (i.e., pronunciation, intonation, fluency, and severity read) so that students can correct their mistakes through independent learning and efficiently improve their speaking and listening (Lin, 2012). Second Life and Facebook are frequently used in some non-English-speaking countries. A language learning community can be found in Second Life that advocates learning English through practice. Facebook is an online social network, and, thus, can provide English learners with an actual language communication environment and improve the motivation and learning performance of students (Doruer, Eyyam, & Menevi, 2011). Facebook is not yet used to teach English in Mainland China.

Harmer (2000), a British language education expert, notes that a successful language class has three elements: engage, study, and activate. In effective learning, the learner should be actively engaged in learning the language. In the process of online English instruction, the network platform only supports some aspects: uploading learning materials, reading materials for students, and finishing and submitting assignments. The network platform fails to use technologies that encourage the engagement of students in learning. Correspondingly, effective instruction hardly occurs, and cultivating the practical ability of college students to use English with the aid of technology becomes difficult. Huang (2007) considers that the five prerequisites for effective online teaching activities are as follows: a real problem as a starting point, study interest as motivation, commitment to learning as exterior behavior, critical thinking as implicit behavior, and teacher's guidance and feedback as external support. If we analyze the present technological environment platform used for college English network instruction in China Mainland as well as the current state of how students learn using this platform in terms of these prerequisites, we find that they can hardly be met and learning does not actually take place within the network environment. Even if learning does occur, it is not in depth. The function of the network platform as it is applied to teaching English in college in Mainland China is complete and thorough. However, users feel dissatisfied with

its lack of interaction, feedback, and personalized design, which are its obvious defects (Yu & Zhang, 2009). According to Hatch (1978), "A second language is best learned in a communicative context, which means that learners will learn to use the language more or less fluently and accurately if they are just exposed to the language and given the opportunity to use it in meaningful contexts." According to the theory of interaction hypotheses, conversation is not only a tool to practice a language but also a way to learn a language (Long & Porter, 1985). In his "Teaching by Principles: An Interactive Approach to Language Pedagogy," Brown (2001), a linguist, notes that interaction is the actual core and real meaning of communication. The best way to learn communication is through communication itself. According to Gilbert and Moore (1998), interaction is the two-way interactive communication between two or more individuals within the learning environment with the purpose of completing the learning task or setting up a relationship. According to Chen (2004), interaction in distance education has three forms: operation, information, and concept. Operation interactive refers to the interaction between learners and the media interface; information interaction refers to student–resource, student–student, and teacher–student interaction; concept interaction refers to the interaction between old and new concepts in the minds of students.

Huang (2007) and many other scholars point out that interaction is central to effective online learning. Having real-time, two-way verbal interaction with real communicators is the sufficient and necessary condition for language learners to form and master listening and speaking skills (He, 2005). In the study of the college English network environment and instructional mode, student–student interaction is becoming a new research orientation for developing the English practical ability of students through the promotion of online two-way interaction and communication between students and teachers (Jia, Sun & Wang, 2005). To cultivate the practical ability of college students to use English, the design, development, and application of the network environment are required to fully support interaction and communication in English. Students can only exert subjectivity in the instructional activities guided and organized by teachers as well as mobilize their initiatives and enthusiasm through this approach. The network instruction process should be composed of the student–student and teacher–student communicative and interactive processes. Through these processes, students will be able to truly master the use of English and enhance their practical ability. However, previous research and practice are not yet intensive.

RESEARCH QUESTIONS

In the literature review, some problems that need to be solved concerning the current commonly used web-based English teaching platforms have been pointed out. The questionnaire survey and follow-up qualitative interview methods are adopted in this paper to answer the following research questions:

1. What are the perceived pros and cons of students regarding the web-based English teaching platform in our study?

2. What are the factors that affect the motivation of students when using the web-based English teaching platform?
3. What are the factors that affect the independent learning of students when using the web-based English teaching platform?
4. What are the relationships between listening, writing skill, and online interactive communication?

RESEARCH METHODOLOGY

To obtain a better understanding of the web-based English teaching platform, the research team of this study designed a web-based English teaching system adapted from the NHCE system designed by the Department of Higher Education of the Ministry of Education of the PRC. The target group is the students of different classes from the College of Law, College of Liberal Arts, and Normal College admitted in Shenzhen University in 2010. We adopted the purposive sampling method because these students have online learning experience and one of our research team members teaches the selected students College English. A total of 225 questionnaires were handed out, and 194 valid ones were received. The target group had experience in web-based audio-visual learning in the NHCE network. Many factors influence the cultivation of the practical English skills of college students through web-based teaching. Based on the previous analysis of the related literature, the questionnaire focused on the communicative mode, the interactive system, the learning resources, the autonomous learning in the NHCE web-based teaching system, and the source of the motivation of students to study.

The first research question is the premise of the second research question. We explored the first research question in the questionnaire for reference and as a basis for designing and exploiting the rich interactive network learning environment for teaching English in college. The problems, which could not be solved through questionnaire research, were investigated and analyzed further through the interview method. The questionnaire was not designed in the form of scales to fulfill the needs of software design and development. We explored the fourth research question through the case study method to study the relationship of listening and writing skills with interactive communication in the instructional process.

RESULTS

Pros and Cons of the Current Web-based English Teaching Platform According to the Perception of Students

Investigation on the communicative mode in NHCE. The result shows that 27.6% of students chose man–machine dialogue, 2.6% chose teacher–student discussion, 2.1% chose team learning, 54.7% chose role play, and 13.0% chose speech recognition. Most students chose role play as a good communicative mode, indicating that role playing is a useful and effective activity for developing the skills of students in applying English.

However, only 2.1% of the students chose group study. Some scholars consider that web-based discussions encourage more students and promote their participation compared with traditional face-to-face discussion. Moreover, students can use more extensive vocabulary and more sentence patterns in web-based discussions, which can obviously enrich their knowledge and comprehension skill (Wang, 2011).

This study found that team learning is the most unpopular method for students mainly because the NHCE web-based teaching platform is closed. Therefore, the content does not vary and the mode is fixed. NHCE lacks "cooperation" and "conversation" elements advocated by constructivism theory. Team learning also goes against language training, which makes students consider it as dull and boring.

Investigation on the interactive communicative system in the NHCE web-based teaching platform.   When applying NHCE, the function of its interactive communicative system is limited. For example, the record storage is too small when using the discussion function. Previous records need to be deleted frequently to make space for new discussions. In group learning activities, because teachers can only read the discussion records instead of supervise the group discussion process, providing real-time help and timely feedback is inconvenient for teachers. Moreover, the learning activity interface is not user friendly. In group learning activities, the subject of the activity, member list, materials, and discussion box are not displayed on one page. Therefore, joining activities is inconvenient for students, and it gradually reduces their learning interests. Based on the interview, students would like to have both videos and communication box in one interface as well as to have conversations on the video materials.

Investigation on the learning resources in the NHCE web-based teaching platform.   According to the results of the questionnaire, 55.9% of the students considered that the NHCE platform does not provide many appropriate listening resources, and 5% considered the provided listening resources to be very few. Most students (66.7%) could not communicate in English because of the different forms, different accents, and different situations in the existing platform. Regarding the kind of aural resources that are helpful, students who chose English films and TV programs accounted for more than half (57.9%), followed by the Voice of America and British Broadcasting Corporation stations and English songs, accounting for 18.2% and 22.8%, respectively. Regarding resources from the Internet, hot social topics and entertainment news topped the list, accounting for 52.4% and 20.3%, respectively, followed by business English (11.2%) and CET4 and CET6 (16.1%).

About 95.1% of students were willing to upload good resources if a shared platform was available, and 97.1% considered the process of collecting and organizing resources a process that could also promote their own learning. Moreover, 93.1% of students considered that if the learning platform adopted their resources, they would feel that they had succeeded. This finding shows that most of the students were willing to cooperate and share. Cooperation can also promote active learning and positive exploration. However, the NHCE platform lacks such collaborative

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platform. About 96.9% of students would like to welcome members outside the class to participate in the study discussion as spectators, as diversity in the source of members could bring new ideas and a dynamic atmosphere. This result shows that students have a very open and tolerant mentality. This mentally can be used to create a web-based learning environment with more intensity and multiple thoughts.

Factors Affecting the Motivation of Students to Use the Web-based English Teaching Platform

The survey shows that 41.16% of students were motivated by assignments and academic performance, 47.06% by the need for self-improvement, 7.84% by the influence of their peers, and 3.92% by the supervision and attention of the teacher. At the beginning of the teaching process, students are satisfied with the NHCE platform. However, it gradually becomes boring. We probed into this problem and found that this boredom was a result of students not being acquainted with independent learning and of the immaturity of their collaborative learning habits and abilities in the network. When teachers organize activities in the NHCE platform, they give less specific recommendations about how to read the materials intensively, how to search for information, and how to watch and listen to the network. Moreover, teachers do not give their full attention to the use of interactive strategies during teacher–student interactions, do not fully mobilize the students enthusiasm to participate, and do not evaluate the interactive feedback of students in a timely manner. Teachers also cannot give timely feedback because they cannot control the interaction between students, the time to teach is limited, and so on. The companion research indicates that the lack of design for encouraging student motivation in the system is also an important reason why students do not continue with their network learning (Yu & Zhang, 2009).

Factors Affecting the Independent Learning of Students on the Web-based English Teaching Platform

In the instructional process of network audio-visual lessons, students usually engage in activities irrelevant to learning English, such as watching Chinese movies, talking in Chinese, or playing games, as a result of their poor self-control. Therefore, most students lack the cognitive essential strategies for independent learning. They only accomplish the listening practice while neglecting speaking after listening. Moreover, they like to watch video clips but do not intend to role play or make comments. To some extent, this course is in the tradition of the listening class, in which independent learning is self-learning without communicating with others. As a result, learning efficiency is low, and less than half of the students indicate that they can effectively use internet time and network resources to learn.

The disadvantage of independent learning is that it easily causes loneliness, and getting help when one is stuck on a problem is not easy. The effectiveness of independent learning depends on the readability of the study materials and whether

the study contents can be associated with the background knowledge of the students. Individual learning interest also plays a crucial role (Huang, 2010). Based on our interviews, students were not satisfied with the resources and the design of the independent learning mode in the existing viewing, listening, and speaking network platform. The platform is similar to the online edition of the textbook. Students were bored because of the mode's lack of timeliness and the gradually deepening difficulty. According to most students, various online course contents, especially those that are closely connected with their interest and background knowledge, should be adopted into the independent learning center and be changed regularly.

According to Harmer (1991), teachers should also remember to use instructional activities appropriate only for audio-visual materials aside from the common listening tasks or practices, such silent viewing, in which students only perceive pictures but no sound. After watching, students must indicate what the characters in the video clip were talking about. The video clip should then be replayed with the sound so students can check if they are correct. Another example is when a shot is freeze-framed and the students are required to predict the plot or what the characters will say.

The instructional guidance of teachers and their organization according to various teaching modes is essential in the formation and improvement of the independent learning ability of students at least at the early stage of their network learning. For example, regarding listening ability, Wang and Miao (2003) argue that in pre-listening activities, teachers can ask students to read materials related to listening practices, to predict the content of listening materials, and to organize students to do vocabulary and grammar exercises, among others. All activities are aimed at guiding the attention of students and activating their schematic knowledge. Teachers can ask students to take notes as they listen to develop their ability to note down main points. After listening, teachers can organize students to carry out appropriate vocabulary and grammar exercises or other activities, such as role playing and writing, to enhance their listening comprehension. Johnson (1999) points out that listening, speaking, reading, and writing activities usually coexist with everyday verbal communication. Consequently, teachers should combine the cultivation of listening ability with other abilities during listening instruction. Combining them can improve students' comprehensive skills to use English on the basis of cultivating listening ability.

Relationships between Listening, Writing Skill, and Interactive Communication

We built our own web-based English learning platform systematically based on the research findings of the three research questions on the perception of students on the current NHCE platform. The fourth research question was answered after adopting the new system.

Systemic design of a college English rich interactive network learning environment.   The design is pragmatically oriented to create a network teaching system by starting from the realities of teaching, analyzing the current situation in the

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existing teaching system, finding the problems and their roots, and working to improve the teaching system to solve the practical problems of teaching (Yang & Li, 2001).

Problems found in the questionnaire and interviews cover the following four aspects:

The system of language learning resources is not open and updated in a timely manner. It also does not fully consider the interest of college students to learn English.

Language communication and context are not combined well and no specific language context is present.

Support for a variety of lively and exciting autonomous learning and cooperative learning modes is lacking.

The traditional network platform fails to continuously use the motivation principle to stimulate and maintain the interest of students in online learning.

To solve these problems, this study designed and developed a rich interactive network learning environment for teaching English in college to cultivate the practical ability of college students. We conducted case studies and empirical research on the network instructional process based on these problems.

Figure 1 illustrates the instructional system design model of the rich interactive network for teaching English in college. In this system, the learners are the learning subjects. According to the teaching requirements, the learners should expand the theme situation for communication in English and enrich the learning resources and communicative strategies under the guidance of their teachers. In this system, agent technology is used to organize the communicative teaching strategy scaffolding and redeploy related teaching resources. Rich interactive technology is used to attract learners to participate in learning. Teachers serve as guides in verbal communication and correct the mistakes of students. A variety of reusable and different levels of learning situational patterns, which help to train students' language ability, are available. Information management technology is used to record both verbal practices and text information so that students can replay recordings and analyze their own speech problems. Some emotional communication skills learned from QQ Software, such as animated facial expressions and virtual gifts, are used to maintain the motivation of the learners. The learners can achieve communication-driven English learning using the rich interactive mean. They can also eventually complete the multi-model composition multimedia interactive web pages of every team. Through various solutions, this system can solve the problems of the traditional network platform, such as the lack of condensation in verbal communication, interactive means, openness, expansion of communicative scenarios, communicative intention, and perfection of online incentive mechanisms.

Process of adopting the new web-based English teaching system. The students of two undergraduate college English classes were selected as the study subjects. Their
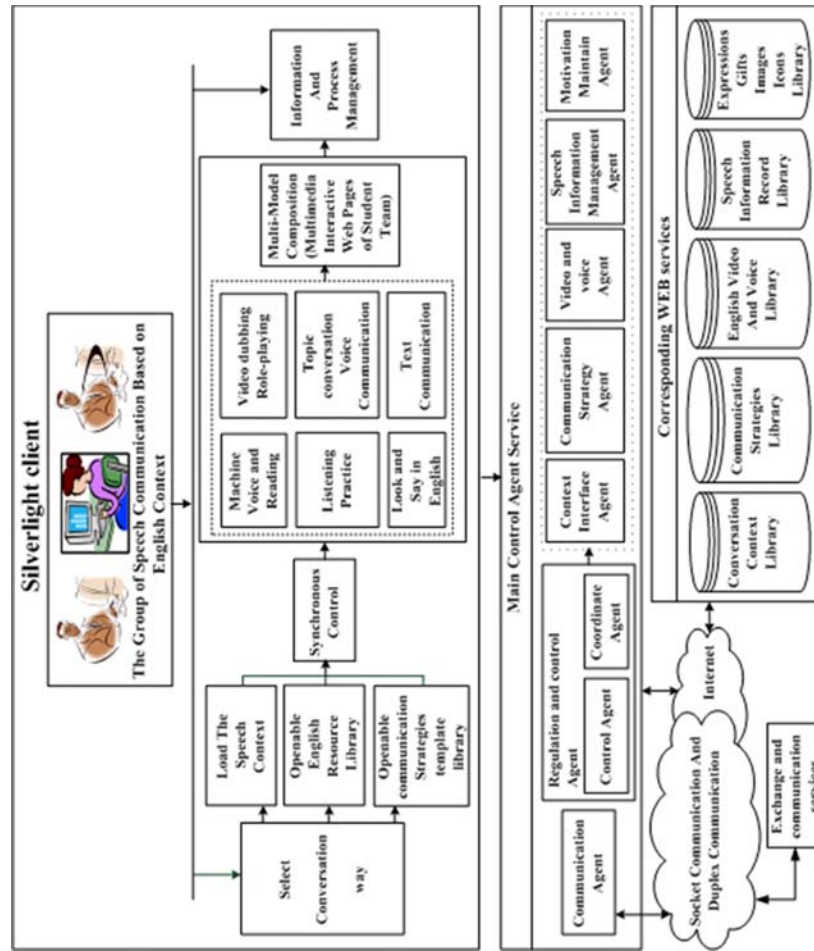
Figure 1. Instructional system design model of rich interactive network for college English.

English test scores were close in both the 2011 College Entrance Examination and the 2011 Shenzhen University College English Placement Test. These students were selected as the experimental class and the control class, respectively. The variables that affect teaching remained the same, except for the college English network teaching environment and the teaching method.

Previous studies show that, during online teaching, majority of teachers do not pay attention to the use of interactive strategies in teacher–student interaction and cannot fully mobilize the enthusiasm of students to learn English. These studies also indicate that giving evaluations on the interaction and feedback as well as taking control over the interactive activities of students are difficult for teachers (Shu, Zhang & Zhao, 2004). In the network instruction aimed at cultivating the practical ability of college students to use English, its instructional network platform should be multifunctional. It should provide all kinds of learning materials and also carefully design, organize, and direct learning activities so that learners could communicate with their teachers in a timely manner and cooperate with other learners to carry out collaborative learning. We conducted an experimental study using the initially developed college English rich interactive network learning environment and NHCE network teaching system.

The experimental class used the main function of the network teaching platform through a number of similar cases, which combine the scenario resources with teacher–student verbal communication and apply the discussion teaching method to promote the practical ability of students in English. The following is an example of an online teaching process case.

We selected a video teaching program that students would enjoy: the first episode of Harvard University's Open Course "Justice: What's The Right Thing To Do." The episode had two sections: "The Moral Side of Murder" and "A Case of Cannibalism." In this lesson, teachers used the group discussion method to guide students in thinking critically about the problems of fairness and justice. The classroom atmosphere was warm. To meet the listening level of the students, four stories about fairness and justice were edited into four cases, with each story fitting a corresponding case. The same story was represented three times in one case. To maintain the enthusiasm of the students and prevent affecting the teaching method, we edited the video clips so that each story lasted 3 to 5 minutes and each case lasted less than 15 minutes. Each case was a story presented in three different ways. First, the story was played without subtitles. Then, it was played with English subtitles. Finally, the story was presented with both Chinese and English subtitles. Thus, the students initially listened extensively and then gradually ended up listening intensively.

We displayed the video clip and the group discussion box on the same interface. The learning activities were group discussion and class discussion. Before the discussion, the students were required to do some exercises to deepen their understanding of the video. According to the requirements of the different listening stages, we designed questions that corresponded to the listening level of the students and to each case to help the students in examining and understanding the listening content. For example, when students listened for the first time, they were required

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to fill in the blanks with words or phrases to complete the sentences, which helped them predict what could happen in the clip with comparatively easy questions. When the students listened for the second time, they were asked to answer short questions related to the clip, key problems from the teacher, or even from their classmates. The students were also asked to summarize the story. After listening for the third time, students fully understood the entire story, and they had a discussion in English within their own group or in the class forum. All students were required to post their questions, opinions, or answers to the questions of other students on the screen. The content and form of the discussions varied significantly. For the first three classroom instructions, students were required to discuss the question given by the teacher. The students were guided step-by-step on how to put up their own topics and conduct discussions on these topics.

When the learners complete the initial construction of knowledge, they can discuss the questions posted by the teacher with other group members. They can discuss, negotiate, and form meaning through teacher–student and student–student exchanges. Learners can deepen their understanding of the listening material as well as enhance their English writing skills. The discussion questions for the three cases are as follows:

If you were the driver, what would you do? Why?

What do you think about the differences between the two? (i.e., to turn the trolley car back to the sidetrack or to push the fat man onto the track)

A doctor has to remove five organs from a healthy person. One person has to die to save the lives of five people. Do you agree with this practice? Why?

Students can freely discuss the topics without limitation, but the discussion must be based on the video clip they watched (e.g., details of the clip). Therefore, students not only deepen their understanding of the audio-visual materials but also do some in-depth thinking by discussing and exchanging ideas. Students must participate in the group discussion within their own groups. At the same time, students can take part in the discussion of other groups by asking questions or answering questions that interest them. During the discussion process, teachers require and guide students to communicate with others using new words and phrases. Teachers also encourage them to use clauses and complex sentence patterns. Moreover, they lead the students to post and discuss their own topics rather so the discussion topic will not be confined to that proposed by the teachers. In the discussion and exchange process, teachers and students should point out the improper diction and other errors in the texts. Students are also encouraged to correct these errors themselves and to go outside their group and communicate more often with other students. Students must first respond to the questions of their teachers by stating their opinion and explaining the reason why they chose that particular action. Then, they must reply to the views of other members, such as by expressing their approval or disapproval, giving supplementary information or opposing information, and so on. Students can even ask another member to clarify

that student's answer. When evaluating the views of other members, students cannot simply post "Yes, I agree with you" or "No, I don't agree with you." They must explain why. Finally, during the whole discussion, teachers must be truly involved, participating and giving timely responses to the answers of students. Teachers can give one answer to the same questions posted by students or give specific answers to different questions individually. To stimulate and maintain the motivation of students to learn in the network during the communication process, the requirements of the motivation model by Keller (1987) must be met in such aspects as the selection of learning resources, interaction, and feedback in the instructional process. Therefore, students will be interested in communication (Attention), which enables them to build their confidence (Confidence), have a sense of accomplishment (Satisfaction), and find what they have learned useful (Relevance).

Relationships between listening, writing skill, and interactive communication. Listening and writing reflect the practical ability of a college student to use English. Thus, we analyzed the effect of the experiment from the two aspects and explored the relationship between interaction and the ability of students to listen and write in English.

1. *Analysis of the effect of the experiment in listening and writing.* The questions on the listening and writing exam were taken from the Chinese College English Test Band 4. We also followed its evaluation criterion. Based on the independent sample t-test, the listening level of the experimental classes and control classes in the pre-test did not show a significant difference (0.453>0.05). The writing level in the pre-test did not show a significant difference (0.884>0.05) as well. The listening level indicated in the post-test and pre-test showed a significant difference (0.001<0.05) both in the experimental class and the control class; a significant difference was also found in the writing level (0.000<0.01). Table 1 shows the results.

   The instructional experiment lasted for one semester. The listening and writing skills of students can also be improved without using the new network learning environment and instructional methods. To determine the effect the new network learning environment and new instructional methods could exert on the English learning of students, we conducted a pre-test and post-test on the experimental class and control class. Based on the paired samples t-test, a significant difference in listening before and after the experiment was observed, with Sig. (2-tailed) at 0.000, which indicates a significant difference at the 0.01 level. Results were similar with those of the control class. However, the mean for listening in the experimental class (4.4) greatly exceeded the mean in the control class (1.36). The difference in writing in the experimental class (Sig.=0.00<0.01) was significant at the 0.01 level and thus was statistically significant, whereas the difference in the control class (0.01<Sig.=0.03<0.05) was not as significant as that in the experimental class. The analysis results are shown in Table 2. Listening in pre-test1 and in post-test1 and writing in pre-test1 post-test1 refer to the test results in the experimental class.

Table 1. Listening and writing in pre-test and post

Independent Samples Test

Statistics		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
Dependent variables		F	Sig.	t	df	Sig. (2 tailed)	Mean Difference	Std. Error Difference	Lower	Upper
listening in pre-test	Equal variances assumed	.004	.948	.754	110	.453	.47337	.62811	−.77139	1.71813
	Equal variances not assumed			.754	109.974	.453	.47337	.62787	−.77093	1.71766
listening in post-test	Equal variances assumed	15.619	.000	3.588	110	.000	1.95470	.54481	.87502	3.03439
	Equal variances not assumed			3.558	87.832	.001	1.95470	.54945	.86277	3.04664
writing in pre-test	Equal variances assumed	1.266	.263	.146	110	.884	.06667	.45515	−.83534	.96868
	Equal variances not assumed			.147	108.562	.884	.06667	.45392	−.83303	.96636
writing in post-test	Equal variances assumed	.568	.453	8.703	110	.000	2.74290	.31516	2.11833	3.36748
	Equal variances not assumed			8.732	107.627	.000	2.74290	.31412	2.12024	3.36556

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Table 2. Listening and writing in pre-test and post-test of both experimental classes and control classes

| | | Paired Differences | | | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | |
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	listening in pre-test 1 listening in post-test 1	−4.44231	3.01898	.41866	−5.28280	−3.60812	−10.611	51	.000
Pair 2	writing in pre-test 1 writing in post-test 1	−3.59615	2.55343	.35410	−4.30703	−2.88528	−10.156	51	.000
Pair 3	listening in pre-test 2 listening in post-test 2	−1.36538	2.29260	.31793	−2.00365	−.72712	−4.295	51	.000
Pair 4	writing in pre-test 2 writing in post-test 2	−.73077	1.65820	.22995	−1.19241	−.26912	−3.178	51	.003

Table 3. The average scores of listening and writing in experimental classes and control classes

	Words, phrases	*p*	*sentences*	*p*
Experimental classes	4.68/6.18/8.05/8.75/9.51	0.005	3.68/5.18/6.57/7.91/8.30	0.047
Control classes	4.68/5.68/6.68/7.68/8.06	0.109	3.77/4.20/4.93/5.65/6.50	0.706
The average score in Experimental classes	7.434		6.328	
The average score in Control classes	6.556		5.01	

The results show that the listening and writing ability of students improved, especially their ability to write in English.

We set the listening exercises related to the English videos in the web environment with similar objectives to accomplish. In every discussion class, students have to finish the exercises assigned by their teachers, such as filling the blanks with words, phrases, and sentences, before they start the discussion. Word and phrase exercises are used to check the core vocabulary and grammar of students (e.g., numbers, tenses, active and passive voices, subjunctive mood and collocations, etc.). Words to be filled in the blanks are the key to conversations, that is, how much the students understand the conversations. To further illustrate the progress of students in listening and writing, we applied the t-test to listening, writing, and exercises. The results are shown in Table 3.

The results of the paired samples t-tests show that the scores of students in the experimental classes improved gradually in tests about words and phrases (e.g., key vocabulary, passive voice, verb phrases, collocations, etc.) at $p = 0.005 < 0.01$, which indicates a significant difference. The scores of students in the control class who took the same tests also showed progress, although the difference was small ($p = 0.109 > 0.05$). The average scores on words and phrases of students in the experimental class were higher than those of students in the control class (7.434 > 6.556).

The results of the paired samples t-test show that the accuracy of students in the experimental class in understanding key sentences improved, with significant difference of $p < 0.05$. Accuracy in the control class also improved but with a non-significant difference of $p > 0.05$. The average scores on words and phrases of students in the experiment class were higher than those of students in the control class (6.328 > 5.012).

2. *Relationship between interaction and the ability to listen, converse, and write in English*. The validated posts can show the extent of communication and interaction in the network instructional system. Regression analysis was used in this study, with the validated posts as the independent variables and the listening and writing scores as the dependent variables. The results are shown in Tables 4 and 5.

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Table 4. The analysis of the students' interaction level (with listening as dependent variable)

Coefficients[a]								
	Unstandardized Coefficients		Standardized Coefficients			Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1 (Constant)	8.904	.663		13.436	.000			
Total Speech	.130	.021	.631	6.247	.000	.631	.631	.631

Table 5. The analysis of the students' interaction level (with writing as dependent variable)

Coefficients[a]								
	Unstandardized Coefficients		Standardized Coefficients			Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1 (Constant)	8.986	.392		22.906	.000			
Total Speech	.124	.012	.798	10.090	.000	.798	.798	.798

As shown in Tables 4 and 5, a significant correlation (Sig.=0.00<0.01) exists between the number of speeches made by students and their listening and writing scores. The larger the number of speeches made by students, the better their listening and writing scores are. In other words, reinforcing communication and interaction among students can result in improving their ability to listen, converse, and write.

To better illustrate the relation between the interactions and the improvement in the ability to listen, converse, and write, we analyzed the test data further. We conducted correlation analysis on the number of posts and replies made by students (as independent variables) and their listening and writing scores (as dependent variables). The analysis results in Tables 6 and 7 show that a correlation exists between the number of posts and the listening and writing scores (Sig. < 0.05). However, differences were noted. The correlation between the number of posts and listening is 0.004 and that of the number of replies and listening is 0.035 <0.05. The post-writing correlation and reply-writing correlation are 0.00 and 0.00 < 0.01), respectively. These findings indicate that both posts and replies significantly affect the listening and writing abilities of students, especially writing. The enhancement of interaction among students can improve their ability to listen, converse, and write in English, with the most significant improvement seen in writing.

According to the study, the number of posts and replies affects the extent to which the students interact: the more posts and replies, the better the interactions are. Moreover, enhancing interactions between learners drives the advancement in the ability to listen, converse, and write well in English. Enhancing the interactions promoted writing than listening. The interviews reveal that some students did not strictly follow the play order and started with the subtitled versions instead.

Table 6. The analysis of students' posts and replies (with listening as dependent variable)

| | | | | | | Coefficients[a] | | |
| | Unstandardized Coefficients | | Standardized Coefficients | | | Correlations | | |
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1 (Constant)	8.668	.732		11.839	.000			
Post	.170	.057	.405	3.008	.004	.597	.367	.305
Reply	.098	.046	.291	2.164	.035	.558	.273	.219

Table 7. The analysis of students' posts and replies (with writing as dependent variable)

| | | | | | | Coefficients[a] | | |
| | Unstandardized Coefficients | | Standardized Coefficients | | | Correlations | | |
Model	B	Std. Error	Beta	t	Sig	Zero-order	Partial	Part
1 (Constant)	8.846	.432		20.473	.000			
Post	.148	.034	.468	4.419	.000	.739	.505	.351
Reply	.105	.027	.410	3.876	.000	.720	.457	.308

DISCUSSION

We adopted a new network teaching environment and teaching method according to the preliminary investigation results, combining verbal communication with scenario resources and communicating according to the scenario. We used the Harvard University's Open Course in our study as an example. The course combines audio and video with innovative content. The teacher is a native speaker who speaks perfect English at moderate speed. These features satisfy the requirements of Zone of Proximal Development Theory. The course also uses network interaction to its advantage and supports a variety of lively self-learning and collaborative learning modes. Moreover, the motivation principle is continuously used to stimulate and maintain the interest of students in online learning, and intervention is enhanced in the teaching process. The increase in quantity and the improvement in communication quality within the new network environment are the key factors in promoting the practical ability of students to use English in the experimental class. Analyzing teacher–student and student–student communication using social network analysis confirmed this finding. By analyzing sociogram centrality and groupuscule, we found that students in the experimental class made corresponding contact with each other in replying to, supplementing, and commenting on the topic posts. All group members shared a variety of information and viewpoints. Their training in understanding language and expression was given more depth. Students in the experimental class were divided into 10 groups with 5 to 7 individuals in

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each group. This setup helped the students in each group learn from each other. The teacher and some students served as the central node in the discussion and as information intermediaries in every group. They also had the ability to control the flow of information within their groups. They continually created new language scenarios and made better use of network resources and interaction to promote communication and practice in English.

We conducted an empirical study of online teaching activities in the rich interactive network teaching and learning environment. We used the experimental method to analyze the experimental results of the English practical ability of college students and explored the relationship between interactive communication and the level of their English listening and writing in this platform. The study showed that the design of the network instruction is central to the function of the college English network instructional environment and to improving the practical ability of students to use English. In the design of instructional activities, rich-media technology should be used to reproduce the speech scenarios faithfully with sound, videos, and subtitles, among others, integrated in a systematic way. Moreover, rich interactive technology should be used rationally in designing instructional activities to support group discussions, debates, role-play, picture description, story retelling, and other activities so that the interest of the students is developed and their enthusiasm for learning is evoked. Knowledge of vocabulary and grammar should also be integrated into the online instructional activities. This study shows that the central figures play an important role in promoting verbal communication and collaboration. Teachers who are in the core position join the online learning group with different identities to guide students in the discussions and promote the formation and development of communicative groups, with the goal of cultivating the practical ability of college students to use English. Teachers also apply their English knowledge to support learners in thinking critically to promote the practical ability of college students to a higher level. Students who are learning English skills and play active roles within and across learning groups can also serve as central figures in the rich interactive network learning environment. They mutually benefit in the interactional process between teachers and students, and assist in the learning process. Teachers should take measures to develop learners with the characteristics of a central figure to promote their skills in organizing network learning, to encourage the whole teacher–student interaction, and to further improve their practical ability to use English.

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21. A PARTICIPATORY APPROACH TO TEACHING CHINESE LANGUAGE IN MAINLAND CHINA*

INTRODUCTION

In 2000 we went to Cambridge and Hong Kong Universities to participate in the educational training meant for the learner-centered participatory activity approach. When we returned to China, we developed two teaching materials, namely, the *Teaching Strategy of Middle School Chinese* and *Teaching Strategy of Middle School Chinese New Curriculum.* More than 12,000 Chinese middle school teachers in Gansu Province joined the training successfully, which was provided for free. Meanwhile, we have also developed some expansive teaching materials, such as the *Teachers' Training Course on Participatory Middle School Chinese* and *Learning Activities Design on Participatory Chinese* and *Participatory Teaching Activity Design,* which were praised by front-line teachers. These teaching materials were developed to realize the ultimate goal of the project, i.e., to ensure that more children can finish the elementary and middle school courses, thereby reducing the unfair educational phenomena. We began by changing the teachers' educational concepts, improving their teaching competencies, learning the "child-centered participatory activity method" from England, combining the requirements of the widely practiced quality-oriented education, and compiling the appropriate training materials for elementary and secondary school teachers' further education.

A new reform of the basic education curriculum also began. The Ministry of Education set up 16 research centers of the Elementary Education Curriculum in 16 normal universities throughout China, after which The Research Center of Elementary Education Curriculum of the MOE in Northwest Normal University was established. When we went to the new curriculum experimental area in the northwest provinces, we found that the administrators and the front-line teachers had concerns regarding the effects of the new curriculum on the quality of the primary and secondary school classroom. They thought that the study method of encouraging students to collaborate and explore the lessons interactively would have a bad impact on classroom discipline and reduce students' learning efficiency. The teachers also thought that this might

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even affect the students' performance in the college entrance examination, thereby delaying the start of their careers. We understood this apprehension and knew that any new explanation may not reduce their anxiety. Despite this, we stand firm in the belief that only through the participatory teaching practice and the improvement of classroom teaching quality can the children enjoy success within a democratic learning environment. Nevertheless, we also knew that the teachers' anxieties can be eliminated by constantly improving the quality of education. Their anxieties were directed to the performance of students in high school and college entrance exams, a problem that should be acknowledged and resolved. We believe that the key here is to determine the kind of educational concept, teaching method, and learning connotation that should be implemented. Although theorists always criticize the ways high school and college entrance exams are being implemented, they do not propose any solution. The front-line teachers have the perception that changing the classroom into a boring and stress-stimulating platform cannot improve the students' test score nor help establish ideal efficiency. In this case, it would be wiser to directly carry out the participatory teaching practical research in the senior or junior year in high school and allow the results from the Chinese classroom activities and the college entrance performance to be the most persuasive arguments for our case.

The theoretical significance of participatory learning can be summarized as "awakening" the subject consciousness of the learners in equal participation, by using the professional knowledge in the cultural situation and by enhancing one's creativity through social dialogue. The concept of equal participation is the prerequisite for awakening the subject consciousness of the learners. We can say that subjectivity is not possible without equality, and if the learning process lacked the motivation of involvement, the learning result would not be as meaningful.

In the traditional educational environment of "teach-take in," the authority of teacher and knowledge tangibly and intangibly constrains the subject consciousness of learners, encouraging obedience to authority or intentional/unintentional submission to one's environment. If the learner is aware of the initiative power of the self, he would struggle for equality and strive to stand out from the crowd, rather than just follow it. Thus, the equality of education is the major premise of participatory learning; specifically, the learning objectives, content, activity, method, and evaluation should contribute to the holistic development of every student.

Meanwhile, the culture scene is the healthy soil upon which learners in participatory learning grow and develop. From the standpoint of the school, the so-called "culture scene" comprises the professional knowledge problem, professional skill acquisition, professional method usage, and professional belief civilization "scenes". Participatory learning must be efficient with such a culture scene and promote the initiative development of the learners. This means that if we are away from the professional knowledge scene and only keen on using the so-called scene to deceive the learners (e.g., virtue education scene, the life theme scene, and career planning scene), the result would do harm to the young generation and even delay the development of our country's long-range educational programs.

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Next, social dialogue is the necessary condition for unearthing one's creative characteristic, because one's creativity is critiqued and developed in the social and culture environment. The learners can find the opportunity and value of creation only through social dialogue, through which they can promote themselves, discuss, practice, and struggle to realize the social worth of their creation. In the process of finding the opportunity to converse with society and strengthen the wisdom of conversation with a companion, the creative character would be identified, thus making it an ideal stage of the participatory learning.

The State Council has published the "National Medium and Long-Term Educational Reform and Development Program" in 2010 and pointed out that "the innovative talent training mode should emphasize the combination of studying and thinking; advocate heuristic, inquiring, interactive and participatory teaching; help students learn how to learn; stimulate their curiosity; develop their hobbies; and build a good environment characterized by independent thinking, free inquiry, and innovation." This is a milestone in the educational sector because it marked the first time a national program mentioned "participatory teaching" in a government document. Thus, the National Government approves the use of participatory teaching method, thereby underscoring the significance of our research subject.

It is important to note that participatory learning is actually a kind of "dialogue." The experts of the Western constructive postmodernism curriculum think that language is not a tool but "an existing home," and such existence has been reflected in the text. Thus, the text and language own the position of ontology, that is, to analyze and explain the text to achieve ontology through methodology. Comprehending the text is a kind of plan or a new way of living. The diversity of methodology and the pluralism of ontology show that existence has infinite richness, and the the literary language creates a world that integrates the subjective and objective. Our ancient scriptures, such as *The Analects of Confucius, LiJi and MoZi,* have made a descriptive record of the teaching process of dialog, which is considered participatory. Thus, using participatory learning directs the Chinese classroom teaching toward a more "meaningful dialog," which integrates Western advanced educational theory with Chinese cultural tradition. Hence, performing a participatory teaching activity in a Chinese high school classroom does not only have a theoretical value and realistic significance, but also implies the merging of Western and Chinese cultures.

OVERVIEW OF THE RESEARCH

Participatory teaching in high school classrooms is a relatively new concept. Thus, we should value the collection of good teaching cases we have accumulated for a decade. We also published books for the teachers' training related to a Chinese/British project, *New Curriculum Teaching Strategies of Secondary Chinese*, in 2005. We also compiled *The Teaching Reference Books for Education Master in Normal University ·the Excellent Teaching Cases of Chinese Teaching and Research,* which

has earned the praises of the Higher Authorities Assessment team. *The Chinese Curriculum and Teaching Methodology in Post-modern Cultural Perspective* was published in 2006. The book has 20 participatory teaching cases from high school classrooms, thus providing valuable and fresh references for most teachers. Among our works, the Chinese *Curriculum and Teaching Design* and *The Psychology of Learning Chinese* are the latest ones to be published. In these two books, we collected numerous Chinese participatory teaching cases from the front-line high school classrooms, with the goal of playing out the dual function of summarizing the experience and demonstration.

Present and Practical Thoughts Regarding the Topic

Since the autumn of SY 2001 to 2002, we carried out the participatory teaching practical research work in high school classrooms. The first stage of the research showed that the participatory learning activities changed the way of learning followed in a Chinese high school classroom, raised students' cognitive and emotional level, as well as promoted the professional development of the Chinese teachers. Moreover, the students' performance in the college entrance examinations in the past few years has eliminated apprehensions regarding the supposed declining quality of teaching, paving the way for the further development of the new high school curriculum. After several years of practical teaching, we obtained the necessary research data, gathered some practical experiences, and strengthened our confidence in the project as we proceeded to the practical phase of the research. Hence, we applied for The Key Program of the Educational Science "Tenth Five-year" Plan in the autumn of 2009 when Gansu Province was about to begin the new course experimental teaching.

The Basic Concept

The participatory teaching approach combines the characteristics of procedure and contextual models. The program's goal is to facilitate the promotion of the harmonious development of students' individualities through equal participation and various learning activities. Learning in a group or class enables students to acquire knowledge by themselves and use such knowledge effectively. In addition, this kind of method develops the students' verbal, thinking and aesthetic appreciation abilities as well as their emotional aptitude. It also cultivates the kind of learning that promotes subjectivity, equality, exploratory, situational, and reflective.

Topic of the Practice Research

To accumulate some practice research experience before implementing the new experimental teaching program curriculum in Gansu Province, we continuously provided the frame of reference for teaching, which offered good service for the curriculum reform of Gansu Province. The research group chose some of the high

school classes in which to implement the project, including those from the Huiwen School in Lanzhou City, the High School Attached to Northwest Normal University, and the No. 1 Middle School in Pingchuan District, Baiyin, Gansu Province.

Basic Objective of the Practice Research

We argue that the participatory approach does not only change the learning mode in the classroom, it can also stimulate the students' subject consciousness and creative spirit. At the same time, it can improve teaching quality while also contributing to the improvement of the students' performance in the college entrance examination. Participatory learning can enable senior students to experience the fun of classroom teaching; at the same time, it can reduce resistance and eliminate stress experienced by the high school students while learning. Participatory learning can also cultivate the students' team spirit and cooperative behavior, and prevent feelings of loneliness and isolation among students. Finally, it can promote the development of the specialty of Chinese teachers.

The Characteristics of the Research Subject

One of the characteristics of the research subject is to take the lead and set an example of participatory learning. As mentioned earlier, the participatory learning approach was developed from the English/Chinese cooperation project in Gansu Province. At present, basic education has dramatically improved throughout China. The Chinese/English teacher training materials for basic education in Gansu that we have compiled, such as *The Teaching Strategies for Secondary School Chinese, The Activities Design of Participatory Chinese Learning, The Secondary School Teachers' Training Course of Chinese* and *The Primary School Teachers' Training Course of Chinese,* present the concept of participatory learning to the front-line teachers for the first time. We are confident that the new teaching concept and the flexible and procedural format of the series of textbooks listed above can provide fresh insights regarding this subject.

This research also aims to challenge the "forbidden zone." We performed the experimental research of participatory teaching in the third year of high school, which is known as the "forbidden zone" of China's educational reform. In China, whether in the educationally developed Eastern provinces or in the Western areas with less superior education quality, there is a heavy emphasis on the college entrance examination coming from the government, society, family and even the schools. The college entrance examination is widely regarded as the special target of education and is considered an indicator of school quality. Thus, the proposed reform faced great risk and challenge.

Our ten-year teaching experience (from 2000 to 2010) has enabled us to gather valuable experiences regarding the advancements in the new high school curriculum. Despite the current trend that emphasizes quick success and instant benefits, we

endured the stress and pressure irrespective of remuneration to spend ten years in practice, which is rare in China.

The Main Idea Behind the Project

The idea of the project is to clarify the participatory efficiency learning concept, from which we can draw up the secondary school classroom teaching experiment scheme. To sum up the teachers' training experiences in relation to the English/ Chinese cooperation project in Gansu Basic Education according to the popular phenomenon that formalizes "harassment," we proposed the concept of efficient learning that further examines professional knowledge connotation, the process of constructing thoughts, emotional experiences of success or setbacks, and generation of speech products. From these, we scientifically designed the experimental research for participatory teaching.

Start with a lofty goal but set out with a low profile. We chose the repeat class of the Huiwen School in Lanzhou City (with 100 arts students and 100 sciences students) for practical research. The students were under great mental pressure because of the upcoming university entrance examination, and the students re-attending classes after failing the college entrance examination had various other requirements to meet. Initially, the experiment was challenging and somewhat difficult. All of the repeaters in this school participated in the experiment, and the school did not set the control classes and made no mention of the experiment to the students and their parents, in order to avoid possible problems.

Consolidate the practical base area with the help of the "authority" of college entrance examination. The repeaters enrolled in Huiwen School comprised the experimental group, and the junior students in Lanzhou City served as the control group. We set the annual achievement of Chinese in the college entrance examination as the "authority" of the evaluation criteria. If we succeeded in the first trial run and then gained good reputation, the students and their parents would be the voluntary propagandists, and this school would be the "base area" of experimental teaching. On the one hand, we placed the experimental teaching under the supervision of the public; on the other hand, we left out the tedious job of remaking the evaluation criteria.

Pay attention to theory construction and expand the experimental scale. The practical work we have undertaken for over 10 years helped lay out the ideal condition for expanding the experimental research. We added several other subjects to Chinese when the experiment was developed from the Huiwen School in Lanzhou City to the No. 1 Middle School in Pingchuan District and the High School Attached to Northwest Normal University. We focused on the new problems and thoughts that emerged during the practical process of the experiment. Next, we took the reflections

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from the experiment theory and then improved the approach to help expand the experimental scale.

Strengthen the action research and complete the objective summary. During practice, we strengthened the action research, identified and solved problems in time, scientifically analyzed the practice data, and completed the objective summary.

To meet the requirements of participatory learning, we made the necessary demands from the learning group including the following: form groups of four to six for the group activities, use the whole class group activities that include "brainstorming" and "question tree." Grouping was done randomly (e.g., by seating arrangement or by counting off) or through a specific method (e.g., homogeneous or heterogeneous grouping), depending on the purpose of each activity. The participants were allowed to clarify the role divisions in each group, wherein a designated *host* took charge of the records of activities and organization work, the *recorder* took charge of the records of discussions or activities, the *speaker* was responsible for reporting and discussing the results; and the *material custodian* was responsible for completing the necessary materials for specific jobs. The members of the group were asked to take turns in occupying these roles.

The following is a participatory teaching case in a high school classroom. The participatory teaching activity consists of three links.

- The first link is interacted between the teacher and students and the representation of the scene. The interaction between the teacher and students and the ensuing role play help the students appreciate the feeling, taste the language, and understand the expression.
- The second link is an evaluation activity. Here, the student's advantages and disadvantage were pointed out, and the reading method was utilized. The students can evaluate interactions if the conditions allow.
- The third link is independent thinking. In this activity, the students were allowed to analyze and think independently to cultivate their independent-thinking abilities. The three levels of activity guided the students in taking the test from low to deep. The students' thinking abilities through language expression is reflected in language characters.

In all, the activities were divided into three stages, through which students can reflect on the depth of different thinking stages and gain increased awareness of their own level of thinking in language performance.

The Evaluation Techniques of Participatory Teaching

The first technique is the emotional evaluation to carry out the synthesis analysis and the qualitative judgment of several factors (i.e., the observations, conversations, questionnaires, peer reviews, awards and punishment, interests list, audiovisual materials, homework selections, and emotional carriers). This evaluation is conducted

to (1) explain the various factors affecting the students' emotional development and (2) predict and promote the integrated development of students' individuality.

The second technique is the cognitive evaluation, which is done to ensure that the students' intelligence in different thinking levels (i.e., understanding, utilization, and analysis) reached the attainable degree. The commonly used tool for cognitive evaluation is a test. The quantitative disposal and isotropy analysis of the test results can provide the basic train of thought. The performance in the university entrance exam is also one of the main evaluation tools used.

FINDINGS AND DISCUSSION

(1) Practical teaching has enriched and deepened the theoretical connotation of the research topic. Ten years' worth of teaching experiments have promoted the development of participatory learning theory, paving the way for a more efficient high school Chinese instructional science. Our original summary of participatory learning is as follows: to awaken a student's subject consciousness through equal participation and enhance one's creativity through social dialogue. However, through teaching experiments, we gradually realized that if two conditions are not met, i.e., the high school Chinese classroom is still far from the ideal cultural situation, and the acquisition and utilization of Chinese professional knowledge remain diluted, our efforts to turn the subject, equal participation, dialogue, creation and other consciousness into action; improve the students' ability; and allow the students' personalities to develop healthily would be futile. Thus, we revised the summary of participatory learning into the following: to awaken students' subject consciousness through equal participation, use the professional knowledge in cultural context, and unearth one's creative personality through social dialogue. By making modifications, we can transform the participatory learning theories and make them more scientific. This is further promoted by giving consideration to the teaching forms, highlighting the teaching content, and the provision of a more conducive environment that guides teachers in the conduct of effective classroom practice.

Participatory learning reflects the students' learning autonomy. Here, we allow every learner to experience the fun of participatory learning, and find the path and value of success in a natural, relaxed learning environment by encouraging group activities, free learning ideas, independent inquiry spirit, and cooperative learning attitudes.

However, we also found that the aforementioned description is only the general description of participatory learning. If we go away from the situation connotation of Chinese specialized knowledge, play down the core tasks of Chinese teaching in high school, and guide the learning process only in the related aspects (e.g., activity form, strategy, and relationship between teachers and students), then the result may be a fruitless approach. Hence, we further defined the concept of Chinese participatory learning in terms of unity of universality and particularity.

In broad terms, the Chinese participatory learning approach aims to promote the harmonious development of several components that make up a student's

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individuality. In the Chinese specialized knowledge issue content, equal participation and various learning activities must be set as the carrier. Here, the students must be allowed to learn ways by which to apply Chinese knowledge; cultivate verbal, thinking, and aesthetic appreciation abilities; and promote emotional aptitude so that they can develop independently. This kind of theoretical construction highlights the characteristics of the Chinese course, clarifies the core task of Chinese teaching, and shows the educational value of both theory and practice.

By changing the combination of form and content (i.e., the universality and particularity), we can finally understand that participatory learning is the product of a long-term teaching experiment and the main research theoretical results of this subject.

(2) Practical teaching proved that participatory learning actually increased the students' academic performance and promotes the general development of the students' emotional and intellectual abilities. The graph below shows a comparison of the average achievement of Chinese students in the entrance exam for arts and sciences in the experimental and control schools (Lanzhou City) from 2001 to 2010.
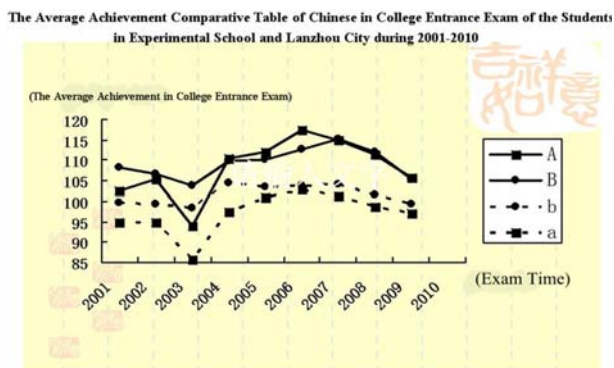
SOURCE: EDUCATIONAL SCIENCE INSTITUTE IN LANZHOU CITY

Graphic Illustration: The dotted line (a) refers to the average achievement of the Chinese students of Lanzhou City in the entrance exam for arts; The dotted line (b) refers to the average achievement of the Chinese students of Lanzhou City in the entrance exam for science; the solid line (A) represents the average achievement of the Chinese students of the experimental school in the entrance exam for arts, whereas the solid line (B) represents the average achievement of the Chinese students of the experimental school in the entrance exam for science.

As can be seen, the experimental research has achieved the predetermined goal as shown by the scores of students from the experimental school, which are higher

than those of students from Lanzhou City by an average of 5 points (range: 6 to 15 points).

Participatory learning not only improved students' Chinese ability, it also promoted positive changes in the students' emotional aptitude as well. For example, a teacher from the High School Attached to the Northwest Normal University reflected that when she taught *The Necklace,* she organized a "debate" through which the students can learn the text. In the debate, all the students had the equal right to speak and make a statement anytime, unlike the traditional debate setup where one student presented arguments on behalf of members of a team. The teacher reported that students who were usually soft-spoken or did not speak at all easily participated in the debates, with other students praising their ideas as they spoke. As a result, the students became confident and proud. More importantly, almost every student participated in these activities voluntarily. Those students who were previously unmotivated, unremarkable, and had no chance to project themselves finally had their own "learning space."

Another example would be the time when a student suggested that the class explore the default definition of "ancient pavilion" while learning the *Medicine* passage. What was remarkable about this was that the student was previously not interested in Chinese at all. Another student, who was seldom noticed by the teachers, designed the blackboard for the passage of *Medicine* and *Cricket*, and other students gave him a big round of applause for this achievement. The common response of students was that they became more involved after establishing a relatively strong interest in learning. For the performance of *The Necklace*, a student who did not like to speak and make notes volunteered to served as the director of the performance. In fact, he did well as the director by mobilizing the students in the group to cooperate fully and rehearse actively and even modified the plot. In the end, everyone agreed that he was an excellent director.

Xiang Wenjian, a teacher at the No. 1 Middle School of Huan County, reflected in his *Development and Implementation of School Curriculum of Long Dong Culture* that "participation" is the lifeline of this monographic teaching. Vitality in school curriculum is not possible without the students' active participation in the activity. He fully trusts the students, boldly stimulates their interest through the teaching activities, and allows them to participate with a positive attitude until the end so that they can fully perceive the harvest of their own experience. Moreover, he allows them to experience the pleasure of independence, cooperation, exploration, and innovation. In one of his projects, he noted that some students showed novel shadow figure images and materials that people hardly knew about, while some students made the unique pieces of the shadow figures personally, which showed artistic talents that, otherwise, would not have been discovered in a normal classroom setting. The students cultivated their aesthetic ability, accumulated general knowledge, fostered operational capacity and aesthetic judgment in the strong homeland opera culture context, developed a correct value judgment of the local culture, and in the process, constantly perfected and developed their individual personalities.

(3) Practical teaching showed that participatory teaching can facilitate the process of conversation between the students and the teachers as well as other related accompaniments.   The approach can also be more effective for finding, exploring, and solving problems. Chinese teaching is a process where the Chinese teachers encourage students to collect and process information as well as to understand the world and develop their own thoughts. The aim of this process is to enable the students to gain a more personalized aesthetic experience according to the teaching plan, with the help of several "tools," such as literature, linguistics, theory of literature and art, Chinese curriculum, and professional knowledge and methods of teaching.

Chinese teaching is also a learning activity among students, teachers, and textbook editors, which encourages interactive communication and the collision of ideas. The participatory learning approach commonly uses group discussion to deal with the problem, and every member can say different opinions from their different perspectives under discussion, greatly broadening the scope of problem-solving methods. Sometimes, one's statements can inspire another to realize or improve the method of solving a problem. Furthermore, the group discussion can generate a phenomenon called "social promotion," in which a person sees another completing a task, and the former wants to get the job done faster and better. For example, in group discussion, when a learner sees another learner speaking actively, he would be encouraged to think about speaking actively as well.

Li Jing, a Chinese teacher at the High School Attached to Northwest Normal University, shared in a reflection (based on previous classroom teaching) that in a traditional approach, the teachers raise the questions and students either seek answers or wait for the teacher's answer. However, in participatory learning, students are encouraged to raise the questions by themselves and discuss with each other, with the teacher helping them find ways to solve the problem at hand. In the proposed approach, the change of the dialogue provided an infinite development space for cultivating the students' sense of cooperation and group spirit. Those students who disliked projecting themselves became "experts," and the inconspicuous groups often produced excellent research results.

With the passage from *Medicine* as an example, the students asked many questions with a high research value and involved the details of the article, method of describing a person, weaknesses of the national character, cultural aspects, article structure, interweaving of the direct and indirect clues, and article subject. The challenge and pertinence to raise the questions and the study of the problem is the solution to the key points and difficulties of all aspects of the article, and this is referred to as "operability." Discussing the controversial matters can broaden the students' vision and stimulate them to think deeply, thus promoting their intellectual development. This means that the participatory learning dialogue can provide the condition of "the zone of proximal development," in which the students can discover and know themselves. Moreover, it can help students focus on the differences among themselves (as learners) as well as those between their ability and the learning

requirements, helping them find ways to reduce or eliminate these disparities with the help of their peers or teachers.

(4) Participatory practical teaching promoted the professional development of Chinese teachers. Compared with the past teaching methods, the participatory teaching approach requires a higher demand of the Chinese teachers' literary quality, language accomplishment, aesthetic attainment, and teaching abilities. Therefore, the front-line teachers must continually optimize their own knowledge structure, practice their creative thinking abilities, and improve the artistic teaching. In the teaching process, those students' new ideas and peers' different teaching styles also play an invaluable role in promoting the professional development of Chinese teachers. The teachers' spirit of self-reflection, self-innovation, and self-transcendence can all come together and make up a powerful impetus for their own professional development. In turn, during the teaching process, the subject consciousness and teaching tact of Chinese teachers have a lasting influence on the students' learning effect and individual development.

Wu Yumei (Chinese Teacher at the No.1 Middle School in the Pingchuan District, Baiyin, Gansu Province) shared in her teaching reflection that the teachers should mobilize the enthusiasm of students in the organizational process and make the classroom a part of the expansion and integration processes for students' subject activities. When the passage *Banquet at Hongmen* was taught, the students were organized in to groups tasked to design the following classroom activities: taking up the challenge, sketching, delivering a speech, and making comments. The practice has proven that the teachers' organizational ability plays an important role in the activity process; moreover, the process would be out of control without the teachers' overall grasp and organization, and the students would be in a state of disunity. Therefore, the expected teaching effect cannot be reached. She also thought that in the reading class, teaching with her own special perceptions and views can directly affect the students' cognition; thus, the teacher must provide some related materials for students, fostering interest in reading and helping the teacher carry out the participatory learning activities.

Let us consider the activity of "Reading Su Shi (pinyin: *Sū Shì*) (January 8, 1037 – August 24, 1101)," the class is directed to study the life of Su Shi, a writer, poet, artist, calligrapher, pharmacologist, and statesman of the Song Dynasty, and one of the major poets of the Song era in ancient China. Here, the teacher first introduces the four poems through the teaching materials, which include the essay *The Breakout of Su Dongpo* (by Yu Qiuyu) and *The Monograph of Su Shi* (by Zhou Guoping). Afterwards, the teacher allows the students to listen to the tape, intonate by themselves or evaluate the material with great concentration, thereby stimulating their enthusiasm and interest in the prose of Su Shi. The teachers can also involve themselves in the communication (on an equal basis) to lead students in reading the text with their own perception and understanding. In this way, they can influence students by their own words and deeds, consequently increasing the students' interest

in every Chinese lesson being taught. Such flexible ways of learning strengthen the lateral communication among students and the vertical communication between the students and teachers, thus promoting the simultaneous development of both the teacher and the students.

Li Jing, a Chinese teacher at the high school attached to the Northwest Normal University, mentioned that facilitating a class through the participatory approach is more interesting and easier than before. Although it took plenty of time to remember the intellectual content in the previous preparation for class, he can now devote more energy to the design of problems and the form and organization of the class. Facilitating a class involves going over the teaching content while preparing for class and going over it again during class. The teachers feel they have made much progress after facilitating a class, although the students' level of comprehension remains unknown. As stated by Li Jing: "Now I no longer need just teach the content to students, I can also supplement and confirm my understanding during class. The students have various and interesting statements so I always easily feel the whole physical and mental benefit I gain after each class."

(5) Practical teaching showed that paying attention to the harmonious union of the design of intension and extension improved teaching quality and transformed the cooperation learning or inquiry learning into the learning needs of the students rather than the formalism instruction for students from the external forces. Furthermore, participatory teaching helped obtain the learning conditions below.

- "To create the problem situation of professional knowledge" is the presupposition for effectively facilitating the participatory learning activity. It is a Chinese situation; a learning situation cannot be created without a Chinese class. Moreover, it is a problem situation, and we should consider this as a learning difficulty when designing an activity. The difficulty will arouse the curiosity of students. In addition, we need a well-designed method by which to present the problem situation. The way of presentation should link the students to learning life. Hence, it must be a way to hide the difficulty behind the phenomenon with which the students are already familiar.
- With "cannot help doing," one will see every student who cannot help participating in the tableau of learning if the professional problem situation is well-designed. The key to effectively facilitate the participatory learning activity is for students to participate in the learning process with great interest.
- Designing the learning activity "from the shallow to the deeper end" is the effective strategy for constantly strengthening the learning motivation. From students tasting the pleasure of achievements and boosting their self-esteem, a gradient design emerges, which is in accordance with the rule of cognitive psychology.
- The design principle of "problem based learning" facilitates the discovery of a learning answer that is both simple and exclusive. Some have the complex relationships, and some are flexible and open, which are related to the nature of

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the problem. The answer to a specific question is only a general one, the answer to a methodological knowledge problem is more complicated, and the answer to a cognitive problem is relatively open.

• "The cooperative and inquiry-based learning is generated naturally." This statement explains an inevitable phenomenon in effective participatory learning. The cooperative and inquiry-based learning is generated naturally if the first four learning conditions are met. In other words, the cooperation and exploration, instead of an objective and formal method of instruction, are the real-life requirement from the students' inner world.

(6) A decade of participatory practical process produced a series of secondary scientific research achievements, and these results helped promote further development of the experimental teaching. While conducting the advanced participatory teaching experiment of Chinese classroom in high school, we have also been undertaking the job of teaching Chinese to undergraduates, Chinese educational master, and pedagogy postgraduate. The assumption and achievement of the experimental teaching now comprise the teaching content of the presented cases and serve as the bases of a series of secondary educational scientific teaching achievements. For example, the *Participatory Approach Lead the Theoretical Construction and Practice Research on the Learning Style of Chinese Majors in Normal Universities*, which was published in 2005, won the First Prize in the Provincial Level Teaching Achievement Competition at the University of Gansu Province. More than 300 teaching courseware, which were designed and given at the trial lecture by the undergraduates in their internship, utilized the participatory approach and became the highlights of this achievement. *The Chinese Curriculum and Pedagogy of Post-modern Cultural Perspective,* which was published in 2007, won the 7th reward of Gansu Provincial-Level Excellent Book. Meanwhile, "The Chinese Curriculum and Pedagogy" of undergraduate courses, which included more than 20 high school Chinese teaching cases of participatory teaching and was published in 2009, obtained the provincial higher educational best courses in Gansu Province. Many teaching cases and courseware were created by both the teachers and students based on the participatory design. The *Develop the Innovation Ability of Masters' Chinese Education and Promote the Further Development of Elementary and Secondary School Curriculum Reform*, which was published in 2010, won the 2nd Prize in the Provincial Level Teaching Achievement Prizes at the University of Gansu Province; it also helped generate excellent participatory teaching cases designed by many front-line teachers from 2001 to 2010. In return, the result of this scientific research promoted further development of the subject from the two aspects of theory, namely, promotion and practice.

CONCLUSION

Our practical study was carried out from 2001 to 2010. The decade of practical teaching activities gave birth to the important theoretical results of this research and

helped us discover the concept of efficient learning: "possess professional knowledge connotation, process of constructing thoughts, emotional experiences of success or setbacks, and possess generation of speech products." Participatory learning aims to improve the students' academic record and promote the comprehensive developments of the students' intellectual and emotional aptitudes at the same time. Participatory teaching encourages dialogues between students and teachers and textbook and companion; it can also help identify and solve problems more effectively. Participatory practical teaching promotes the development of the Chinese teachers' specialty. With the harmonious union of the connotation of knowledge and the extensional knowledge in classroom, the teaching quality can be improved. This can also transform cooperative learning and inquiry learning into the children's inner learning needs rather than formal instructions to students from the external forces. The process of participatory teaching has also produced a series of scientific works, the results of which promoted further development of the experimental teaching process.

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PART IV

IMPLEMENTATION, ASSESSMENT AND TEACHER DEVELOPMENT

EDMOND HAU-FAI LAW, CHENZHI LI, YUYING YANG &
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22. WEB-BASED PROGRAM FOR IN-SERVICE TEACHERS OF SHENZHEN CITY IN MAINLAND CHINA

CONTEXT OF CHANGE

Interest in the development and use of web-based learning in higher education and teacher education has been steadily increasing around the world for the last 30 years (Dabbagh & Kitsantas, 2004). However, unless the quality of web-based learning programs show reasonable gains in achieving stated goals, suspicions about the functions and viabilities of these programs cannot be eliminated (Rovai, 2003). Mainland China is no exception to the global change toward the use of modern technologies in providing learning access to a vast number of people across the country. This trend is particularly evident in teacher education. The Ministry of Education of China in 1999 has adopted an active role in establishing web-based learning programs for in-service teachers in over 30 key universities with inputs from industries specializing in information technology (Ministry of Higher Education, 2000; Ministry of Education, 2004). To date, over 68 universities have established faculties on web-based learning.

Teacher Training Program

The teacher training program has been part of government policy in the 20th century to upgrade the skills of primary and secondary school in-service teachers in the application of technology in teaching and learning. The adoption of modern technology in classrooms in vast countries such as Mainland China has cemented web-based learning as a major strategic instrument in the effective dissemination of knowledge and technological skills (He, 2006; Zhang, He, Qi & Ding, 2007). Web-based learning has obvious advantages over traditional face-to-face contact between tutors and students. These advantages include high accessibility, low human costs, and greater flexibility in terms of teaching schedule and learning progress (US Department of Education, 2010).

The program examined in this study is one of the programs adopted by the government for various provinces in Mainland China. This program has been used for two years in Guangdong Province in Southern China. This single province aims to train approximately 350,000 teachers in both primary and secondary schools for

3 years to 5 years from 2009. The duration of the program starts in mid-September 2009 and ends in mid-October 2010. Five modules constitute the program:

Module 1: Preparatory work for the whole program
Module 2: Teaching analysis and enquiry-based learning
Module 3: Resource preparation
Module 4: Teaching implementation and evaluation
Module 5: Conclusion and future development

Each module consists of mini-lectures that explain key concepts and outline essential suggestions or steps of a particular pedagogical strategy. These mini-lectures are followed by case studies that require participant reflection with the assistance of guiding questions. A multiple-choice test for the formative assessment of students is also attached to each module (http://www.gdteacher.com.cn).

RESEARCH DESIGN AND METHODOLOGY

Various studies have been conducted on web-based learning programs or e-learning activities to understand and evaluate their effectiveness across all academic disciplines. Some strategies include focusing on various types of learning outcomes demonstrated in college student portfolios (Chang, 2001), using questionnaires and surveys in pre-test and post-test formats in continuing medical education (Curran et al., 2006), using an online survey for summative evaluation purposes in a mental health course (Knowles, 2001), or establishing correlations between student participation in online discussions and overall academic performance (Davies & Graff, 2005). Some evaluations of online learning are more proactive and formative in nature (Sims, Dobbs, & Hand, 2002). Complicated design and analysis methods have been adopted to control student characteristics (inputs) and measure the effect of a web-based learning environments (outputs) on 129 participants in seven nursing courses in America (Thurmond, Wambach, Connors, & Frey, 2002).

This small-scale investigation adopts a naturalistic approach by interviewing six participants on academic subjects (e.g., science, languages, and information technology), different experiences with different leadership positions, and types of schools (i.e., primary and secondary). We do not have prior knowledge about the abilities and levels of commitment of the participants. All participants completed our web-based program with high marks. The following table provides the summary of the background information of the six interviewees.

The interviews aim to collect the views, experiences, and examples obtained by the participants in the course of their studies. The ultimate purpose of the interviews is to elicit authentic experiences from the participants concerning their learning process with the program. The first round of the interviews is organized before the interviewees are given access to the program. These pre-program interviews obtain basic but necessary background information on the general experiences and views of the participants to help the researchers understand and contrast the interview data.

Table 1. Background information of teachers

Name	Gender	Teaching subject	Qualifications	Positions and levels of school types
LCL	Male	Physical Education	Postgraduate	Home room teacher and senior high school teacher
YN	Male	Mathematics	Bachelor's degree	Senior high school teacher
FL	Female	Science	Bachelor's degree	Subject panel head and senior teacher in junior school
WXJ	Female	Chinese language	Postgraduate	Home room teacher and junior school teacher
MBH	Male	Information Technology	Bachelor's degree	Substitute teacher in a primary school
GM	Female	English language	Bachelor's degree	Senior teacher in a primary school
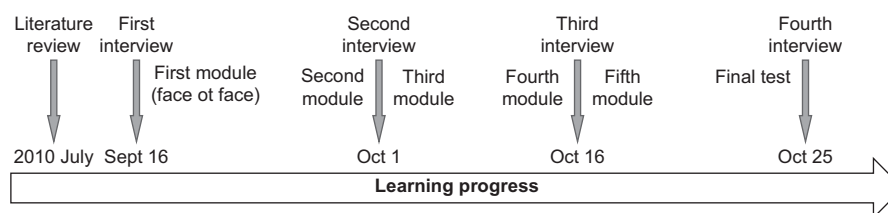
Figure 1. Timing of teacher interviews.

Another three rounds of interviews are conducted strategically at four crucial points of participant learning in the course of the study. The foci of each round of the interview questions are summarized below:

First interview: elicit personal narratives that illustrate personal views on education curricula and reasons for selecting the web-based learning program.

Second interview: elicit narratives that provide evidence on the usefulness and uselessness of the learning materials and instances of difficulties in using web-based modes of learning.

Third interview: elicit views and narratives about interactions with tutors and other learners via the web-based learning program.

Fourth interview: elicit evidence on learning such as applications of theories and technologies in teaching and schoolwork after program completion.

The above figure shows the timing of the four interviews at each strategic point of the program.

The online course contents, online discussions, and students assignments are considered important data in addition to the data collected from the interviews.

In particular, the online reflections of each participant in this research study offer researchers an opportunity to access the "thinking process" of participants during learning interactions with the program requirements. However, this chapter reports only the interview data conducted at four intervals during the course of the study to the show concerns and issues encountered by the participants.

Analysis Procedure

The first researcher reads the transcriptions sequentially and identifies key points on the personality of the interviewees and key information from our research questions. Two other researchers read the transcriptions in turn and report to the first researcher their essential findings concerning the research questions. Similarities are noted, and different views on the significance assigned to a particular piece of data from the interview are recorded and marked for further investigation and discussion. All researchers share their views of the data, and diverse views are reported in this paper. The purpose of this procedure is to align the mindsets of the three researchers when reading the interview data. This process also assists the researchers in identifying key ideas and categories for the second round of analysis.

FINDINGS

In terms of data presentation, I deliberately organize the data with more narratives from the first teacher (FL) with insertions of key findings from the other four interviewees. All information categories are checked with the coding records conducted by the third researcher for accuracy. Readers may find this presentation more convenient in reading and understanding the findings holistically. We discuss our findings in the following section.

First Interview Before the Course Started on 6 September 2010

FL "migrated" to Shenzhen City 16 years ago from Xian City, the ancient capital of China. She has seen the expansion and significant changes of the newly established city. She has been employed in several schools and has been working in her current school since 2005, which two years after the school has been established. She has been in the middle management handling political work, student affairs, and teaching and teacher development. Other teachers have similar backgrounds of "migrating" to Shenzhen City from other provinces and cities to find more conducive work environments and better salaries.

Concepts of Effective Teaching and Learning

In the first interview, FL (senior teacher in a junior school) shows some emotional reaction over the work that she feels is not handled well. She feels despair when

conflicts among students are out of her control. She reports that she is more willing to change and learn than other teachers who may have greater capacities to change and learn in the early days of their career. She has also obtained a master's degree two years after graduation. The experience has not been fruitful for her development. However, the experience has allowed her to experience a formally organized psychological course in a university. She said that she does not relate learning with workplace development and the practical value of learning. She does not provide "questions" or "problems" to the learning course; therefore, the learning became less effective. She thinks that professional courses are ineffective and prefer courses that improved her personal qualities such as computer skills and speech therapy. All these courses are organized in face-to-face meetings. She thinks that the pedagogical strategies adopted by the university faculties are not motivating and uninteresting. However, she is able to identify one tutor who is particularly effective. This tutor is updated on the latest trends of her profession, provides contents that are practical and useful, and has excellent personal qualities. The approach of this tutor seems to be task based.

> Her teaching topic is coherent and organized with tasks. Her approach seems to be task based, which is useful.
>
> (Literal translation, Interview, page 6)

FL has adopted the approach and objective of this tutor and then organized learning activities around the objective. This objective-based approach has become her regular planning process in organizing student learning. She also emphasizes the interactions between teacher and students in classroom learning.

She comments that teaching effectiveness should be the key criterion in assessing the teaching strategies adopted in learning. One could be very "effective" in providing an exciting lecture without student interactions. However, what students have learned in the lecture is more important. Although the questions included in her lessons interrupt her delivery, these questions are useful to the students and provide feedback on student learning. She can improvise by using these questions and feedback to extend the discussions. Thus, learning becomes more interactive. She also maintains that teachers should be sensitive to the individual needs of the students and provide different modes of instructions to suit the personality or style of the student.

This distance-learning course is compulsory for promotion. However, she indicates that she will continue learning and studying courses that may not be of the same nature. She may choose a course on Chinese medicine or psychology with the support of the school head.

Other interviewees have different narratives of their own experiences and concepts of learning and teaching. The interviews show that the participants have rich pedagogical thinking and are active in curriculum innovations. For example, LW (senior high school) has stayed in Shenzhen for eight years and has engaged in a development project on integrating physics and technology in student learning. She

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values the experience of integrating theories and practices in classrooms. However, YS (senior high school) expresses her reservations on a progressive approach to learning in schools, particularly with regard to a normal class size of 50 students to 60 students. WY (junior school) and MX (primary school) also value class interactions to motivate students, as well as an enquiry-based learning approach.

Experience with Distance Learning

FL (senior high school) says that distance-learning courses are very popular among teachers. However, she thinks that distance-learning courses are more time consuming than face-to-face meetings. Time is fixed for meetings, whereas distance learning requires students to access the web and complete tasks regularly. She has chosen a distance-learning course for integrated practical activities. The advantages of the courses are that everyone has to "speak" and interactions among students are more intensive. Face-to-face meetings do not require student discussions in most cases. The distance-learning mode requires students to respond to online discussions. Students learn from the learner community and not just from teachers. The sources of learning in a classroom are multiple.

> If you allow people to share their rich experiences and alternate views in a learning environment, everyone benefits…the source is not restricted to the teacher only. In the classroom, other people are also considered sources.
> (Interview, literal translation, page 9)

Why Do They Choose this Distance-Learning Course?

FL (junior school) has heard positive feedback from others who have studied this course. This course is about educational technology and literacy and the use of computers and multi-media in teaching. This course also provides assignments that students have to complete regularly.

However, she thinks that the most effective mode of teacher development is school based. Her school has invited some researchers from other schools to share their experiences. Discussions with these researchers have been very useful because their personal qualities are very high. However, she has not adopted the suggested approach. In the student survey, the students prefer the original teaching approach. For example, this researcher introduces a new approach wherein teachers do not teach. Instead, students conduct presentations, and three walls in the classroom are provided with whiteboards for students to write. Thus, students learn autonomy, and the examination results are excellent. This method is student centered and empowers the teacher to facilitate learning. The teacher speaks for five minutes only and the rest of the time is allotted for student presentations. This approach relies heavily on teacher commitment and preparation. Many teachers prefer the traditional approach. However, FL thinks she needs a new approach and thus has tried out new practices.

Other interviewees have experiences with web-based learning as well. They believe that web-based learning courses are cost-effective and saves traveling time. However, WY (junior school) prefers face-to-face meetings. The additional advantage of this web-based course is the favorable number of credit points compared with face-to-face courses.

What Did the Interviewees Expect from this Program?

FL (junior school) wishes to improve her skills in using technology for teaching and learning. She does not like learning something that is not useful to her work or does not improve her teaching quality. She states that she likes to be progressive and interactive in class.

Other interviewees report that they wish to learn how to use technology and media in designing learning activities. LW (senior high school) has additional expectations for this course. She wants to learn about formative assessment and how it can be applied in classrooms. In the interview, she elaborates in great detail on what pedagogical strategies she wants to learn, for example, designing courses based on student needs and how these needs can be met in learning activities. She also specifically mentions the necessity of learning theories in this course.

Second Interview after the Second Module around 28 September 2010

FL (junior school) feels that the contents of the handbook are excessive and unclear. She feels that the contents about the historical development of theories are unnecessary. She also thinks that the course should have focused on practical design issues. The use of Bloom's theory in connection with the new curriculum standards is also not clear.

> …you gave us a learning objective and a lot of learning materials, like textbooks…I think us teachers learn from practice. I feel the course should be more target oriented, procedure oriented, practice focused, and have a clear objective to allow us to use what we have learned immediately…
> (Interview on 28 September 2010, literal translation, page 1)

She likes another course on counseling that provides a clear framework and the procedural guidelines for practice.

She specifically feels that Bloom's theory may not fit the work of the teachers. She feels that the course should give clear guidelines on design. She also says that most teachers start using the concepts of competence, affection, and objective in their planning.

She thinks that one more face-to-face meeting should be organized. She also comments that the first meeting is not efficient because the tutor does not provide clear guidelines about how to work and how to operate. She seems very unhappy with the tutor who did not provided students clear information and responses to her queries. She likes asking questions but the tutor did not seem to be happy with taking questions.

The tutor thinks that the questions are too simple. Thus, she suggests that the tutor give them a clear introduction and framework about the course and requirements.

She does not know FrontPage and Webquest and uses only MS PowerPoint. The course tackles more than educational technology. The tutor should have given us a clear introduction. The participants came from different subjects and some are used to using computers. Some uses computers only and some can develop computers.

FL gives her comments on the technical issue by using a discussion board. She feels the discussion board is useful in the particular cases that the other participants have described. She repeated her reservation about information overload and theories on analyzing learner needs and styles. The information should focus on the practical aspects of teacher work.

> I think that learning the objectives of Bloom's theories are redundant…the enquiry-based learning is fine and what has been taught is already known to us. However, I think that the instructions are written in great detail.
>
> (Interview, literal translation page 5)

Enquiry-based learning has a unit on learning objectives that she cannot understand. The unit has a table for students to describe their learning objectives. The unit offers a number of methods but she believes one or two methods should be adequate for teachers. The information presented is too much.

In summary, the pace of learning tasks should be more organized and more efficient. An additional face-to-face meeting would have been useful. The meeting can offer discussions about cases and deepen our understanding. The meeting could also teach us how to construct a web page. Traveling time will not be a problem if the meeting is useful and focused. The attractiveness of the course content will be our priority. She comments on the other tutor from Hong Kong: "he does not talk too much about theories and has a framework." The tutor from Hong Kong told her the topics she should focus on and gave her case studies. The mode of instruction is very practical. More face-to-face meetings help. When she faces problems, she can ask assistance from colleagues and not spend time looking for tutors.

Other Interviewees

LCL (senior high) comments on the lack of response and timely feedback after he submitted responses to questions online. He thinks that online interactive activities are useless. However, he is positive about the theories and the use of case studies in the course materials. MBH (primary school) has a positive perception of the online course and problem-based learning components in the course. She comments that technology should be integrated with video-based learning materials in case studies and audio aids should be used as well. WXJ (junior school) has mixed feelings about the course. Overall, he was positive. He feels that there are some organizational issues with how linkages can be built between case studies and the rest of the course, how FrontPage and Webquest can be applied and connected to other materials, how

enquiry-based learning can be assessed, and how course assignments and materials can meet the needs of individual participants. YN (senior high school) is teaching in junior high school and does not think that enquiry-based learning is practical for his students. However, he still uses the approach in his teaching. He feels that case studies should be interesting and useful. He has already learned theories in his undergraduate courses. He also finds some materials and questions weird and that the reading materials are too much. He also writes reflections but finds them time consuming.

In summary, we observe mixed feelings and reactions about the course organization, linkages between learning components, and usefulness of learning elements. Organizational issues are the major concerns, and lack of feedback and linkages between different learning components has negative effects on learning effectiveness. Individual components such as enquiry-based learning elements receive positive feedback from some interviewees.

Third Interview after the Fourth Module in Mid-October 2010

Technical problems abound concerning access to the web link, particularly with the FrontPage version, because the tutor has taught a version that is not available to the students. Her computer is new but the software version is old and not compatible with the computer. She has to return to the office and use an old version of the computer. She thinks that constructing a webpage is unnecessary for teachers. However, she believes that teachers commonly use web materials in class. She may use the plan of enquiry-based learning in her school and organize a group of teachers.

> I may use the inquiry based learning scheme but I will not use FrontPage. I may use it in integrating practical activities and organizing a team but I will not use it in my lessons because its concepts are different from mine. I have one extra-curricular activity group on enquiry-based learning. I may use enquiry-based learning and let others perform the reports and assessments. However, I will not use FrontPage… I will use other approaches if they are convenient and are not time consuming.
>
> (Interview on 21 October 2010, literal translation page 2)

The use of FrontPage in classrooms to conduct lessons is uncommon. Asking students to use computers and the web for learning is difficult in Shenzhen City because not all students have computers at home. Students who use computers to play games at home with restrictions are common. Furthermore, parents may not allow children to use computers at home. She observes that many teachers use QQ (a Chinese version of Skype) to conduct group discussion among students.

Other Interviewees

YN (senior high school): as a science teacher, I feel more comfortable with technologies such as webpages and enquiry-based learning. However, I personally

think that the construction of an evaluation instrument is difficult for participants. YN does not implement learning elements such as integrating economics and mathematics in life skills, as well as enquiry-based learning approaches, in lessons. However, he seems to have the most positive view of the course among those who have been interviewed. His only problem is with time consumption. WXJ (junior school) finds that webpage construction is difficult and that the evaluation instrument is useless. Informal evaluation methods are adopted in her school. Theories are difficult but the case studies are impressive. She has not received feedback from tutors in the course and thinks that she will not use the technology learned in this course in her classes. MBH (primary school) feels that the effectiveness of the course can be improved. She did not think participants would like reading theories which were large in quantity. The technical problems of the web site and unstable access to web materials discourage participants. The evaluation instrument is also useless because Chinese society emphasizes harmonic relationships among colleagues and students. LCL (senior high school) thinks that more case studies on physics teaching is beneficial. According to his observations, many students do not have to read the section on theories to complete assignments and tasks. The most useful part is the electronic table that is designed to calculate the marks of student assignments.

Fourth Interview after the End of the Course around 25 October 2010

FL has a strict personality and does not want to give up tasks without finishing them. She feels that she has not mastered the theoretical concepts well. She does not believe in grades or marks. She feels that she has now a clear understanding of technology in learning. She feels that a lot of things in the student handbook are useless. Many materials need to be organized. Three methods of communications are also included in the course: "ICQ" (a group communication software) (concurrent), pair work individual communications (not concurrent), and tasks (responses in groups).

> I can remember the design of an enquiry-based learning task because it is useful and practical.
>
> (Interview on 25 October 2010, literal translation page 2)

She feels that face-to-face meetings are necessary to web-based learning. The program should separate the backgrounds of students, that is, primary and secondary.

The problem with web-based learning is its time restriction. The time schedule is tight, and tasks are set to be completed based on a tight work schedule. The tutor has a misleading expectation of the ability of these students. The tutor feels that the students are advanced. Therefore, the tutor does not provide detailed instructions on how to manage and use the materials. The tutor demonstrates briefly how to make a front page. When the students ask the tutor how to use the software, the tutor looks surprised.

She understands the basic concepts but not the practical applications. The effect of the assessment formats is also misleading. The assessment is conducted for

selection and determining weaknesses in subject areas. The assessment seems to want to decrease your marks and grades.

Other Interviewees

YN (senior high school) exhibits excellent performance in this course. He thinks the course encourage a form of collaborative learning. He also feels that experienced teachers may not be able to apply the latest technologies in their teaching. He commented on the usefulness of different types of communications technologies such as QQ and "Little Note." He thinks that teachers of the same subjects should be grouped together to have a better focus of interaction and sharing. He thinks that primary and secondary school teachers should also be separated, and the course should cater to the special needs and interests of students. More visual learning materials should be designed and offered on the web. He also suggests that a combination of face-to-face meetings and web-based distance learning should be developed to cover the disadvantages of each type of learning modes. The performance of LCL (senior high school) is excellent in this course. He presumes that the course should be more specific and that tasks should be based on subject learning and teaching. Primary and secondary teachers should be separated and the course should provide case studies that are relevant to teachers in different levels. He also suggests a mixed learning mode with face-to-face and distance learning on web links. The technical efficiency of accessing the web is essential to developing student confidence. The quality of tutors is another issue in this course. WXJ (junior school) believes that many contents and materials in the course are useless. She can remember case studies on language and science. However, she prefers school-based training courses that offer skills and knowledge that are applicable in classrooms with face-to-face meetings. Linkages between different learning components are also weak. MBH (primary school) can still remember the contents of the course after a month. He states that training courses should be practical and useful to the participants. Technical breakdown is also frequent and discourages participants. He comments that one third of the program goals have been achieved. He is not in favor of the "QQ" mode of interactions among participants and he prefers face-to-face interaction. He suggests that feedback be given in a timely fashion. Goals should also be communicated clearly for the participants.

DISCUSSION AND CONCLUSION

Different frameworks for evaluating the effectiveness of web-based learning programs have been proposed. These frameworks form key items in the construction of questionnaires and surveys in eliciting views from participants or learners (Shee and Wang, 2008). Although our study does not derive interview questions from these frameworks, we use the broad frameworks in the literature as our frame of

discussion. The frameworks generally cover the following aspects of concerns in the evaluation:

1. "Learning interface" is concerned with the operational stability and user-friendliness of the design of the interface used by the participants.
2. "Learning community" is about whether participant engagement of positively influences a community of learners.
3. "System content" refers to the usefulness and relevance of the learning materials.
4. "Personalization" denotes whether learners can control the progress of learning and can maintain a record of their own performance and achievements.

We use this framework to analyze the findings obtained from the interviews of the six teachers.

1. Learning interface
   This framework is concerned on whether the design of the program used by the participants is user-friendly and operationally stabile. Almost all interviewees report that they encounter technical problems with the interface and are discouraged by the sudden power interruption or inaccessibility of the web program. The interface is very unstable.
2. Learning community
   This framework refers to whether the program promotes participant–participant interactions to develop a community of learners. The program has deliberately designed channels to create communications among participants such as "QQ" (i.e., the Chinese version of Skype) and discussion boards that require student responses. In some schools, the participating teachers deliberately organize additional school-based meetings to share experiences and technical knowledge on assignments. However, the intra-school communications among teachers from the same school are more active than inter-school communications. Interactions with the tutors are reportedly limited and restricted in frequency and pedagogical function.
3. System content
   This framework denotes whether the program contents are updated and useful to learners. The overall comments seem to be positive in the overall organization and intentions of the program. However, concerns arise on how cases are related to theories and how theories are relevant to the problems and issues that are embedded in the school works of teachers. Considering that the practical and professional needs of teachers from secondary and primary sectors are different, some pedagogical practices commonly found among primary schools may not be easily absorbed by secondary school participants. Subject-based cases seem to cause lesser problems even though suggestions to separate primary and secondary students with subject-focused learning groups are reported. Learning materials such as handbooks are outdated and are too voluminous for the participants. Many participants said they did not read the handbooks. This issue is particularly true in cases where readings on theories are unrelated directly to cases or to the professional needs of the participants.

Lack of feedback and lack of support during learning diminish the effectiveness of the program. Thus, face-to-face meetings that are focused on learning modules should be organized to supplement learning needs.

4. Personalization

This framework is about whether participants are able to control the learning progress and record their performance and achievements.

The organization of course materials and assignments are time consuming. Thus, participants need time to complete tasks and assignments with a reasonable level of commitment. Access to the learning outcomes and achievements of other participants is available in the program design.

Web-based learning has been introduced to Mainland China in the last ten years. However, the infrastructure of program planning, design, implementation, and evaluation has yet to be established within different provincial districts and universities that are directly accountable for the research and development of web-based learning programs in teacher education. Our small-scale investigation on the perspectives of six participants on the program that they experienced should be considered a starting point in this area. However, the evidence, although limited in scope and quantity, shows some fundamental problems with web-based learning. The problems can be solved if formative feedback can be elicited during program implementation to adjust learning support and add face-to-face meetings to supplement the program. The evidence collected from the six participants can be used to evaluate the program effectiveness and improve program contents and content organization to suit the needs of the participants.

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23. THE WASHBACK EFFECTS OF THE NATIONAL COLLEGE ENTRANCE EXAMINATION ON THE CURRICULUM REFORM IN MAINLAND CHINA

LITERATURE REVIEW

In order to cater to the needs of a competitive globalized market, and to assure educational efficiency and accountability, many countries have emphasized the development of generic skills in students. Paradoxically, these countries still maintain a high-stake testing approach for admission to the college education system to enhance students' abilities and to ensure the sustainability of their educational systems (Hamilton, 2003). Taking the United States as an example, the law "No Child Left Behind," which was signed in 2002, calls for every child from third to eighth grade to be tested in the basics of mathematics, reading or language arts, and science. Although testing has been traditionally used to measure the learning of students, it has moved from being an assessment of individual students to a system for ranking and comparing students within this trend (Jones, Jones, & Hargrove, 2003, p. 2). Schools and teachers have to demonstrate how they educate children efficiently and accountably in terms of their students' achievements in these high-stakes tests. Hence, high-stakes tests used for selection and accreditation purposes are widely held to be powerful determiners of what happens in classrooms, influencing both teaching and learning (Qi, 2005). For these reasons, high-stakes testing is widely considered as a useful tool for promoting curriculum innovation that would aim to actually change the practices in classrooms (Hamilton, 2003).

Studies on Washback Effects

Generally, the effects of high-stakes tests on teaching and learning are conceptualized as washback effects (Cheng, Watanabe, & Curtis, 2004; Ferman, 2004; Gosa, 2004; Mizutani, 2009, Tsagari, 2009). Given that high-stakes tests are used in many countries, the research into washback has aroused great interest. Many scholars, as well as policymakers, wishing to test the initial hypothesis, have revealed the relationship between high-stake testing and classroom behaviors, and inspected the outcomes.

Before an in-depth review of the development of theoretical construction and empirical studies on washback effects, we must reflect on the varied meanings of this concept. Generally, three approaches are used to understand the meaning of this concept. The first tends to be positive. It is considered by policymakers as a useful

instrument to promote education innovation, and tests should have positive impact on instruction at the classroom level (Fredericksen & Clooins, 1989; Hamilton, 2003). A second interpretation of washback has negative implications. The Oxford Dictionary defines washback as the "the unpleasant after-effects of an event." Some linguistic researchers have inherited this interpretation from earlier scholarship. Messick (1996) defines washback as "the extent to which a test influences language teachers and learners to do things they would not necessarily otherwise do that promote or inhibit language learning." With further exploration in studies on washback, a more neutral notion has developed that usually refers to the influence of testing on teaching and learning without implying either positive or negative influences (Bachman & Palmer, 1996; Cheng, 1997, 1998; Choi, 2008; Qi, 2004; Smith & Rottenberg, 1991; Watanabe, 1996, 1997). Such influences can be discerned depending on specific context and circumstances, however (Alderson & Wall, 1993; Bailey, 1996; Cheng, Wantanabe, & Curtis, 2004; Hughes, 1998).

Compared with the explorations that mostly depend on large-scale surveys in general education research field, the impacts of high-stakes testing are more deeply investigated in language education research field. Firstly, Alderson and Wall (1993), concerned with the phenomenon of washback effects, which is the threshold of this field, have advanced 15 hypotheses regarding the relationship between high-stakes testing and instruction. Although the borders of these hypotheses are overlapping and obscure and the definition of the key conceptions of these hypotheses are unclear, their alienation of this familiar phenomenon has aroused wide concern, leading to many intensive studies.

Based on the research of Alderson and Wall, Hughes has gone further by constructing a model to illustrate the mechanism of washback effects. His framework could be categorized into three dimensions (cited in Bailey, 1996):

– Participants: Students, classroom teachers, administrators, materials developers, and publishers whose perceptions and attitudes toward their work that may be affected by a test.
– Processes: Any actions taken by the participants that may contribute to the process of learning
– Products: What is learned (facts, skills etc.) and the quality of the learning.

However, within this three-part framework, the connotation of the concepts of "participant" and "product" remains vague. Based on previous theory, Bailey (1996) has put forward a more specific framework to illustrate the washback mechanism (See Figure 1).

In the above theoretical framework, the objectives of the impacts of test are categorized into four cohorts: student, teacher, curriculum textbook designer, and educational research. Furthermore, the complex results, named as product in this framework, are also divided into four dimensions: developing orientation, instruction, new curriculum, and research result. Many subsequent empirical studies concentrate on one or two aspects of this framework, and explore the complex
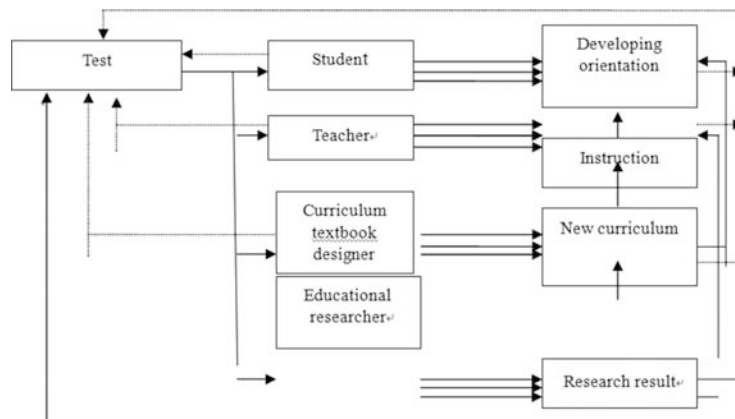
Figure 1. Mechanism of washback Resource: Bailey (1996, p. 264).

relationships between tests and teaching and learning. The empirical studies on washback could be grouped into two cohorts in terms of research results. First, high-stakes testing impedes the development of curriculum and teaching. Some empirical data buttress the conclusion with the research results that high-stakes testing reduces learning motivation, brings about narrowing of the curriculum, and leads to rote and drills instruction (McNail, 2000; Nichols & Berliner, 2005; Wall, 2005). Based on these consequences, high-stakes testing seems to work against the intended goals of curriculum reform. Second, other scholars have provided strong evidence to support the conclusion that high-stakes testing could dramatically promote the reform of teaching and learning through matching instruction with higher learning standards, thereby providing accurate and efficient feedback and stimulating the motivation of teachers and students (Braun, 2004; Williamson, Bondy, Langley, & Mayne, 2005). These contradictory deductions appoint to a confusing correlation of high-stakes testing and curriculum and instruction. McNamara and Roever (2006) state that a test would only be well understood through connecting it with a specific social context. The multiple possibilities associated with washback studies also demonstrate how similar examinations are subject to the influence of local context. In China, to some degree, the washback effects on teachers of English language test have been investigated (Qi, 2005). However, the wash-back effects of Chinese language test, the native language of China, have not been systematically explored yet.

The National College Entrance Examination in China

Because China is a developing and large country, the influence of high-stakes testing is particularly noticeable because of the fact that educational resources for children are limited. Although the economic level and related resources of Chinese education have increased rapidly, the percentage of students at the university level is approximately 25% (see Table 1).

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Table 1. Statistics on enrollment rate in China

Year	Enrollment rate of junior secondary school students (%)	Enrollment rate of senior secondary school students (%)	Enrollment rate of higher education students (%)
2006	97	59.8	22
2007	98	66	23
2008	98.5	74	23.3
2009	99	79.2	24.2
2010	100.1	82.5	26.5

Resource: Ministry of Education of the Peoples' Republic of China (2006, 2007, 2008, 2009, 2010).

Nearly 900 million senior middle school students are required to take a highly selective examination, the National College Entrance Examination (NCEE), which is used as a tool to single out academically strong students who are eligible to receive higher education. Passing this exam means a great deal to students for because those who pass will have the opportunity to accept tertiary education and have a higher starting point when they step into workforce than the others. Except for the serious result on students, the NCEE also exerts profound influence on teachers and schools. Generally, the abilities of teachers are assessed by the performances of their students in the NCEE, which means that the NCEE results of students are vital for the ability appraisal, as well as for the career promotion, of their teachers. In addition, if the overall performance of a senior middle school on the NCEE ranks high in a district, greater educational resources and controlling power can be allocated and empowered to this school. Thus, the NCEE affects not only the personal growth of students and the career development of schoolteachers, but also the long-term development of senior middle schools. As a whole, students, teachers and other staff of senior middle school all highlight the dramatic importance of the NCEE. As an AERA (2000) report notes,

> [when] high-stakes testing programs are implemented in circumstances where educational resources are inadequate or where tests lack sufficient reliability and validity for their intended purposes, there is potential for serious harm. … teachers may blamed or punished for inequitable resources over which they have no control. …instruction may be severely distorted if high test scores per se, rather than learning, become the overriding goal of classroom instruction.

Clearly, in China, the NCEE, can open or close doors, provide or take away opportunities, and shape the lives of individuals and groups directly or indirectly in many areas (Shohamy, 2001); thus, it is a veritable high-stakes testing.

In 2001, the Eighth Curriculum Reform was introduced in China, becoming a landmark of Chinese education in the new century. Under the main spirit of "for the

development of every student" (Zhong, Zhang, & Cui, 2001), the traditional Chinese education system was comprehensively reviewed and challenged. Generally speaking, many new theories and practices were introduced in this reform, including the introduction of constructivism theories, using three-level managerial system instead of central government control, highlighting the key role of the professional abilities of teacher, and so on. Taking Chinese language subject as an example, many specific aspects of curriculum and teaching were also changed, such as designing multi-level curriculum objectives containing the dimensions of skills and knowledge, process and methods as well as values and emotions; replacing the integrated textbook with diverse teaching materials; giving emphasis to student-centered teaching methods; and shifting from assessment of learning to assessment for learning (Cao, 2005; Huang, 2004; Huang & Lee, 2009; Ma & Tang, 2004; Ministry of Education of the People's Republic of China, 2001; Zheng, 2003; Zhong, Zhang, & Cui, 2001). Overall, many dramatic changes in various aspects were brought about by this curriculum reform.

In 2004, the Ministry of Education promoted the innovation of the NCEE to cater to the requirements of the curriculum reform. One of these changes was to decentralize and delegate the authority of designing of the exam papers to the responsible provincial governments. According to Wang (2006), the advantages of adopting this policy in Guangdong, Tianjin, and the other fourteen provinces are as follows: (1) the decentralization would alleviate the exam bias and accommodate variation of local context; (2) the possibilities of innovation might help the implementation of the curriculum reform; (3) the change could give local government more autonomy on the management of basic education; and (4) the innovation promotes exchange the experiences among different provinces.

Based on the aforementioned description, clearly, in the Ministry of Education's view, the NCEE should be promoted and be incorporated into the implementation of curriculum reform. However, many frontline teachers insist that the NCEE is an important factor that impedes them from conducting curriculum reform in the classroom because of the fierce competition induced by the high stakes of the NCEE.

For a complete picture of the NCEE, a brief history of exam culture in China should be provided here. In 603 CE, an imperial civil service examination system (科举 Ke ju) was introduced in China. Talented people were selected for managerial positions based on their examination results in Confucian classics, Chinese literature, and so forth (Deng, 2011; Lee, 2000). The expectation of the Chinese people and their experiences of Chinese language education were derived from this civil service background, such as learning objectives such as obtaining knowledge of traditional Chinese culture, learning strategies such as memorization and drilling, teaching Classical Chinese, and norm-referenced assessment. All these strategies continue to be commonly used by Chinese Language teachers. However, Chinese language teachers are aware of the necessity of innovations in Chinese language teaching and they have experienced the effects of these innovation. This duality between the traditional and the modern means that Chinese language teachers continue to face challenging tasks.

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RESEARCH QUESTIONS

Based on the previous description, this paper addresses the impact of the NCEE in China on Chinese language classroom instruction, and discussed the relationship between the NCEE and curriculum reform introduced in China a decade ago. Tyler (1949) advances four basic questions when designing an efficient curriculum:

– What educational purposes should the school seek to attain?
– How can learning experiences be selected which are likely to be useful in attaining these objectives?
– How can learning experiences be organized for effective instruction?
– How can the effectiveness of learning experiences be evaluated?

These four questions are useful and valuable for analyzing teaching and instruction comprehensively (Dillon, 2009). Based on the analytical framework of Tyler, our specific research question is as follows:

What are the impacts of the NCEE on teaching purposes, learning experiences, organization of learning experiences, and evaluation of learning experiences of Chinese language in senior middle school?

This paper is an attempt to depict a comprehensive picture of the relationship of the NCEE and Chinese language instruction, and thereby reveal the influence of the NCEE on Chinese curriculum reform for the next step.

RESEARCH METHODOLOGY AND DESIGN

This paper adopts a qualitative methodological approach to explore the research question. The main methods used to collect data were semi-structured interviews and document analysis. Although this approach is based on teachers' recollections and personal perceptions, and thus yielded only a partial picture of the impact of tests on teaching and learning, the value of this study lies in its revelations regarding the key actors in the educational process, namely teachers.

The data were collected from 2008 to 2009 in Guangzhou, a developed, coastal capital city of Guangdong Province in the South of China. As described above, some changes were introduced to the NCEE at the end of the last century. One of these changes is that local education departments started to have the right to design their own NCEE; that is, they can decide their own NCEE syllabus, format, and content. In 1999, Guangdong became the first province with the authority to design NCEE papers independently. Since 2004, some changes of test items aimed towards promoting the generic and practical abilities of students have been introduced to the Chinese Language examination papers of the NCEE in Guangdong.

For our study, we selected four strongly contrasting senior secondary schools within the city. School A is a key point school at provincial level. As one of the top senior secondary schools in Guangdong, the students of School A are selected from

Table 2. Status of sample schools and interviewees

School code	School level	Teacher code	Length of teaching experience (years)	Status
A	Key point	T-1	15 or higher	Panel head
		T-2	3	
B	Key point	T-3	15 or higher	Panel head
		T-4	5	
C	Ordinary school	T-5	15 or higher	
		T-6	6	
D	Ordinary school	T-7	15 or higher	
		T-8	3	

throughout Guangdong Province; thus, their achievements and abilities have led to School A being at the top level. School B is a key point school that has a long history. The students of School B are selected from Guangzhou City, and their level is not quite as high as that of the students of School A. Schools C and D are both ordinary schools, and the achievements of their students are at the medium and bottom levels, respectively. Eight Chinese language teachers in Grade 3 of senior middle school (equal to Grade 12 in North America) were involved in this research. The interviewees were at various stages of career development and had a wide range of responsibilities in the school context. They were therefore representative of the teaching body in Guangzhou City. The information of the interviewees is presented in Table 2.

The empirical data were transcribed and analyzed using NVIVO 6.0. Following the stages of familiarization and open coding, the data were initially divided into categories aligned with the research questions. Some nodes were developed specifically during the process of further analysis. In the discussion below, the code used below can be translated following the example *A-T-1 = Teacher 1 in School A*.

FINDINGS AND DISCUSSIONS

The impact of the NCEE on four facets (i.e., teaching purposes, learning experiences, organization of learning experiences, and evaluation of learning experiences) is analyzed in this part. The relationship between the NCEE and curriculum reform is also discussed.

Teaching Purposes

Most Chinese language teachers considered how to meet the requirements of the NCEE as their major teaching objective. As one teacher (B-T-4) said, "We know we should cultivate many facets of students' ability in Chinese; however, we do not

have enough time." Under the pressure of competition in the NCEE, most teachers had to facilitate students to achieve higher scores that were normal in Grade 3.

"Many students do not know how to answer the exam paper of the NCEE, although their abilities of Chinese are good enough. We need, especially in Grade 3, to teach them how to analyze questions and answer them correctly" (C-T-5).

"The most important task for us now is helping students to prepare [for] the NCEE. You know, this is a key period for our students. The university he will go to is up to the scores he achieves in the NCEE. This is an unavoidable challenge" (B-T-4).

"The principal always tells us that to make our students get a better grade is the most useful approach if we really want to help our students. Our students are not as smart as the ones in other key schools, but they also want to receive better education in tertiary institutions. We need to help them to turn their dream into reality" (D-T-7).

Although many teachers stated that some generic skills, such as critical thinking, creativity, and problem solving, are crucial to the development of students, most of them were frank and agreed that obtaining a higher score in the NCEE was the most important task at the moment. Hence, they analyzed the skills and knowledge required to do well in the NCEE, and transformed these into specific daily teaching objectives.

Notably, two experienced teachers who taught key point classes in Schools A and B mentioned they were always concerned about the needs for the future development of their students, in addition to exam scores.

"Our students are at the top level in our province. You cannot just think about the exam. From my point of view, our student can achieve excellent grades easily. Therefore, we must have a long-term view, and consider what benefits students' life and development. In addition to drilling for the NCEE, I always supplement various learning materials to my students for activating their thinking and eye-opening in my class" (A-T-1).

"Our school is well known in Chinese education in Guangdong. Our students, especially some excellent ones, are not satisfied with the limited content constrained by the NCEE. They can and want to learn more. We have to meet the needs of these students. In my class, I also set several objectives, the first one is designed with regard to NCEE, and the others are aligned to demands of students' future development" (B-T-3).

The data show that, if the students have higher level of abilities and could handle the NCEE easily, the teachers' instructional focus would have multiple dimensions for students' personal development. When the students are barely able to fulfill the requirements of the NCEE, teachers would just focus on the exam during their curriculum design.

Based on the empirical data, the washback effects of the NCEE on teaching purposes are clear. To a certain degree, the teaching purposes in Grade 3 are not aligned to requirements of the NCEE. As the MOE (2003) states, the teaching purposes of Chinese language should contain three dimensions: knowledge and skills, process, and methods, as well as emotions, attitudes, and values. A large portion of exam items of the NCEE is related with knowledge and skills that are much easier to assess than process or emotions. This directly leads to the frontline teachers' ignorance of process and method or emotions and attitudes during the instructional design. From this point of view, the NCEE is a hindrance for the implementation of curriculum reform. This is especially clear in ordinary classrooms or schools.

However, with the changes and innovation of the NCEE, more items designed to assess the multi-fold application of Chinese language abilities instead of the memorization of knowledge (Zhang & Zhang, 2008), results in teachers focusing on cultivating applicable abilities to some degree. This result is also aligned with the suggestions of the MOE and would benefit the future development of students.

Learning Experiences

Tyler (1949, p. 63) states that learning experiences refer to "the interaction between the learner and the external conditions in the environment to which he can react." Owing to the fact that the interactions between Grade 3 students and their external learning context are dynamic and difficult to observe, this paper attempted to interpret them through analyzing the learning materials. Although this approach is incomplete and incomprehensive, the value of these data lay in the learning experiences of students we were able to access.

The teaching materials used by Chinese teachers of Grade 3 can be divided into three categories. The first "Guidelines for Preparing for The NCEE," which is produced by a government agency called "Teaching and Research Unit" (教研室, *jiao yan shi*), contains compulsory teaching materials for teachers and students in Grade 3. The book provides key points and difficult points in exam papers of the NCEE as well as orientation prediction for forthcoming exams. Undoubtedly, this guideline book is extraordinarily important to teachers and students' in their lesson preparations.

"This (Guidelines for Preparing for The NCEE) is our textbook. We teach key points and difficult points in it and students practice these points by finishing the exercises providing by it. Now, our teaching and instruction mainly depend on this book "(D-T-7).

"We all use this book (Guidelines for Preparing for The NCEE) for preparing the NCEE, and I think it's the same to every Chinese language teachers in Guangzhou. It is just like a governmental interpretation of the NCEE. We surely emphasize the key role it plays in the process of preparing the NCEE "(C-T-5).

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The second category comprises school-based preparation materials that are subject to school context and teacher level. As an example, the Chinese teachers in Schools A and B are among the most able in Guangzhou City. The teachers in these two schools separately select and design their own materials for their students.

"To tell you the truth, our Chinese teachers are the best in our city. In addition, we know our students more than other material designers. We believe that we can select more proper and efficient materials for our students "(A-T-1).

"We design some materials for our students. It's our tradition. There are many excellent teachers in our school. They share the materials with others, and we believe in their selection and design. We always integrate these two types of materials (Guidelines for Preparing for the NCEE and school-based materials) in our teaching" (B-T-4).

The formats of these school-based materials are similar to those in the "Guidelines for Preparing for The NCEE." The prominent feature of these materials, as indicated by an experienced teacher of School A, is that the vast majority of questions included are more representative (closer to requirements of the NCEE) than those found in other concurrently produced preparation textbooks. In School A, the school-based materials basically takes the place of "Guidelines for Preparing for the NCEE." In School B, the school-based materials and "Guidelines" complement each other. For some schools where teachers could not design teaching content by themselves, the "Guidelines" book is used as textbook in Grade 3. The third type is mock test papers and other various materials provided by teachers. In these four schools, mock test papers are periodically used by all the teachers interviewed for diagnosing the weakness of students and giving instruction feedback to teachers.

In all, the NCEE exerts dramatic influence on teaching materials. Although three types of preparatory materials are used, they are all the collections of NCEE test items and their interpretations are were homogeneous. MOE (2003) states that curriculum materials should be diverse and alternative. However, the curriculum materials of Grade 3 in these four sample schools are monotonous and tedious, which makes the requirements of curriculum and the NCEE on teaching materials look contradictory.

In addition, educators seem to accept that listening, speaking, reading, and writing should be integrated during language education. Although teachers expressed the belief that oral expression is crucial to students' development, most teachers neglect improving the oral ability of students simply because it this not examined in the NCEE, which is inconsistent with the suggestions of the MOE.

We should note that, because of reforms in the exam papers, some other specific materials are also included, in addition to those containing traditional content. In recent years, in Guangdong Province, test items in Chinese subjects have had a close connection with daily life (D-T-7). The abilities of reviewing current affairs and how to apply Chinese in daily day have been part of the tests in the last few years. Therefore, some content related to current events, and exercises for improving problem solving skills, were provided by these teachers.

"Have you heard of a TV show called 'CCTV Lecture Room'? I always play some episodes for my students. During this process, my students can not only get much knowledge about history, but also exercise their thinking skills" (C-T-5).

"I set a discuss session at the beginning of my class. My students select some news they are interested in and share their opinions in several minutes. I hope this can push them to pay more attention to current events and get a good preparation for the NCEE" (D-T-7).

From this point of view, the changes of the NCEE do promote frontline teachers to integrate more life experience and current affairs into their language teaching, which are advocated and recommended by the MOE. NCEE and curriculum reform seem to consistent in these aspects.

Organization of Learning Experiences

The organization of learning experiences must be analyzed at the school level and the classroom level separately. Owing to the strong exam culture and desire for success in tests, the effects of washback on the organization of the Chinese curriculum and instruction can be categorized into two aspects: (1) time and content arrangement, and (2) teaching methods. This paper will review these items in turn.

Time and content arrangement. Many senior middle schools allot a whole year to prepare for the NCEE. In general, the new term begins in September in senior secondary schools. However, the four sample schools all advanced the beginning of Grade 3 to August. Most of the compulsory subjects have been taught in Grades 1 and 2; therefore, the emphasis in Grade 3 is on preparing for the NCEE. The procedure in Grade 3 could be separated into three stages, which are similar in all four sample schools. From August to February, during the first round of reviewing, every exam point (考点, *kao dian*) needs to be specifically analyzed and practiced. From March to April is the second round. During this period, teachers help students make up for their deficiencies according to the outcomes of a large number of mock tests. May is the last stage of the preparation. During this time, students reflect on their learning and are called upon to analyze their own individual weaknesses. Clearly, preparing for the NCEE is a permanent theme in Grade 3.

Teaching methods. The NCEE has had a noticeable impact on the teaching methods in Guangdong senior middle schools. Many teachers reported that they could use more flexible and interesting teaching methods in Grade 1 or 2 (equal to Grade 10 or 11 in North America), whereas they mostly depend on lecturing and drilling in Grade 3.

"You dare to make lessons more attractive, because the class format is more diverse in grade one or two" (B-T-4).

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"I agree that some methods such as discussion or role play are useful for enhancing the attention of students, but you usually cannot use them (in Grade 3); you can only use them every once in a while" (C-T-6).

"In Grade 3, I often adopt an induce-enhance approach to review" (D-T-7).

"What I am used to doing is more traditional…you should repeat the materials to students many times and remind them frequently" (D-T-8).

The above results show that the teacher's autonomy in choosing teaching methods has been constrained by the external pressure of the NCEE. Most teachers are inclined to adopt traditional methods in the classroom. As for the reasons, several explanations were provided by interviewees. First, these teachers considered lecturing and drilling to be more efficient. These teachers were experienced because they might have prepared for the NCEE for many times and have had much more success using lectures and drills during their instruction. As a teacher said, "I have taught Grade 3 for many years. Obviously, I am more experienced about the NCEE than my students. Sharing my experiences with my students is the most efficient way for preparation" (C-T-5). Second, constrained by limited preparing time, many teachers preferred to give up self-inquiry or cooperation learning, which requires much more time compared with drills and memorization. Third, a teacher stated that the main purpose of introducing student- centered teaching methods is to stimulate the learning motivation of students. In Grade 3, students already have strong motivation because they long to achieve better scores in the NCEE (D-T-8). Therefore, introducing student-centered methods into the Grade 3 classroom would be useless. MOE (2003) advances that teaching methods should be independent, cooperative, and enquiry-based. Teachers should construct constructive context so that their students could develop independent learning. Clearly, the effects of the NCEE on teaching methods in Guangzhou are not aligned with the requirements of curriculum reform.

Among the interviewed teachers, A-T-1 was different from the others. He said that he uses more-flexible teaching methods in Grade 3 according to the requirements of curriculum and students.

"I use many student-centered strategies in my class, such as project learning, peer evaluation, discussion and collaboration. In grade one or two, I helped them to build up solid foundation which means I tried to develop their abilities separately. In Grade 3, I tend to integrate their abilities. So I make my students do more complex or comprehensive tasks." (A-T-1)

Two main factors appear to have influenced A-T-1. Firstly, he teaches the key point class in a key point school, and the students of his class have high-level learning abilities. These students could develop their experiences much more flexibly and efficiently than could the others. Secondly, A-T-1, as an experienced teacher, served as the panel head for Chinese subjects and thus has more confidence in choosing teaching strategies and implementing more student-centered methods. Therefore, the NCEE does not seem to be the only culprit hindering teachers to transform from their

"comfort zone" to student-centered teaching methods. As these examples suggest, teachers' choices are affected by factors, including NCEE content, preparation time, school culture, student level, and other contextual factors.

Evaluation of learning experiences   MOE (2003) suggests that evaluation should undergo several changes: (1) the purposes of evaluation are for comprehensive development of students'' Chinese language abilities; (2) the evaluation should be ground in curriculum objectives and for all students; (3) the function of evaluation on diagnosis, stimulation, and development should be fully explored; and (4) the subjects of evaluation should be diverse. Because the curriculum reform was implemented five years ago, the realities of evaluation were not optimistic. Many teachers stated that they mainly assess their students in terms of standards of the NCEE. Although they contended that the scores and feedback of mock tests could not portray a complete picture of students' Chinese abilities, they have to align their evaluation to the requirements of the NCEE.

> "The exam content is definitely limited. It just evaluates a little part of students' knowledge and skills. In Grade 3, we must highlight this part that will influence students' exam scores dramatically " (B-T-3).

> "Chinese language ability is difficult to evaluate properly and accurately. For us, experienced teachers who have taught for many years, it is a big challenge to evaluate students in a whole. The NCEE after all gives us some indexes to assess our students objectively" (D-T-7).

Based on the interview data, the teachers' evaluations in Grade 3 and the suggestions given by the MOE have great discrepancies. However, we should point out that the NCEE is not the only source of blame. Some other reasons indicated by teachers also provided some clues to analyze the phenomenon of discrepancy. First, the comprehensive abilities of Chinese language are too difficult to evaluate accurately and reliably. As described above, the Chinese curriculum objectives should contain three dimensions. Among these three-level objectives, the level of process and method, as well as emotions, attitudes, and values, are difficult for teachers to measure. As a teacher stated, "it is well known that many aspects of Chinese language abilities are impossible to measure. This issue is up to teachers' subjective judgment" (B-T-4). Second, frontline teachers normally lack professional expertise in evaluating inadequate pre-service learning and in-service training. This has led teachers to mainly depend on examination papers to measure the Chinese abilities of students. In addition to the above causes, limited teaching time is also a major reason that could explain this phenomenon. For frontline teachers, using a flexible assessment format (such as portfolio assessment, peer assessment and so on) would be time-consuming, and therefore unrealistic for Grade 3students during the process of tense preparation. In short, the inconsistency of teacher evaluation and suggestions of the NCEE is caused by many reasons, and the washback effect of the NCEE is merely one of them.

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CONCLUSION

As Gu (2004) states, Chinese traditional exam system, the imperial civil examination, "cultivate servility instead of individuality, emphasis on outcome instead of process, and stress on rote learning instead of understanding still have an impact on today's schooling." Therefore, the success of curriculum reform is still widely believed to be rooted in successful implementation of the changes in the NCEE, which is closely connected with the imperial civil examination (Wen et al., 2005; Zhong, 2006). The results of this study also support this conclusion. From the empirical date, we did find a close connection between the curriculum reform and the NCEE. Unlike some previous declarations, this study shows us a complex picture of the effect of these two on Chinese subjects in senior secondary schools.

On the one hand, the NCEE constrains the behaviors of teachers. First, most Chinese teachers of Grade 3 focuses only on the specific learning objectives tested by the NCEE. Second, major teaching materials used by Chinese teachers were designed or are used to help students prepare for the NCEE. Third, more modern, student-centered instructional strategies are used sparingly by teachers of medium or bottom level schools. Fourth, the standards of the NCEE seemed to be the major criteria for Chinese teachers to evaluate their students in the classroom. However, due to the changes in the NCEE, a focus on current events and on the students' personal life experiences has been introduced into the classroom, which is consistent with the requirements of curriculum reform.

Based on the results of this paper, the washback effects on teaching practices have been found to be varied. If students' abilities are at higher level and teacher is experienced, the curriculum would be more open, flexible, and integrated, and the negative effects of the NCEE would be alleviated. First, this phenomenon reveals the key role teachers played in curriculum and instruction. Second, the common realities of the "blind adherence to the NCEE" of teachers expose the general lack of assessment literacy in teachers. Popham (2009) insists that assessment literacy is necessary for the long-term well being of teachers, as well as the educational well being of their students. With the increasing demands for test-based evidence of the effectiveness of schools and teachers, professional teachers with comprehensive assessment literacy at least have some possibilities for diverse interpretations and individual understanding. Third, the voices of students need to be highlighted in the research of washback effects and curriculum reform. This paper buttresses the individual differences of students during the learning process. Exhibiting the feelings and opinions of students might provide us different image of the washback and curriculum reform (Cheng, 2008) that could actually engine the innovation process. Finally, a viable replacement has not been found; they, we cannot yet say no to the traditional curriculum system in current educational reform. Many new challenges will arise without effective vehicles to resolve them. From this point of view, the NCEE may provide extra time for reflection, a chance for deliberation, and a stable platform for us to gradually implement our curriculum reform.

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24. TEACHER EVALUATION AS AN APPROACH TO ORGANIZATIONAL LEARNING

A Case Study of Taiwan

INTRODUCTION

After decades of development, the meanings and content of evaluation continue to evolve. In the context of educational reform, evaluation is used not only for assessing performance, but also for enhancing the competence of teachers and facilitating the improvement of schools. Thus, evaluation is related to improvement, development, and capacity building. Combined with the concept of "mainstreaming" evaluation (Sanders, 2002), evaluation, instead of being a temporal, additional task, is expected to be incorporated into school life as a crucial mechanism for promoting organizational learning (Chen, 2007; Chen & Lin, 2008; Cousins, 1998; Davis, Ellett, & Annunziata, 2003; Thornton, Shepperson, & Canavero, 2007; Torres & Preskill, 2001).

Initiated by the Ministry of Education (MOE) in 2006 to evaluate teacher performance, Teacher Evaluation for Professional Development (TEPD) has been a core policy in Taiwanese elementary and secondary schools. Although this professional, growth-oriented approach is an externally applied intervention, individual schools have considerable room to determine, design, and then implement the policy. Most relevant research on teacher evaluation concentrated only on the aspect of implementation (Lu, 2007; Pan, 2005), or on teacher perceptions of and attitudes toward evaluation (Chen, 2008; Yen & Hung, 2007). Few studies (Davis, Ellett, & Annunziata, 2002) linked teacher evaluation and school improvement. This shortage limits the understanding of the potential of evaluation. Thus, the manner by which TEPD can promote school development is an issue of practical and theoretical importance because meaningful teacher evaluation can be a vital catalyst for organizational learning and school improvement.

A qualitative case study was conducted at a high school that had successfully implemented TEPD to explore how teacher evaluation can be a catalyst for organizational learning. The case study intended to capitalize on the program for school development. Specifically, the current study applied the concept of organizational learning mechanisms (OLMs) to substantiate how and why organizational learning occurs (Armstrong & Foley, 2003; Popper & Lipshitz, 1998, 2000). Referring to organizational learning mechanism as concrete structural and procedural arrangements will contribute to the literature on how the organization learns.

CONCEPTUAL FRAMEWORK

Organizational Learning

Empirical research on organizational learning has considerably increased since the 1990s. Several previous studies adopted a learning perspective to explain the performance and behavior of organizations (Bapuji & Crossan, 2004). To conceptualize organizational learning, we analyzed the types or levels of learning (Argyris & Schon, 1996; Senge, 1990; Watkins & Marsick, 1993) and the developmental stages of organizational learning (Tang & Chen, 2006). Then, we compared the processes and outcomes (Crossan, Lane, & White, 1999; Lam, Chan, Pan, & Wei, 2003), or distinguished the prescriptive theories from descriptive ones on organizational learning (Tsang, 1997). After reviewing previous research, we identified three important issues as the basis for analysis.

First, regarding the distinction between organizational learning and learning organization research, Tsang (1997) suggested that organizational learning theories should emphasize scientific rigor by asking, "How does an organization learn?" By contrast, learning organization theories should inquire "How should an organization learn?", thus targeting practitioners; the answers are usually based on the author's consulting experience (e.g., Senge, 1990). Second, concerning the processes and outcomes of organizational learning, Lam et al. (2003) reformulated Senge's work and proposed a model that utilizes organizational learning processes and outcomes to construct a two-by-two typology. Crossan, Lane, and White (1999) divided organizational learning into three levels, each with its own processes and outcomes. At the individual level, with the processes of intuiting and interpreting, the outcomes are experiences, images, metaphors, language, cognitive map, as well as conversation and dialogue. At the group level, the process of integrating results involves shared understandings, mutual adjustment, and interactive systems. At the organization level, institutionalizing assembles routines, diagnostic systems, and rules and procedures.

The third issue is one of the core debates of organizational learning, which involves applying theoretical perspectives. Cognitive perspective focuses either on individual learning in an organizational context, or on explanations regarding organizational action according to the individual learning model. To understand organizational learning as "learning by organizations," Cook and Yanow (1996) emphasized the critical role of culture in organizational learning and then formulated a cultural perspective as a supplement.

OLMs

Beyond the definitive question that asks, "What is organizational learning?", a growing, but still limited, number of previous studies turned to another relevant issue, which is "How organizations learn?" or "What are the OLMs?"(Armstrong &

Foley, 2003; Barkai & Samuel, 2005; Ellis & Shpielberg, 2003; Lipshitz, Popper, & Oz, 1996; Schechter & Feldman, 2010).

Popper, Lipshitz, and Oz (1996) proposed a two-faceted approach to organizational learning. The structural facet of OLMs entails institutionalized structural and procedural arrangements that allow organizations to collect, analyze, store, disseminate, and retrieve information that are relevant to organizational performance systematically. In contrast, the cultural facet involves focusing on shared values and fostering OLMs to be enacted in a meaningful way. The five cultural learning values related to OLMs are continuous learning, valid information, transparency, issue orientation, and accountability (Lipshitz, Popper, & Oz, 1996; Popper & Lipshitz, 1998, 2000). From an information processing perspective, Schechter and Feldman (2010) attempted to operationalize organizational learning by bringing up the concepts of two facets that integrate the structural and cultural elements of organizational learning. In accordance with this framework, Schechter and Feldman explored OLMs in a special education school and found that educational class meetings, learning sessions in a joint place, monthly faculty meetings, and teacher pedagogical meetings presented the OLM picture. In a nutshell, OLMs, institutionalized structures, and procedures enable an organization to learn. Furthermore, these are directly observable organizational systems. To produce actual learning, OLMs need to be embedded in a normative system of shared values and beliefs.

METHODS

Research Design

We adopted a qualitative case study approach to inquire how evaluation can facilitate organizational learning at a high school (School P), which was chosen as the site due to its successful implementation of the TEPD program, and because its principal (Principal P) regarded the program as an integral factor in the school development plan.

School P has been launching action plans to increase its competitiveness since the 1990s. Relevant teacher evaluation measures have been adopted and tested. With 12 years of experience, School P implemented the TEPD program in 2006, resulting in school improvements. Thus, how the school used evaluation to trigger organizational learning kindled our interest to investigate this case further.

On the strength of representing real life and embodying abstract theoretical terms (Cohen, Manion, & Morrison, 2000), the case study approach is especially appropriate for answering "how" and "why" questions (Yin, 2003). Thus, employing a qualitative case study approach is appropriate in obtaining contextually rich descriptions of organizational learning and its mechanisms because OLMs involve a vague theoretical concept, having only few empirical studies that showed concrete examples connecting evaluation and OLMs.

School Context

School P is a private high school in a small Taiwanese town, with approximately 160 teachers, 30 administrators, and 4,000 students. The administrative structure consists mainly of six divisions: academic affairs, student affairs, general affairs, student counseling, personnel management, and accounting office. Each division has a director and several chiefs. Except for the directors of the personnel and accounting offices, as well as the chiefs of the general affairs division, the directors and chiefs are all teachers with administrative positions. As a comprehensive high school, School P provides both academic and vocational programs. Leaders of the programs (department chairs) can teach fewer classes in order to serve administrative and leading responsibilities that link administrators and teachers.

The students of School P are mostly from a lower economic status because of its geographical location. In addition, the decreasing birth rate has placed tremendous pressure on the school. Recruiting enough high quality students has become a considerable task for the principal and teachers.

Principal P has worked at School P for over 15 years, and is knowledgeable of the context of School P. Focusing particularly on TEPD when studying for her master's degree, Principal P has a clear concept of TEPD and a blueprint for implementing it at School P. An administrator mentioned that "she (Principal P) can get right to the point, put it into practice at school, and lead the whole school to implement TEPD." Her emphasis on the program reduced the "wait and see" attitude among teachers.

Data Collection

Three methods, namely, observations, interviews, and document analysis, were employed to collect data. The research team conducted nine observations during the research period, focusing on implementing TEPD at School P and how the program prompted organizational learning. Thus, in addition to observing general school activities, we attended meetings related to TEPD, including administrative meetings, curricular development council meetings, subject department meetings, and TEPD task group meetings. Each meeting lasted from one and a half hours to two hours.

To supplement the data from observations, this study conducted semi-structured interviews with 17 staff members, including the principal, 5 school administrators who are deeply involved in the evaluation program, 7 department chairs, and 4 teachers with varied years of service. The principal, school administrators, and teachers were individually interviewed. The department chairs were arranged into two focus group interview sessions to compare similarities and variations among different programs and to stimulate additional thought (Krueger & Casey, 2000). Each focus group interview lasted for approximately two hours, whereas each individual interview lasted from 60 minutes to 90 minutes. Documents, such as school development plans, TEPD proposal, TEPD tools, meeting minutes, and information from the school website and teachers' blogs, were also collected for analysis.

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Data Analysis

Collecting and analyzing data were ongoing processes that simultaneously occurred throughout the study (Strauss & Corbin, 1994). Data from the field, including interview transcriptions, field notes, and school documents, were coded, compared, and then analyzed to develop patterns, categories, and themes (Strauss & Corbin, 1997). Emergent themes were named from both field data and literature reviewed. Four themes that presented the OLMs at School P were identified from these processes.

Different data sources (principal, administrators, department chairs, and teachers) and diverse data collection methods (observation, interview, and document analysis) were used for triangulation (Patton, 2002) to enhance the validity of the study. Furthermore, during the research period, the research team regularly discussed the research results to clarify and stimulate possible perspectives for analysis. Member check was also performed by inviting Principal P to research team meetings, which allowed her to express her opinions on the data and tentative analysis.

FINDINGS AND DISCUSSIONS

TEPD Program and its Implementation at School P

TEPD program in Taiwan. Teacher Evaluation for Professional Development (TEPD) is a national teacher evaluation program for K-12 education teachers. To encourage teachers to promote professional competence voluntarily, TEPD emphasizes school-based, growth-oriented, and formative evaluation, thereby allowing schools and teachers to decide whether or not to participate, as well as to develop the evaluation program freely but within certain guidelines. Schools can select evaluation contents from four domains, namely, curriculum and instruction, classroom management and guidance, research and in-service training, as well as professional ethics. They can also decide the evaluative indicator of the chosen domains and the ways to acquire evaluation data from multiple sources, such as classroom observations, teaching portfolios, teacher interviews, and responses from students or parents (MOE, 2010).

TEPD program implemented at School P. Before the MOE initiated the TEPD program in 2006, School P had conducted teacher evaluation measures, such as teacher self-assessments, classroom observations by administrators or department chairs, surveys of students' curricular satisfaction, and development of teaching portfolios for years. Based on experience, School P efficiently conducted the teacher evaluation to ensure that all teachers participated in the program. The strategies and practice can be analyzed as follows.

Integrating evaluation activities into school routines. Recognizing the key role of teachers in schooling, Principal P introduced changes to School P with the expectation of enhancing teacher quality. Consequently, the TEPD program was one

of the initiatives. As part of the school improvement plan, TEPD was integrated into school routines by Principal P, who hoped to sustain such method and to reduce teachers' resistance to new tasks. With her experience in conducting teacher evaluations, she said, "I hope that teachers can regard it as something they should regularly do, something that is immersed in their lives."

Specifically, School P listed TEPD as a core task in school development meetings and academic affairs meetings. In addition to the financial aid from the MOE, School P allocated part of the school's budget for the program. Regular subject department meetings were conducted not only to illustrate the policy and details of TEPD, but also to discuss reasons for and ways to implement it. Student surveys and classroom observations by department chairs continued. Activities for teacher professional development, such as workshops or speeches, were organized according to TEPD topics.

Applying distributed leadership to help facilitate the implementation. To implement TEPD effectively, a task group that consisted of Principal P, administrators, and department chairs was assembled for administrative responsibility. The chairs of different subject departments were empowered as teacher leaders to lead discussions on evaluation indicators and classroom observations. Furthermore, professional learning communities led by department chairs were used as tools to facilitate teacher evaluation. According to Principal P, department chairs are not only teachers, but teacher leaders who play vital roles in the school. Hence, she continually communicated with them regarding her ideas. As Principal P stated to department chairs in a meeting, "I hope you become the knowledge leader of your department, to play the role of chief executive of knowledge."

Aside from using department chairs, Principal P discovered and used "seed teachers" during the implementation of TEPD. A teacher talked about their functions, "When learning the process of e-portfolios, many teachers had no idea about them. These seed teachers taught us and are now our mentors. We learned more with their help." The strategic practice of distributed leadership allowed more school members to lead (Spillane, 2006), which resulted in the enhancement of the influence and effectiveness of the program.

Practice of TEPD at School P

School P joined the evaluation program in 2006. The TEPD task group and the academic affairs division constituted the main administrative body that was responsible for both administrative support and research program development. The process of implementing the program can be divided into several phases, which are as follows.

Training. Principal P regarded TEPD as a necessary initiative for school improvement. Thus, she seized opportunities to talk with staff regarding the importance of TEPD to the school, and then clarified the misunderstanding of linking TEPD to the annual performance grading of teachers. To strengthen teacher competence in

conducting TEPD, School P conducted 16 workshops from August 2007 to the end of 2008. A manual for implementing TEPD was written and sent to all teachers as reference. The MOE provided systematic training courses regarding TEPD, a national program. Over 60% of teachers at School P completed the basic and advanced levels of training, and 10 additional teachers attained the certificate of mentor teacher, a substantial number compared with other schools. Statistics show how much School P facilitated the program and how they valued it. On the effects of such efforts made, a department chair said in a meeting, "There are increasingly more teachers knowing where our school is going and knowing the importance of being professional."

Deciding evaluation indicators. Before conducting evaluations, schools that implement TEPD have to decide on the evaluation domains and indicators. To provide teachers with a complete picture of the TEPD program, combined with the evaluation experience of the school, School P chose all four domains for teacher evaluation. Regarding the next stage, the academic affairs division provided every subject department with varied versions of evaluation indicators. After discussions in subject department meetings, the task group carefully revised the draft to ensure that indicators were feasible in the context of School P. Finally, 10 subunits with 92 indicators were confirmed within the four evaluation domains.

Collecting evaluation data. Teachers collected evaluation data in accordance with the evaluation indicator. Evaluation data came from multiple sources, including self-evaluation, classroom observations by peer teachers, teaching portfolios, and student surveys. More specifically, self-evaluation was conducted near the end of each semester. Teachers had to reflect on and complete a four-point scale survey that assessed their performance within four evaluation domains. Department chairs conducted a classroom observation for one teacher per month. Simultaneously, individual teachers selected one another as partners, acting as each other's observer. The work was completed at least once every semester with a three-step process that involved a pre-observation meeting, a classroom observation, and a post-observation meeting. Portfolios were completed by teachers and then sent to the academic affairs division at the end of each semester. Evaluators used the portfolios for assessment. All portfolios were exhibited for teachers to learn from each other. Superior pieces were chosen by teachers and then awarded during meetings. Finally, student surveys of teaching were completed at the end of each semester, which is a rare practice in other schools in Taiwan. Each teacher received his/her own evaluation statistics at the beginning of the next semester. The average points of the department they belonged to were also provided for comparison and reflection.

Preparing individual evaluation reports. Each teacher's evaluation data were compiled in a report that listed the results from multiple sources. The task group discussed all reports, but did not assign a synthetic grade for the comprehensive performance of teachers. The report was confidential and was only accessible to the task group members,

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the administrators responsible for teaching affairs, and the teacher under evaluation. After receiving the report, teachers designed their own professional growth plans and then reflected on the implementation of these plans. If teachers had doubts or different opinions about the results of the report, they could write them in the opinion column of the report. The task group would then consider them during meetings.

OLMs of TEPD

Institutionalized arrangements of TEPD that stimulated reflections on the teaching profession. In implementing TEPD, some teams, such as the implementation team and professional learning communities, and some activities were initiated or systematized. Analyzing the experiences of teacher participation, particularly in these institutionalized arrangements related to TEPD, including workshops, professional learning communities, classroom observation, and portfolio assessment, provided new experiences or insights that stimulated participants to reflect on teaching as well as on the teaching profession. A department chair and a teacher both talked about the stimulus to change.

> In the past, I just taught without thinking too much. After attending TEPD workshop held by the MOE, I found that I may think a lot about my teaching…
> …I am lucky to be the department chair because I have the chance to observe peers' teaching in my department so that I can learn from them and make reflection. I can also widen my horizon and know what the good teaching approaches are.

> I have been taught for many years. In the textbook, there are lots of notes I took before. I felt I could teach well with the textbook. But now, (after observing other teachers teaching) I have found that I can't just stay there. When I see them do such a good job, I feel like making some changes. And I think I should push myself to do so.

These reflections resulted from new experiences and stimulated cognition and new feelings in the organizational learning cycle (Cousins, 1996; Senge, 1990). In addition, these may develop further into new attitudes and beliefs that would change teachers' cognitive maps about or actions toward teaching and education. In other words, the wide diversity of activities and institutionalized arrangements provided teachers with new experiences, which were catalysts for individual learning and, thus, were a crucial OLM to School P.

Participatory feature of TEPD-created channels for fostering cultural knowledge. From a cultural perspective, social interaction is the key concept of organizational learning. The TEPD process offers opportunities for participation and interaction. Using peer observation, teachers may become the evaluand and the evaluator. Teachers become involved in discussing the school-based evaluation plan, thereby exchanging ideas on the activity goals, indicators, and methods. Through

this process, teachers develop a shared understanding of effective teaching. A teacher mentioned the interactive feature of TEPD:

After the classroom observation, we discuss with the observed teacher about his/her teaching merits and drawbacks. And when we get the evaluation report, we may have a talk with ourdepartment chair or the director of academic affairs.

One benefit of the participatory design was increasing the suitability of the evaluation to the evaluands' needs. The evaluands could receive more useful feedback, and the program ownership was simultaneously enhanced, which were vital factors to organizational learning. A department chair discussed the advantage he gained from the participatory design.

I asked another (teacher) to observe my class. In the pre-observation meeting, I hoped that he could check for me if I answered the questions right after I threw them out. After he did that for me, I started to correct the bad habit.

In summary, TEPD encouraged individuals to learn together and resulted in institutionalized consequences of organizational learning. Teachers usually worked in pairs or groups during the implementation. After attending workshops, subject department meetings, professional learning communities, and classroom observations, the teachers learned and became familiar with the evaluation routines and procedures. Moreover, they understood how to use evaluation to achieve improvement. This "know-how" became a part of the organizational knowledge that was shared by school participants. Cultural knowledge was transmitted through artifacts of rituals, symbols, and language, thereby guiding the members in their actions.

Transparency of professional performance created by TEPD induced effective discussions with empirical bases. The professional performance of teachers became more transparent during the TEPD implementation. Their competence and development could be seen and examined through classroom observations as well as from teaching portfolios. Teachers obtained more empirical and effective information for reflection, communication, and assessment, along with student survey results. Moreover, administrators similarly joined the evaluation program to collect evaluation data by using the aforementioned multiple sources; and thus, their evaluation results likewise came from their teaching performances and not from their administrative posts. Therefore, regardless of the bureaucratic structure, TEPD helped develop an issue-oriented culture (Popper & Lipshitz, 2000) where teaching competence could become new criteria for defining the relationships among different roles other than the hierarchical administrative duties. As Principal P stated,

In the past, we judged how well a teacher taught based solely on instincts. We "felt" he or she was hard-working in managing a class. When a class won prizes, it was regarded as a "good" class. But now, I have many perspectives coming from TEPD. I can judge a teacher by his profession. . . . . Although he is the director, he belongs to a certain subject department. Because he got a score lower than 3, the department chair is arranged as his mentor for teaching, observing his teaching once a month and giving him feedback.

A teacher who had been an administrator similarly mentioned the effect of the issue orientation.

An advantage is that when talking about teaching, even though I am a director, I am also a teacher and have to attend the subject department meetings. At that time, my identity was a teacher, and they said it was my turn to share something.

The data-based evaluation activities allowed for organizational learning through collaborative professional development. Such learning similarly advanced from the processes of intuiting to interpreting and integrating, as well as from the individual level to the group level (Crossan, Lane, & White, 1999). The transparency also provided opportunities for the evaluands to review the gap between their actual performance (theory-in-use) and the performance they believed they demonstrated (espoused theory) (Argyris & Schon, 1996). This review is an essential and powerful element of organizational learning.

TEPD e-files provided the platform for storing and disseminating organizational knowledge. Administrators and teachers at School P were required to prepare electronic copies of the files related to TEPD, such as teaching portfolios and meeting minutes. Classroom observations were also recorded on video to obtain digital files that were easy to use, share, and store. Among all the efforts, blogging was advocated by Principal P as the medium or platform to design teaching portfolios in the third year of TEPD implementation.

With the aim to increase the accessibility to and ease the organization of teaching portfolios, School P conducted workshops to teach the staff on starting a blog and using it to manage their own portfolios. Principal P mentioned the benefits of such interactivity in the interview.

I feel that teachers love blogs. Maybe because it's a trend and it makes it possible for them to have an alternative channel to interact with students. Now, I visit the blogs every day, too.

In the task group meeting, department chairs shared their observations regarding the design and use of blogs.

Teacher A has made lots of efforts to build the teaching blog. I am very surprised. We can get on to see how she designs and manages it. The framework she used is very comprehensive and is worthy to learn.

They immediately checked online to see the mentioned blog. In other words, viewing and learning from the work of colleagues became substantially easier for teachers.

The computerization and cyberization endeavors allowed for storage of TEPD information, which contained the tacit knowledge of teachers and wisdom from various professional dialogues (Nonaka & Konno, 1998). In addition, spreading the personal knowledge of the teachers became easier. In summary, the effects of computerization forced the teachers to clarify and interpret their vague ideas, as well as to externalize their instincts, tacit knowledge, and the outcome of social interaction. The process not only facilitated organizational learning at the individual and group levels (Crossan, Lane, & White, 1999), but at the organizational level for

School P as it expanded the channel of knowledge interaction for members as well as became a powerful mechanism for knowledge sharing.

Facilitating Factors of OLMs

Evaluation history. School P had conducted activities similar to teacher evaluation before entering the TEPD program. Principal P integrated these "old" activities into a systematic one. Although workshops or conferences and e-portfolios were extra mandatory work, many teachers felt no substantial changes to their daily lives. As one administrator stated, "Is this what we have been doing since years ago?... I don't feel the big disturbance to my work."

The evaluation history of School P thus helped the participants become quickly familiar with TEPD and increased their acceptance of the program. The resistance to trigger organizational learning was likewise reduced (Senge et al., 1999).

Principal leadership. The leadership of the principal and management team significantly affected organizational learning and the practices of OLMs (Schechter & Feldman, 2010; Silins, Mulford, & Zarins, 2002). With regard to Principal P's leadership behavior related to TEPD and its influence on organizational learning, she served as both promoter and learning advocate (Mai, 2004). For example, aside from conducting activities for all teachers, Principal P led the task group in reading through an article on teaching portfolios. In the follow-up meetings, two members alternately shared ideas after reading articles on professional development and learning communities. Principal P facilitated the discussions and further connected the reading to the workshops and communities operating at School P, enhancing their knowledge base of the "what" and "how" of TEPD-related issues. Such display of leadership was a crucial infrastructure in assembling a leadership team that was beneficial to organizational learning.

Principal P likewise demonstrated another essential leadership behavior, which was the adoption of a distributed leadership (Spillane, 2006). She empowered department chairs to lead their respective teachers, cultivated "seed teachers" to help their colleagues implement certain activities, and established learning communities related to the four evaluation domains. These strategic actions enabled an increasing number of teachers to share the leadership role. The influence of the TEPD program and the effects of organizational learning thus widened.

Enabling activities. School P spent considerable time and effort in communicating with teachers regarding the TEPD program. Furthermore, the school held numerous workshops, sent teachers to MOE training courses, and used subject department meetings to strengthen participant competence in conducting the evaluations. A teacher mentioned the efforts expended in conducting these activities, "Before implementing the program, Principal P made every teacher know clearly what they would have to do, to prepare, and why they had to do it."

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One reason for the willingness of School P teachers to participate in the program was that Principal P related TEPD to the survival of the school. She regarded TEPD as a means not only to advance the teachers' professions, but to develop School P's competitive advantage to contend with the challenge of attracting students in the low birth-rate era. She stated that,

> Working at a private school, we have to be responsible for our survival and development. If we can't survive, let alone professionally develop. When I communicated with teachers from this point, they became more willing to agree and accept.

The enabling courses and activities prepared teachers to attain a clearer concept of the program and thereby improve relevant skills. For example, after the director of the academic affairs led teachers to watch a film and discussed how to perform classroom observations, a senior teacher shared that, "After watching the film, I have a clearer concept about how to do the pre-observation meeting." In summary, school member evaluation capacities, which were beneficial to the use of evaluation as an OLM, expanded during the process (King, 2007).

Teachers' shared values. One essential reason for the successful TEPD implementation of School P was that many of the teachers had long tenure. They knew their situations and regarded themselves as part of the organization. As two administrators articulated during the interview:

> We all know that if a private school wants to survive and to excel, teachers' commitment and hard work is a necessity. Although teachers sometimes feel tired, they think it is worth doing.

> We can't afford to take the risk of splitting up.

This identification with the school fueled the support of the teachers and became the key to prompt organizational learning (Leithwood, Jantzi, & Steinbach, 1998). In addition, the evaluation history of School P allowed teachers to share the perspective that evaluation provides informative feedback for teaching improvements during the TEPD implementation. This embedded culture facilitated OLM to trigger organizational learning.

Low teacher turnover rate. Generally, private schools in Taiwan have higher turnover rates compared with public schools. Although School P is a private high school, the school personnel were quite stable at the time of this study. Only 10 out of 152 teachers left in academic year 2007 to 2008, and 14 out of 162 teachers left in school year 2008 to 2009. The turnover rates were 6.25% and 8.64%, respectively. The stability of the personnel at School P lessened the problem of training new staff members each year. At the same time, the learning culture that facilitated organizational learning could be preserved and strengthened.

Hindering Factors of OLMs

Time constraints. A common problem encountered during TEPD implementation was the lack of time, which was also a challenge in the execution of organizational learning (Senge, 1999). Although teachers at School P were familiar with most of the evaluation activities, they remained pressured by the lack of time. After all, teachers had courses to prepare for and teach. Any additional tasks took from their time. As two department chairs stated,

> We have many meetings to attend, like the subject department meeting, pre-observation, observation, and post-observation meeting. Our principal hopes the minutes of the meetings will be done as soon as possible. So the time is quite insufficient.

> It's even more time consuming to reflect and write minutes than to attend the meeting.

Sharing organizational knowledge is one of the core tasks of organizational learning (Huber, 1996). Computerization of the knowledge and wisdom from the evaluation process could be considered the infrastructure. However, the concern of excessive work may hinder organizational learning. Storing organizational knowledge and accepting too much workload remained an unsolved problem.

Effects of teacher performance grading. Stricter annual performance grading places greater pressure on private school teachers to demonstrate their accountability compared with those in public schools. In School P, Principal P continuously announced that the TEPD results would not be used as a source for the yearly performance grading, and yet teachers retained several concerns. A department chair stated,

> We have found that they are not as connected as we thought. But, we feel that it is something we have to do well (in) because it may still be part of the grading.

> Therefore, although TEPD was used for development, participants were sensitive regarding the results and their possible uses. The teachers remained uncertain on how Principal P would think upon seeing drawbacks on the report.

When participants regard evaluation as a threat, they feel uneasy about the dialogue that may facilitate organizational learning (Torres & Preskill, 2001), or adopt impressions of management strategies to improve their outlook (Lin, 2008). Therefore, the extent of these effects could hinder TEPD-related organizational learning.

Concern on organizational politics. Apart from the effects of performance grading, micro political concerns similarly resulted from the balance between reporting evaluation judgments and maintaining favorable relationships with the

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evaluands. A department chair felt that, "It's hard to point out, especially write down, the drawbacks." However, as another chair said, "It's meaningless to write only something superficial." Hence, he used certain skills to overcome the problem.

> I talked about the part to be improved in person, but I selected the words carefully to make him feel that he was good and I was offering sincere and positive suggestions.

The increasing number of teachers completing the MOE training courses and the accumulation of their hands-on evaluation experiences appeared to improve their communication skills. However, the concern of organizational politics remained a challenge.

Previous studies indicated the influence of political factors on organizational learning (Chen, 2007; Stronge & Tucker, 1999), but the micro political hindrance, which was determined in this research, was seldom emphasized. Developing collegial relationships is one of the keys to organizational learning (Fullan, 2001); therefore, this issue requires a solution.

In summary, TEPD was a catalyst for organizational learning at School P because of the OLMs created by the successful implementation of its program activities. Figure 1 indicates how TEPD prompted organizational learning as well as the influential factors and consequences of organizational learning.

In Figure 1, the program activities are shown to result in the production of OLMs. This result echoed the proposal of Popper and Lipshitz (1998, 2000). Structural and procedural arrangements of classroom observation, professional learning communities, and workshops were observed. Moreover, the characteristics of the program itself, such as the participatory feature or the characteristics of
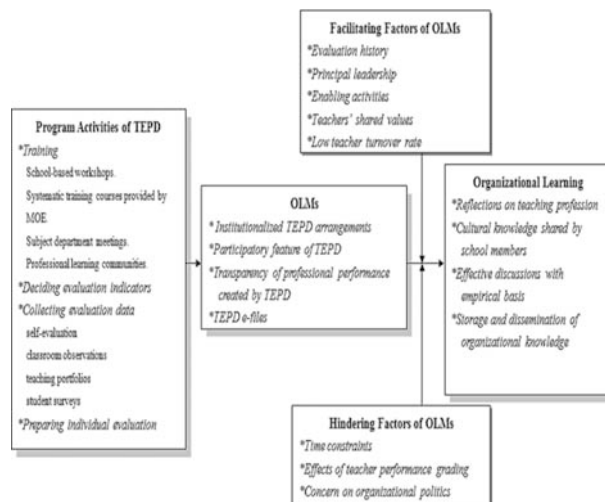

Figure 1. Process of organizational learning prompted by TEPD at School P.

the consequences of its operation that cause the transparency of professional performance, were determined to be extensions of the work of Popper and Lipshitz (1998, 2000).

Figure 1 indicates that the OLM outcomes caused organizational learning. However, OLMs do not necessarily cause productive learning unless an appropriate culture is embedded. The shared values of teachers are considered beneficial to OLMs. Moreover, this study further suggests that other contextual and operational variables mediate the relationship between OLMs and organizational learning. Situations exist wherein new teams were assembled and TEPD activities were initiated, yet no organizational learning was obtained. Several schools even ceased the program after a certain period (Pan et al., 2010). Thus, we may conclude that TEPD could potentially develop OLMs that would facilitate organizational learning, but its effectiveness is influenced by other cultural, contextual, and operational factors.

CONCLUSIONS

This study reveals that teacher evaluation could be an effective approach to school change. Teacher evaluation triggered organizational mechanisms that in turn became catalysts for organizational learning. The OLMs developed because the evaluation program created new experiences for the participants, which were potential stimuli to pursue personal mastery. Second, the participatory design of the evaluation institutionalized and systemized the opportunities for professional dialogue and mutual learning. Therefore, knowledge sharing and mutual understanding were facilitated among organizational members. With multiple sources of evaluation data, TEPD enabled the transparency of professional performance and constituted the empirical basis for discussion and reflection. Finally, the computerization efforts facilitated storage and dissemination of organizational knowledge. With the identification of concrete organizational mechanisms and the mediators between OLMs and organizational learning, this study advances our knowledge of school learning and proposes a policy on more effective promotion of teacher evaluation programs.

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25. REFORMS IN STUDENT ASSESSMENT IN MAINLAND CHINA

Contexts, New Policy, Changes, and Challenges

CONTEXTS

China has the longest history of examination in the world. Under this powerful tradition, student assessment in China, in the forms of examinations and tests, has been achievement-oriented, elitist, and bureaucratic (Gao, 2002). A student needed to pass numerous after-class tests, module tests, mid-term tests, term tests, year tests, graduation exams, and two important public examinations: the regional public examinations for senior secondary school entrance and the national university entrance examinations during his/her school years. Figure 1 describes briefly the school assessment system before 2001 in China.

Because the quality of workforces is viewed as an important factor to edge the Chinese economy, human characteristics such as "creativity," "innovation," "entrepreneurship," and "capability" have become the foci of education. Learning not only means the acquisition of knowledge, but also to experience the process of problem solving, communication, and cooperation. However, the above system weighted heavily on external assessment and emphasized the uniform standards. It did not take into account the diversity of students, and neglected the rights and roles of students. Pen-and-paper tests, the most common form of assessment, assessed only the quantitative aspect of knowledge and lower-level learning skills. The ability to solve real life problems and higher level thinking skills, the approaches to learning, and attitude and value of students towards learning were all neglected in this system (Gao, 2003). The power of examinations and tests also made it "a baton conducting teachers, students, and the teaching–learning process," which led to an exam-orientated style of teaching and learning in schools all over China. Teaching and learning then focused sharply on drilling students with exam techniques in order to obtain higher marks (Gao & Watkins, 2001). Assessment, in this way, became an obstacle for improving the quality of learning and teaching, contradicting research findings in education and the worldwide trends of education and curriculum reforms in the past decades (Gao, 2002).

To keep pace with the world, China moved to reform its national curriculum for basic education, as well the school assessment system, with a new orientation

Primary	Junior Secondary	Senior Secondary	
After-class test	After-class test	After-class test	School based
Mid-turn test	Mid-turn test	Mid-turn test	Regional based
Turn test	Turn test	Turn test	
Year test	Year test	Year test	
Graduatioon exam			
	Graduatioon & Senior secondary entrance exam	School certificate exam	Regional public
		University entrance exam	National public

Figure 1. School assessment system in China before 2001.

towards personal quality development. According to the "Guidelines for Curriculum Reform in Basic Education (experimental draft)" published by the Chinese Ministry of Education (MOE) in 2001, the aims of this reform tried to change the curriculum in the following ways:

- From being knowledge-delivery-centered to fostering the all-round development of students, including knowledge, processing skills, the scientific method, and emotions, attitudes, and value, among others;
- From a subject-based and decollated structure to a well-balanced, comprehensive and properly flexible structure to meet the needs of all students;
- From being overloaded and overly difficult to being appropriate with regards to length and difficulty of course contents, and enhancing the relations between course contents and the lives of students, as well as keeping the pace of progress in science and technology;
- From placing too much value on rote learning to meaningful learning;
- From testing for ranking and selecting students to assessments for the learning and development of students; and
- From an overly centralized and unified system to a more diverse and flexible system that allows schools, local governments to share the responsibility in curriculum development.

New policies and techniques of assessment were adopted in order to do the following:

…build up a new assessment system aims at facilitating students' all-round development. It will not only assess students' achievement, but also discover and develop students' potential in variety of ways, identify their needs in progress, help them to develop their self-understanding and self-confidences. Assessment needs to play its roles in educating students and facilitating their development (MOE, 2001, Guide Line No. 14).

Thus began a new wave of assessment reform in China.

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POLICY AND STRATEGIES FOR CHANGE

In 2002, MOE published a document named "Circular of the Ministry of Education on Promoting Reforms on School Evaluation and Examination System." This circular listed the aims, philosophy, and principles of the assessment reform, and drew the blueprints of the new student assessment system, public examination system, teacher accountability, and school accountability. According to this circular (MOE, 2002), the aims and philosophy of evaluation reform are as follows:

(a) The reform should follow the education policy of the Chinese Communist Party, which aims to assess and facilitate the all-round development of students morally, intellectually, physically, and aesthetically.

(b) School evaluation, including both student assessment and teacher evaluation, is not only for administrative purposes, but, more importantly, for the development of students, teachers, and schools. The most important purpose of this reform is to change traditional school evaluation into a facilitative process for the development of students, teachers and schools in terms of quality of learning, teaching, and education.

(c) The contents of assessment should be diverse to cover all aspects of student development, rather than subject knowledge only. Great attention must be paid to the maintenance of a good balance between the uniform curriculum standards and personal differences in the capacities and personalities of students.

(d) Improvements on assessment techniques and instruments are encouraged in order to change the situation that only pen-and-paper tests are used in assessment. Both summative and formative tests, quantitative and qualitative techniques, intrinsic and extrinsic assessments should be included in the new system. Intrinsic and self-reflective assessments are encouraged especially. Students and teachers are no longer to be treated only as the objects to be evaluated, but also as the subjects to assess their own progress.

(e) Attentions should be paid, not only to the results of assessment, but also to the changes and progresses that occur in the process of assessment.

(f) The importance of the roles of students, teachers and schools in the process of evaluation should be noted. It is expected that the formate of assessment will become various and, focus on the process of interaction among students, teachers, schools, education officers and administration sections, and parents as well.

The "Circular" also drafted a framework of the objectives of the new student assessment system that included two major parts. Part I referred to the "general development objectives" in six major domains of student development: a) ethics and morality, b) civil literacy, c) ability of learning, d) ability of communication and cooperation, e) activeness in physical activities and conditions of health, and f) aesthetic consciousness and performance in art and music. Part II referred to the "subject-based learning objectives" in three dimensions of learning outcomes: a) knowledge and skills, b) process and methods, c) emotion, attitude and value.

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Details of the subject-based learning objectives of all school subjects are described in the "National Curriculum Standards" series.

The circular also requested a portfolio named "portfolio of progress" to be set for every student to promote progressive assessment that focuses on the process of student learning. The portfolio is intended to collect qualitative information (i.e., the student's self-records regarding his/her learning and schooling, peer evaluation results, the best works of the student, his/her performance in community practice, awards received by the student in any competition, teacher's observations and comments, and comments from the parents, among others). This information would provide an all-round description and deep understanding of the student during the process of learning. Furthermore, it would promote the student's reflective thinking on his/her learning and encourage him/her to play a more active role on self-assessment.

At the end of each term and school year, a qualitative assessment focused on the "general literacy and capacity" of students in the six domains mentioned above would introduced. A report including a student's achievement in the turn or year tests, his/her self-report on learning, peer-evaluations and the teacher's comment would be compiled and sent to his/her parents to give an all-round assessment on the progress of that student. The final report of a student's "general literacy and capacity" at the end of junior or senior secondary stages would also play a role in the enrolment of that student into senior schools or universities. In junior secondary stage, a general score would be given to a student according to the result of assessment on his/her "general literacy and capacity." This score would comprise 10% of the final score for senior secondary school entrance. Another 90% of the score would from the result of public examinations. In senior secondary stage, information provided by the report on "general literacy and capacity" would be one of the basic requirements for universities when considering whether to accept that student.

Tests and examinations would still be the major approach for summative assessments at mid-term (in senior secondary stage, the end of a module), the end of term and school year. A rating scale such as "excellent, good, medium, pass and fail" is recommended to grade student achievement, instead of the popular percentage marking scale in primary schools. Ranking students according to their performances in the tests has become officially prohibited in all school stages. The primary graduation examination and the junior secondary school entrance examination have been cancelled. Primary graduates are to be distributed randomly to nearby junior secondary schools in their community. At the end of the nine-year compulsory education, the junior secondary graduation examination and the senior secondary entrance examination are to be integrated as one regional public examination. The university entrance examinations are to be decentralized and become public examinations at provincial level, although they will still be named as the national university entrance examinations.

In sum, the MOE circular drew a blueprint of the expected assessment system that aims at facilitating the all-round development of students (and so was named as "developmental assessment system"). This new system is characterized by a) a diversity of its acting subjects and b) a diversity of assessing methods and
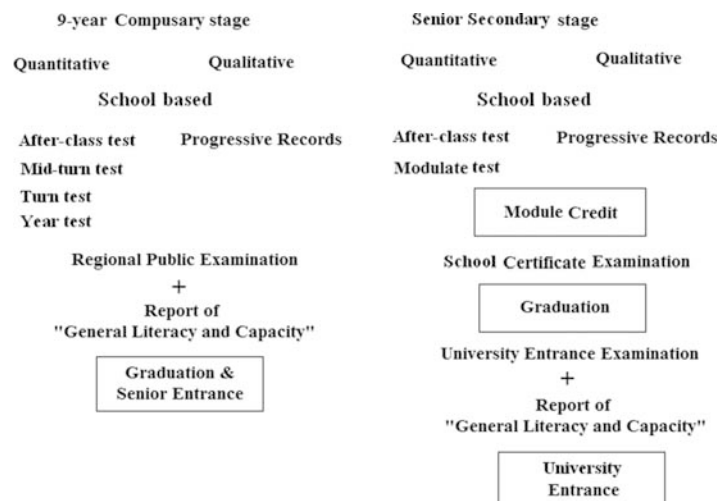
Figure 2. New School assessment system in China.

techniques, which seem to agree with the concepts of "assessment for learning" and "assessment as learning" (Gao, 2006). Figure 2 gives a brief summary of the new school assessment system in China today.

The political system in China is "top–down"; therefore, nearly all the policies come from the central government in Beijing, including the educational policies laid down by the Ministry of Education. A number of committees composed of experts all over the country help the Ministry to design the policies. In the past, these policies were very detailed and prescriptive. In the new curriculum reform, the concept of decentralization has been introduced so the national policies have become a bit more general and flexible (Zhu, 2001). They provide only big ideas, concepts, and principles for the reform, targets and standards for school curriculum, leaving the practical strategies for the local education agencies. Under this policy, the provincial department of education (PED) and city/regional bureau (CBE) of education are responsible for developing rules and strategies and making practical decisions to interpret and implement the central policies. Within a city/region, the district/county office of education also plays a directing role for approaching or implementing the national policy and provincial/city/regional strategies. This decentralized approach to education policymaking is illustrated in Figure 3.

To understand the agent of curriculum reform shown in Figure 3, let us take the Guangdong Province and its capital city Guangzhou as an example. At provincial level, following the new MOE policy, the PDE cancelled the senior secondary school certificate examination. It also decided to integrate the junior secondary graduation examination and the senior secondary school entrance examination into a city-wide public examination run by the city bureaucracy. The PED also established the scheme of these public examinations. Chinese, mathematics, foreign language,

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Figure 3. Educational policy making system in China.

science and social science have been assigned as the exam subjects. Closed pen-and-paper tests are used in most of the tests except the testing of oral competency of foreign language. A percentages scale is used to mark students' performances. A student's final grade consists of two parts: 90% from the examination and 10% from the result of assessment in general literacy and capacity.

At the city level, as a response to the national policy of assessment reform, the Guangzhou City Bureau of Education (CBOE) decided to construct a "System of School Assessment and Quality Control" aimed at the following:

(a) Implementing the new national curriculum and achieving the national standards;
(b) Improving the quality of basic education;
(c) Improving the efficiency of school management; and
(d) Promoting further reforms in student assessment (GZOACI,[1] 2005).

In this "System of School Assessment and Quality Control," the city bureau interpreted the key concept "developmental assessment" as "all assessments routinely happened within school are developmental evaluation" and "encourages variety of evaluation techniques including pen-and-paper tests, tests on experimental skills or computer operational skills, oral exam, reports, classroom observations, descriptions of learning process, interviews, analysis of student homework, performance in learning tasks, learning portfolio" (GZOACI, 2005, p. 2). The following strategies were adopted in this system to follow the central policies:

(a) Rating grades will be used in all internal tests at primary and junior levels.
(b) At the end of each school term, all schools need to give all their students a "general literacy and capacity" assessment, and the results should be included in their performance reports.
(c) All schools must apply qualitative techniques, such as the "portfolio of progress," in their internal assessments.
(d) All techniques that might lead to improvement of the pen-and-paper tests are encouraged, especially use of open-ended items and open-book tests (GZOACI, 2005).

The Guangzhou CBOE , however, continued to emphasize the importance of external examinations. It also decided that "*both schools and the district office of education could be the acting agency of the mid-term and term tests*" (GZOACI, 2005, p. 2), despite the fact that the central policy declares that all the after-class tests, mid-term and term tests and end-of-year tests should be based on schools. The above declaration actually encouraged all the district offices of education in Guangzhou to organize external mid-term and term tests. In addition, as an important approach of quality control, the city bureaus decided to set a series of external tests at the end of Grades 3, 6, and 9 covering all the core courses[2] and are conducted at school, district and city level. All the districts and schools are required build up the norm of their students' achievements in these tests. In theory, approximately 1/10 of the students are randomly selected to take these tests. In reality, not all students take these tests, not merely selected students.

A list of important teaching objectives and contents are also included in the "System of School Assessment and Quality Control," which describes the emphasis of Guangzhou CBOE on national curriculum standards and student assessment. Schools in Guangzhou need to follow the instruction of the CBOE and GZOACI.

CHANGES AND CHALLENGES

As a result of the policy and strategies mentioned above, school assessment has experienced a series of changes. However, several issues have emerged. First, the policy is top-down and the interpretations of this policy from different levels are confusing. For example, different experts and administration agencies at different levels interpret the concept *developmental assessment system* differently. Second, the qualitative assessment techniques are young and not well developed. More importantly, public examinations in China are still one of the most important ways to achieve social fairness and flexibility. All these strengthen the traditional routine of assessment. Therefore, in practice, the implementation of the assessment reform has not gone as smoothly as expected. Significant problems exist, making the reform progress slowly, and to some extent, drift off its original direction and become the so-called "bottleneck" of China's education innovation (Gao & Su, 2010). The major changes and problems in the assessment reform are mentioned below.

Developmental Assessment: Conceptual Changes and Confusion

The new reform introduces the concept of *developmental assessment* as follows:

> *…build up a new evaluation system aimed at facilitating students' whole development. It will not only assess students' achievement, but also discover and develop students' potential in various ways, identify their needs in the process of development, help them to develop their self-understanding and self-confidences. Evaluation needs to play its role in educating and facilitate students' development* (MOE, 2001, Guideline No.14).

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Presumably, this new assessment system was set "for the development of students," conducted "in the process of learning, and characterized by the diversity of evaluators, contents and techniques (MOE, 2002). It was set to encourage the diversity of assessing techniques, including both quantitative and qualitative techniques in order to assess the all-round aspects of student learning. Teachers and students will not only be the objects being assessed, but also act as the subjects to assess their own achievement and play an active role in assessment. Theoretically, these new ideas will encourage teachers and educators to brainstorm and change their perceptions of assessment. New theories and ideas will be welcomed and accepted by nearly all teachers and educators because students, teachers, and educators have all suffered the side effects of traditional examinations. However, in practice, the understanding and implementation of these new concept and ideas were problematic.

First, the opinions of the government were different. When the team of the MOE project "The Construction of a New Assessment System for Facilitating the Development of Students and Teachers ("DA P" for short)" advertising this concept at the first time, the quantitative assessment technique was strongly criticized as being negative to student development and a "poison" to education. They suggested that all traditional quantitative techniques in student assessment be stopped and that the qualitative technique be used instead. This declaration confused all teachers and educators and prompted heated debate all over the country. Undoubtedly, both qualitative and quantitative techniques have their advantages and shortages. If one strives to understand the motives of students and strategies to learning, attitude, and feeling of learning, as well as their approaches to experience learning, among others, a qualitative technique might be a better choice. However, if one wishes to know how well a student achieves in terms of the curriculum objectives and to compare his/her progress with his/her peers, and if one tries to find out the problems in student learning and understanding of the academic knowledge, a quantitative technique might give a clearer picture. We argue that all these aspects, knowledge and understanding, processing skills and methods, emotions, attitudes, and values are all important to student development. Qualitative and quantitative techniques need to be weighed equally because they both play significant roles in facilitating learning and development. Advocating only one category of these techniques over the other would not be appropriate.

In 2003, the MOE Developmental Assessment Project gave a new interpretation that student assessment could be divided into three categories: a) developmental assessment, b) achievement test, and c) public examination. Developmental assessment would include all the internal tests and after-class exercises conducted by teachers, and in-class interactions between teachers and students, such as Q&A sessions and roleplaying. It suggested that the definition of developmental assessment be "similar to formative assessment," and that qualitative techniques would suit developmental assessment better (MOE Developmental Assessment Project, 2003). The term *formative assessment*, first promoted by Scriven and

widely advocated by Bloom, has deeply influenced Chinese academics, especially those majored in educational evaluation and statistics (Zhu & Song, 1998). These academics quickly reflected on the new definition put forth by the MOE project, and decided that the most important issue in constructing the developmental assessment system and implementing assessment reform was to place more effort into designing high quality pen-and-paper test items and using them properly in the process of teaching and learning.

The above definition also led to the exclusion of summative or achievement tests from the developmental assessment system. To teachers and educators, the achievement tests seemed to be mainly set for management and quality-control purposes. However, even management and quality control should benefit student development; otherwise, they will miss the most important aim of education. Student achievement tests should also be included in the new developmental assessment system, and how to improve achievement tests should be one of the focuses of the assessment reform (Gao, 2004). Study and application of new testing techniques, such as open-ended test items, open-book tests, and performance tests, need to be encouraged in summative or achievement tests. Some of the popular techniques focused mainly on selecting or discriminating students. For example, ranking students according to their marks in the achievement tests should be stopped due to its disruptive effect on the personalities of students and their attitude and emotion towards learning. Unfortunately, this issue was neglected by the MOE project and, in practice, local educational authorities remained enthusiastic in applying the traditional techniques for management and selection purposes. Closed pen-and-paper tests were the only method used in these tests. They kept on ranking schools and teachers. If a school had the lowest ranking, the principal might lose his/her position; if a teacher had the lowest ranking, he/she might lose his/her job (Gao & Su, 2010). Even the qualitative assessment results were quantified at the end of each term and school stage – they contributed ten percent of the result of students' achievement (GZOACI, 2005), clearly drifting off from the original direction of the assessment reform.

Some university academics, mainly in the educational psychology field, and schoolteachers emphasized the importance of evaluating the learning process of students. They viewed developmental assessment as to keeping abreast with student learning and leading students on the right track of learning (Li, 2002). They strove to identify a set of standards and an effective learning process, and use these as the criteria in measuring the process of student learning (Wang, 2002; Zhang, 2002). The application the meta-learning strategies of students is significant. However, because learning cannot be separated from the learner, and different learners could experience learning and reach their target through a variety of ways based on the nature of the task, the learner's personal factors and the learning environment (Marton, 1983), identifying any learning process as the standard would be difficult and pointless. Putting this idea into practice would result in forcing students to learn by rote (Gao, 2004).

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Ten years have passed since the MOE initiated the curriculum reform and the idea of constructing a developmental assessment system. A big debate on the nature, functions, and roles of student assessment and the proper technique that should be used in assessment has spread over the country. It calls for more attention and more research on student assessment to clarify the concept of developmental assessment. Apparently, most of the educators and teachers have finally agreed with the ideas that student assessment should aim at facilitating their learning and development, no matter what kind of techniques are adopted. An effective assessment system should include a variety of assessment techniques. However, because a person may hold more than one conception of a phenomenon and these conceptions may be conflicting sometimes (Kember, 1997), the conceptions of teachers of assessment can be confusing. Gao and Kennedy (2011) studied the views of Chinese teachers of assessment and re-conceptualized the Chinese teachers' views into six categories. Each category represents one kind of conception that is qualitatively different from the others:

Management and inspection.   This conception emphasizes the external management and inspection roles of assessment. The aims of assessment are viewed as inspecting and controlling of schools, teachers, and students, and urging them to achieve better in teaching. Contents of assessment include the performances in subject courses, conduct, and discipline of students. Student performances in assessments are viewed as the indicators of the accountability of their teachers and schools. Summative tests and a variety of quantitative records of student performance are adopted as the methods of assessment.

Institutional target.   The aim of assessment is to determine whether students have fulfilled the pre-set learning targets and achieved the standards, specifically the standards of public examinations. Drills are emphasized; therefore, assessment is viewed as a way to prepare for public examinations. The set knowledge and skills of the course, especially those that might be included in the public examinations, are considered as the important content of assessment. Methods adopted for assessment include pen-and-paper tests or boosting exercises to meet the requirements of public examination. Ranking students according to their marks in these tests is taken as an effective approach to the aim.

Facilitation and diagnosis.   According to general belief, assessment is able to provide valid information to diagnose the effectiveness and problems of teaching in order to improve teaching. Assessment needs to focus on two things. The first concerns whether the set knowledge and skills have been acquired, and the second concentrates on students' approaches to learning. Methods include periodic summative tests, as well as classroom quizzes. Interaction and communication between teachers and students also act as effective ways of assessment. It emphasizes analyzing student performance, exploring their problems in learning, and adjusting accordingly.

Ability development. The aim of assessment is to increase the learning motivations of students and to enhance their learning abilities. It takes knowledge into account, but places more attention on the knowledge-based abilities of students, including comprehension of knowledge, problem-solving skills, ability of inquiry, and creativity. It prefers to assess students in a variety of ways, such as formal and informal tests, and different kinds of processing and performance assessments integrated with their learning activities.

Personal quality. The aim of assessment is to enhance the overall quality of students as human, and to encourage them to establish correct attitudes towards learning, develop their personalities and characters, strengthen their interpersonal and organizational skills, foster a sense of responsibility and honor, encourage students with autonomic, cooperative and creative sprits, and so on. It emphasizes that the criteria and contents of assessment are generated in the processes of learning and assessment. It suggests that encouraging comments, free conversations, learning portfolio, self-reflection and peer review could be adopted as methods of assessment. It also suggests that assessment would better integrate with learning activities of the students, such as project learning, DIY, writing scientific essays, speech contests, role performances, and so on.

Negativity. The general perception is that assessment in itself may not be accurate and may come with errors. Generally, the results of assessment are interpreted and used improperly, causing unfairness to students and negative effects to learning and teaching. These might even disrupt teaching, forcing teachers to adopt teaching methods that are incompatible with their beliefs.

Gao and Kennedy (2011) suggested a general model of Chinese teachers' conceptions of assessment, as shown in Figure 4. The model shows that the orientations of the first five conceptions change gradually, from the extreme of external management and inspection, to the extreme of independent and self-development. Although they all view assessment from a positive aspect, the sixth conception appears to present a negative view of assessment.

According to Gao and Kennedy (2011), factors affecting teachers' conceptions of assessment can be categorized into two major groups. The first are the external factors, including culture and tradition, social atmosphere and ideological trends, the
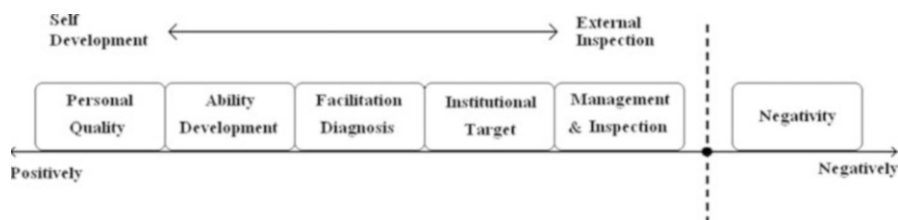

Figure 4. Chinese teachers' conceptions of assessment.

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education system, teachers' workload and the working environment, such as school stage, class size and school band, as well as parents' expectations and the students' ideas and thoughts. The second are internal factors related to the teacher himself/herself, including gender, personal history of growth, educational background, knowledge and capacity, teaching experience, as well as the teachers' views, ideological orientations and values about life, society, education, teaching, students, learning and so on. The influences of all these factors are complex and very difficult to generalize and simplify.

The Portfolio of Progress: Practice and Difficulties

Portfolio of progress is the name of student records used in authentic assessment (it is now popularly known as portfolio assessment). As a popular instrument, the portfolio requires students and teachers to document their growth and change by selecting evidence from their teaching and learning practices. Students become more self-regulated and gain personal control and independence in their learning. They grow able to use a wide variety of learning styles to demonstrate their learning. They too, become able to develop a greater understanding of their particular learning style when they self-evaluate and reflect on the evidence they have selected for inclusion in the portfolio to demonstrate competence.

Portfolio assessment is authentic in nature. Wiggins (1993) mentioned six features of authentic assessment:

- Authentic assessments require students to be effective performers with acquired knowledge. Traditional tests tend to reveal only knowledge learned out of context.
- Authentic assessments present the student with the full array of tasks that mirror the priorities and challenges found in the best instructional activities: conducting research, writing, revising and discussing papers; providing an engaging oral analysis of a recent political event; collaborating with others on a debate, among others. Conventional tests are usually limited to paper-and-pen, and most of the time, each question only has one correct answer.
- Authentic assessments attend to whether the student can craft polished, thorough, and justifiable answers, performances, or products. Conventional tests typically only ask the student to select or write correct responses, regardless of reasons.
- Authentic assessments achieve validity and reliability by emphasizing and standardizing the appropriate criteria for scoring such products. Traditional tests standardize objective "items" and one right answer for each.
- "Test validity" of authentic assessments depends in part upon whether the test stimulates real-world "tests" of ability. The validity of most multiple-choice tests is determined merely by matching items to the curriculum content (or through sophisticated correlations with other test results).
- Authentic tasks involve "ill-structured" challenges and roles that help students rehearse for the complex ambiguities of the "game" of adult and professional life. Traditional tests are more similar to drills, assessing static and too-often arbitrarily discrete or simplistic elements of those activities.

In sum, authentic assessments offer multiple indicators of student progress, and encourage students to take an active role in their learning and to demonstrate what they know in ways that encompass their personal learning styles. It increases students' ownership of course content, provides the first step in researching, and offers more opportunities for writing, discussion, and use of technology. Independent learning and creative problem solving are also encouraged. A move toward more authentic application tasks and outcomes thus improves learning and teaching, and students have greater clarity about their obligations (and are asked to master more engaging tasks). Teachers can thus come to believe that assessment results are both meaningful and useful for improving instruction.

Understanding why MOE highlights the student portfolio of progress as the instrument in formative/authentic assessment is not difficult. According to the MOE project team of "Research on assessments for facilitating teacher development and student progress" (Xu & Zhao, 2002), the *portfolio of progress* contains mainly students' works and comments from the student him/herself or his/her peers, and teachers or parents. The project team suggests four kinds of the *portfolio of progress* to teachers and educators for different roles in assessment:

Portfolio of Samples. This is a collection of works suggested by the student as excellent examples to follow in their learning. Samples could be the works of the student him/herself, or his/her peers, or from any others. What is important is that the student needs to give his/her comments of the work and explain the standard of selection.

Portfolio for Demonstration. This is a self-selected collection of the best works of the student him/herself in order to demonstrate his/her achievements to others. The student needs to set criteria for selection before explaining the reasons to support his/her selection.

Portfolio of Records. This is a systematic collection of a variety of records in the process of learning. It includes the teachers' evaluations, observations, and comments of the student's performance in the process; the student's achievement in tests or examinations; the student's own works; and any other records the students or his/her teachers regard as significant to collect. Both the student and his/her teachers have the right to add things into the portfolio.

Portfolio as Reports. This is a collection of student's works selected by teachers and educators to report the achievement of that student. Pre-set standards are necessary and need to be standardized to keep fairness to all students.

Because portfolio assessment is exercised mainly within schools, as mentioned above, the local education authorities take the role of organizer and supervisor and make decisions on the rules, strategies, and methods. Figure 5, based on a report of the education office of Chaoyan District in urban Beijing,[3] shows how portfolio assessment is promoted and managed in practice.
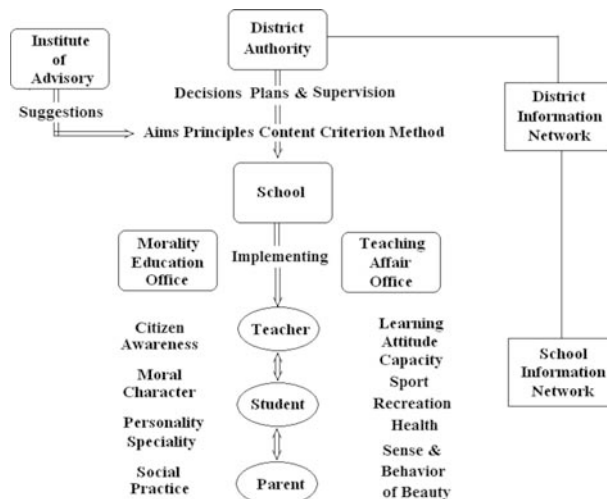
Figure 5. Promotion agency for portfolio assessment in Chaoyan District, Beijing.

First, the district education office takes the responsibility of planning and supervising portfolio assessment in all schools in the district. It organizes workshops and seminars for teachers in the district to study the ideas and policies from central government. It decides the practical purposes, principles, contents, criteria, and methods for the implementation of portfolio assessment in that district. The Advisory Institute of Beijing City and of Chaoyan District might present their suggestions and help the district education office to make decisions. The strategies they have adopted are as follows:

1. To make portfolio assessment a standardized routine of schools;
2. To use portfolio in performance assessment of student conduct and behaviors;
3. To integrate portfolio assessment with teaching and learning in all school subjects, including
4. To base portfolio assessment on the process of learning, aiming at student development,
5. To focus on students' approaches to and potential of learning, and
6. To attend to students' classroom performance, after class exercise and reading, performance in experiments, project work, articles or manual products, options, and extra-curricular activities; and
7. To facilitate students in developing their personality and special skills in social practice, community service, project learning, scientific and technologic creations, sports, and art, among others

Two major administration agents in the school, the Moral Education Office and the Teaching Affair Office, process the assessment. The Moral Education

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Office takes care of the aspects of students' citizen awareness, moral character, personality and specialty, and social practice, and help class teachers to organize related portfolio assessment. The Teaching Affair Office takes care of students' learning attitude and capacity, sports, recreation and health, senses, and excellence, and help teachers to conduct portfolio assessment on those aspects. Then, the actual organizers of portfolio assessment are the class teachers. In China, the class teachers act as the supervisors of all students in the class. The duty of class teachers is to look after the learning, health, social growth, personality, conduct, and moral performance of the students, as well as other aspects relating to their development and growth. Class teachers are used to organize varieties of student activities to facilitate the development and maturity of the students. Therefore, they are the proper agents to conduct portfolio assessment in the class.

At the end of each school year, a report based on the portfolio is made and sent to the parents. This report usually includes tables or forms of achievements and physical fitness, the class teacher's descriptions of the student, awards obtained by the student, and the best work of the student, etc. These reports are collected by information center (bank) of the school and the district. Finally, before graduation, a summarized report is made for every student. The report, as in Chaoyan district, includes the following:

1. The student's personal information, such as date and place of birth, and gender, among others;
2. The student's self-evaluation and peer evaluation on his/her personal development;
3. The class teacher's descriptions and comments of the student;
4. A standard table of the student's records of achievement in year tests and graduation tests (if they exist);
5. A national standardized form of the student's physical fitness and health; and
6. Products of the student in project learning activities.

This report is then sent to the parents, the schools or universities where the students are going to study at the next stage.

During the National Forum on Assessment of the General Literacy of High School Students run in Xian in October 2010, teachers from schools in different provinces summed up the advantage of portfolio assessment as:

1. The *portfolio of progress* is a very rich resource of information regarding a student. It provides a detailed description of the all-round aspects of a student in his/her process of maturity and development.
2. The *portfolio of progress* can act as the median promoting interactions between teachers, students, and their parents, and therefore benefits the development of the student.
3. The *portfolio of progress* helps teachers learn the individual differences among students and the features of each student. Teachers can then give each student more appropriate guidance according to the characteristics reported in the portfolio.

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4. The *portfolio of progress* provides a platform with which students can summit the works that they themselves are satisfied with or for which they feel pride. This portfolio enables students to see their own progress and experience the joy of success and progress, thereby improving students' attitudes and emotions towards learning.

5. The *portfolio of progress* highlights the active role of students in the process of assessment. It provides chances for students to review their own learning.

6. The *portfolio of progress* collects a vast amount of qualitative and quantitative evidence of student development for summative assessment. This portfolio thus provides an effective way to integrate summative and formative assessments and teaching, learning, and assessment.

Teachers attending the forum agreed that the following points are important in conducting portfolio assessment:

1. Students' works should be the major component of the *portfolio of progress*.

2. Setting up clear criteria for the collection of the works of students in the *portfolio of progress* is vital.

3. The *portfolio of progress* should provide sufficient room for students to present their ideas and to review their learning and teaching experiences.

4. Teachers need to analyze and interpret students' works in the *portfolio of progress* reasonably.

Many teachers enjoyed their experience in portfolio assessment, and believed that the *portfolio of progress* facilitates their students to progress on the right tracks. As Mr. Li Weifeng, a teacher of the Dongzhimen Middle School of Beijing, said during the forum,

"…the portfolio of students noted down the details of students' progress in the past three years. …I am very impressed and excited while I read their portfolios page by page. I saw that my students grew day after day. They are happy to learn and to enquire. They are enthusiastic and hardworking. They highly concern with our society. They are kind and honest, wise and intelligent. They are the future of China."

"…(from students' portfolio we can see) our students are growing up with responsibility and love. Their minds are open and full of beautiful dreams. They are good at planning their own future and go ahead bravely… I am so surprised and proud of my students when I review the progress of the students. I am sure that they cannot progress so well if we focus only on their knowledge learning and achievement, and if we are concerned only with their performance in the public examinations."

"What makes them progress so well? It is due to the efforts made by the school, all their teachers, their parents, and the students themselves. It is also due to the facilitation effect of portfolio assessment on students' development.

The portfolio of progress does not focus narrowly on subject learning and exam marks. Rather, the teacher's comments, the comments from the peers, the experience of thinking reflectively, and self-evaluation; all these lead them to progress actively toward the right way."[4]

Similar to the teachers, many students enjoyed their experience in portfolio assessment and viewed the portfolio as a record of life. A student of the First Middle School of Yinchun, the capital city of Ningxia Autonomous Area in Western China, wrote down her feeling of the *Portfolio of Progress:*

"When I reviewed my experiences in the past three years, I found that this small something (the portfolio) had changed me. I became more self-confident and more focused on learning. Furthermore, I saw a new me. …it is a condensation of my life. Every detail in the portfolio is like a drop of water reflecting my life, which is so beautiful. I am very impressed with my own portfolio. I am so proud and happy of my experience."[5]

Some of the parents were also happy with their kids' experiences, which were reflected actively in the portfolio. A parent wrote to her daughter in the portfolio:

"Half a semester has passed since you entered the senior high school. We are so happy to see that you are progressing with joy. Meanwhile, we are impressed to your collection (in the portfolio). Remember, what you have collected are not only a resume; more importantly, it is the record of your progress and record of your growth. They will enrich your life. About your learning, it is excellent that you are learning actively with self-consciousness. We hope that you will keep on learning in this way. You are open-minded. That's why you can progress so well. Go forward. Your future is bright."[6]

However, many problems remain unsolved in portfolio assessment. These trouble issues educators and teachers and stand in the way of implementing portfolio assessment in schools.

First, how can we encourage teachers and students to involve in portfolio assessment actively? Classes in China are very large. A typical class in primary schools has 40–50 students, and secondary schools have 50–60 per class. The class teacher needs to read students' portfolio and give comments and feedback in time. If a class teacher spends a minimum of 10 minutes per week reading and giving feedback to one student, he or she will need to spend a minimum of 500–600 minutes on portfolio assessment. This workload is a very heavy, especially as the class teacher also needs to teach. However, the portfolio might become less significant, even insignificant, if the teacher does not read and feedback to students in time. Many teachers are enthusiastic at the beginning, but then become tired of doing portfolio assessment. In addition, due to the very strong impact of public examinations, quite a large number of teachers still consider exam marks as the most important result of schooling. They view portfolio as less significant and not worthy of engaging with

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high energy. Similar problems trouble the students. Many students, especially those not well motivated in learning, feel that portfolio assessment is too hard to do. They feel bored in collecting their own works and are not happy to show them to others, their parents especially. The promotion of teachers and students to involve them actively in portfolio assessment is thus a big problem.

Teachers are also puzzled about the combination of the qualitative results of portfolio assessment with quantitative results of summative tests at the end of each term in order to give students a final record of performance. Because the criteria of portfolio assessment are subjective and individualized, comparing the records between students and to a pre-set standard is impossible and unfair. The latter is necessary for marking the portfolio quantitatively. However, because the marks are the most important factors to students in deciding if they can continue their studies, the parents, society, and many teachers and principals might see the portfolio as useless and a waste of time and energy if a mark is not given to the portfolio while reporting students' achievements at the end of the term and the year, especially at the end of each school stage. The quantification of portfolio assessment thus becomes a double-edge-sword. On one hand, it promotes students and teachers to become involved in portfolio assessment; on the other hand, it shifts portfolio assessment away from its original purposes, or to some extent, in contrast with its original design. Clearly, the quantification of qualitative portfolio is unreasonable and invalid. The purpose of portfolio is not to aim at the short term and direct utilities, but to create chances for students to review their success and progress, to find their shortages, to strengthen their shelf confidence, to promote a positive emotion and attitude to learning, to learn methods of learning, and finally, to improve the quality of learning. As a student of Dongzhimen Middle School of Beijing wrote in his portfolio,

> "My exam mark is not as good as expected. However, it does not mean that I am not curious about the world and eager to learn. I learned consciously and actively, exploring and discussing together with my peers. I am very pleased and enjoyed the process of learning."[7]

This student did not get good marks in the exam. However, he reviewed actively and reflected, and finally reached a positive feeling of his experience of learning. Clearly, keeping the above description on the report is much better than giving it a mark. In such circumstances, it may be better to provide summative comment or description together with the quantitative exam marks in the final report of a student, rather than marking the portfolio.

Tests and Examinations: What Has Changed and What Can be Expected?

Changes in tests and examinations in the past 10 years are apparent mainly in techniques (Gao 2011), especially the techniques to develop test items. More and more open-ended items testing the ability and comprehension of students are developed and used in the pen-and-paper tests. Multiple-choice items that test

only knowledge retrieval are declining in tests and exams. In some big cities like Shanghai and Guangzhou, changes are even bigger in a few subject areas (i.e., politics and history). Students are allowed to bring and read their textbooks and other references during the tests. We can honestly say that pen-and-paper tests can test only the surface knowledge and lower level thinking skills. Despite it being an open book test, assessing the ability to solve practical problems and creativity remains difficult because the limitation of time, environment, atmosphere, resource, and so on in classroom pen-and-paper test.

A rating scale is recommended to be the substitute of the percentage scale in classroom tests and in-school exams because the characters being tested, such as the capacity of a student, cannot be quantified accurately. However, the performances of students do have qualitative differences when they engage in a learning task (Biggs &Collis, 1982). According to constructivism, learning grows cumulatively in stages in which the learned content is increasingly complex. Basically, two important aspects describe what learning will be like at any particular stage of a student's growth: the first relates to the amount of details while responding to the task (the quantitative aspect), and the second related to how well these details are put together (the qualitative aspect). Different situations can arise when a student engages in a learning task. First, the task may not be approached appropriately, and the student may not really understand the point and use too simple a way of going about the task. Next, one and then several aspects of the task may be picked up and used, but are treated as if they were separate. These aspects then become integrated into a coherent whole, which means that the student understands the topic adequately. Finally, the previous integrated whole may be conceptualized at a higher level of abstraction and generalized to a new topic or area. This does not always occur, but is generally what can be expected of the top students. Biggs and Collis (1982) suggested a five-level model to describe this process:

(a) **Pre-structure.** This means that the task is engaged, but the learner is distracted or misled by an irrelevant aspect belonging to a previous stage.
(b) **Uni-structure.** The learner focuses on the relevant domain and picks up one aspect to work with.
(c) **Multi-structure.** The learner picks up increasingly more correct or relevant features, but does not integrate them.
(d) **Rationale.** The learner now integrates the parts with each other, so that the whole has a coherent structure and meaning.
(e) **Extended abstract.** The learner now generalizes the structure to take in new and more abstract features, representing a higher mode of operation.

Biggs and others conducted a large number of studies to support the above taxonomy (Biggs, 1996); however, disagreement on the identification and definition of the performance stages and the levels persists. Regardless, Biggs has presented a sound rationale to support the decision of applying a rating scale in daily tests and within school examinations.

Although most schools have accepted the MOE policy and stopped ranking students according to their scores in tests and exams, parents are not happy with this change and exert great pressure to schools and teachers. This is because the current Chinese society is over-competitive and the position of a student in the rank is very important for his/her future. Moreover, a much heavier pressure comes from the external management system. The government (not the ministry or department of education) borrows the concepts of "quality control" and "accountability" from business and manufacturing units, and spreads them to schools and education management. Schools now are requested to rank their employees (teachers) according to their achievements (their students' achievement in tests and examinations mainly). A teacher might receive higher/lower pay according to his/her position in the rank. He/she might be promoted if he/she stands on the top of the rank and, on the contrary, he/she might lose his/her job if he/she stays at the bottom of the rank, which would be a real disaster to all schools and teachers. As a result, they transfer the pressure to students and force them to focus on tests and examinations. In order to rank the teachers and schools, they must also rank their students. Therefore, shortly after the implementation of this new policy of management, schools began to use two kinds of marking scales at the same time: the percentage scale, for ranking teachers, and the rating scale, for reporting tests and exam results to students and parents. Thus, only the percentage scale is used because the parents are happy with this situation and schools and teachers do not want to bother themselves.

Public examinations have undergone little change, except for the decentralization of national university entrance examinations. The decentralization of national university entrance examination is a formality only. One significant change with the decentralization is that most of the provinces now organize their own teams of experts to develop the exam papers. Only a few provinces still rely on the experts from the National Education Examination Authority to design their exam papers. Due to the vase population and the un-balanced development in the society and economy, the quality of education differs greatly among provinces. As a result, great differences exist in the performance of students from different provinces. Before the reform, all students involved in the national university entrance examinations used the same exam paper made by the National Education Examination Authority. This caused a big problem because, if the difficulty of the exam paper drops, it would not be able to differentiate students' performance in the provinces with higher educational quality. If the difficulty level is raised, the average scores of students from the provinces with poor educational quality would become very low, which would also affect the differentiation of students negatively. The decentralization, in this sense, improves the suitability of exam papers to the performance of student. This situation not only benefits the selections of students, but also benefits teaching and learning in high schools in that the match between the teaching objectives and student performance is improved.

The senior secondary school entrance examinations have been run by local education authorities before and after the reform. In this sense, no change has

occurred. This examination has inflated not only the senior school entrance, but also junior school certification. However, this causes conflict with regards to the examination. The entrance examination focuses on selection and applies the norm-reference technique while interpreting the exam results, whereas the school certificate examination focuses on the pre-set teaching objectives and applies the criterion reference technique. The new MOE policy suggests to apply the criterion reference tests in within school assessment in order to shift the focus from ranking students into checking students' achievement according to the pre-set objectives. Therefore, a rating scale was also introduced to replace the percentage scale. An organization was formed by MOE to inspect the quality and moderate the difficulty of the exam. However, in practice, the selection function remains the most important. The rating scale was cancelled after a few years because it was inconvenient for ranking students. Moreover, the level of difficulty continued to increase. The reform of senior secondary school entrance examinations has failed.

As mentioned above, the concept of "quality control" has resulted in some changes in recent years. The concept does not facilitate the assessment reform. It emphasizes unity and pre-set standard of quality and applies closed pen-and-paper test to assess the quality of learning. The root of this assessment comes from the society and the demand of high economic efficiency. The Chinese government, both centrally and locally, is very active in pushing this system. It may eliminate all the positive results of the assessment reform.

SUMMARY

Assessment practices in China have been traditionally characterized as examination-dominated, achievement-oriented, elitist, and bureaucratic. They have been criticized as a huge obstacle in the path of education reform which has a more quality and developmental orientation. It also stands in the way of China's modernization. When MOE launched the innovation to develop a curriculum that is more student-centered, ability-focused, and geared towards developing well-rounded individuals for schools in China, assessment reform became urgent and was begun soon after the national curriculum reform at the beginning of the new century.

The assessment reform in China was imposed top-down from the center authority: the Ministry of Education. Because the educational authorities at different levels explained and implemented the policy according to their understanding, it resulted in inconsistency both conceptually and in practice.

The reform promoted a process of conceptual change in student assessment for teachers over China. "Developmental assessment" became a new but confusing concept among teachers and educators. The interpretation of GZRSIL led to a misunderstanding that all evaluations that routinely occur in schools could automatically facilitate student learning if a variety of evaluating techniques is applied. With this understanding, and with the belief of most teachers that only pen-and-paper tests are reliable, many schools did not want to decrease the frequency

of pen-and-paper tests, but instead wanted to add more assessments using different techniques. This led to a heavier workload and more pressure for teachers and students. However, discussions on issues, such as what the nature and roles of student assessment and how to evaluate the process of learning, sprang up all over China. Such discussions helped re-conceptualize the teachers' ideas of student assessment towards a more learning-facilitating direction.

The biggest change in schools might be the introduction of process and qualitative assessment techniques, namely, the *portfolio of progress* and assessment of students' *general literacy*. The former extends the scopes of students, teachers, and especially parents, regarding the students' all-round development. Student self-evaluation and peer-evaluation techniques are widely used in this field, which encourages students to review and learn from their own experiences of learning. However, because these concepts and associated techniques are imported from the West, how to apply these policies and techniques properly has become a problem for all teachers. The local conditions and tradition, such as the larger class size, has affected the enthusiasm of teachers and students to become involved in portfolio assessment. The efforts to combine the results of quantitative and qualitative assessment have made portfolio assessment a real problem, both theoretically and practically.

More teachers are now involved in improving the design techniques of test items because pen-and-paper tests are still the most important assessment technique in most schools. Teachers are interested in developing open-ended items and the related marking scales.

However, public examinations remain important in China. As far as ordinary people are concerned, public examinations are still the most fair, reliable, and valid ways for selecting students. Major changes in public examinations have been rejected by parents and the society. What can be done is to improve the techniques of developing exam items.

The assessment reform has also been hindered by an external factor. The emphasis on the accountabilities of schools and teachers has negatively affected all the efforts to move towards a more student-centered and quality-oriented education. Student assessment will soon revert to the traditional style if the ideas and practice of "quality control" borrowed from business are not abandoned.

NOTES

[1] GZOACI: Office of Advisers in Curriculum and Instruction, Guangzhou City Bureau of Education

[2] Core courses in primary school include Chinese, English, mathematics; in junior school include: Chinese, English, mathematics, social science (politics, history, geography), and science (physics, chemistry, and biology).

[3] The Office of Education, Chaoyan District, Beijing: Strategies for promoting assessments on students' general literacy in high schools; A report to the National Forum on Assessment of the General Literacy of High School Students, Xian, October, 2010.

[4] Extracted and translated from Li Wei*feng: A Speech on the National Forum on Assessment of the General Literacy of High School Students*; Unpublished manuscripts of the forum, Xian China, Oct. 2010.

[5] Extracted and translated from the portfolio of Miss LYX, a portfolio displayed during the National Forum on Assessment of the General Literacy of High School Students, Xian China, October 2010.

[6] Extracted and translated from Zhao Xueqin: *A speech during the National Forum on Assessment of the General Literacy of High School Students*; Unpublished manuscripts of the forum, Xian China, Oct. 2010.

[7] Extracted and translated from Zhao Xueqin: *A speech on the National Forum on Assessment of the General Literacy of High School Students*; Unpublished manuscripts of the forum, Xian China, Oct. 2010.

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26. A COMPARATIVE STUDY OF EXEMPLARY TEACHERS IN MAINLAND CHINA AND THE UNITED STATES

INTRODUCTION

Strengthening education quality involves the enhancement of learning opportunities and outcomes for students. Educators and societies perennially face challenges, one of which is the need to provide an increasing number of young people with the opportunities to reach levels of skills and competencies once thought attainable by only a few (Darling-Hammond, 1996). Various policy initiatives may promise educational improvement, yet in this sense, nothing is more fundamentally important than improving day-to-day classroom teaching. This factor requires a more thorough understanding of the teacher practices that result in substantial student growth, and how the teachers develop and maintain their effective practices over time. Such understanding can significantly contribute to the perceptions on professional development and practices for prospective and current teachers.

The political and socio-economic circumstances in both China and the United States demand highly competitive human capital and improved school performance. Teacher quality has consistently been the focus of discussion and debate because the teaching profession involves the largest workforce in both nations. In addition, teachers have the advantage of closely influencing students.

Since 2001, China has been undertaking a nationwide program of curriculum reform, which is considered as one of the most ambitious and far-reaching changes to schooling in recent Chinese history (Sargent, 2006). In addition to an overhaul of the objectives and curriculum content, this reform calls for a paradigm shift in educational philosophy and a corresponding transformation in teaching practices at the classroom level. This shift is a significant one from traditional Chinese teacher practices, which used to focus overwhelmingly on memorization, drills, and prescribed textbooks, to those that foster individuality, self-expression, inquiry, and creative thinking. In 2001 as well, the United States passed and implemented the *No Child Left Behind Act*, which emphasizes the need for states and school districts to ensure access to "highly qualified teachers" for all students, particularly those at risk, those from minorities, and those that are disadvantaged.

Under the macro backdrop of educational reforms in China and the United States, along with the intensified global economic and educational competition, the present is an opportune time to engage in international comparative studies of

teacher quality and thereby gain a better understanding of this complicated topic (Crossley & Waston, 2003).

The present study is based on the fundamental premise that strong teaching by talented teachers is at the heart of educational quality, and that understanding the elements of good teaching requires a thorough exploration of both the practices and the professional thinking of these exemplary teachers. Thus, this work primarily aims to develop a deeper understanding of award-winning teachers in the United States and China through the comparison of their practices and beliefs.

LTERATURE REVIEW

In recent years, numerous studies and literature reviews focused on defining the characteristics of effective schools, teaching, and teachers (see, for example, Allington, 2002; Darling-Hammond, 2000; Rowan, Correnti, & Miller, 2002; Schacter & Thum, 2004; Stronge, Ward, Tucker, & Hindman, 2008; Sun, 2008). Although teacher quality has been defined and measured in many ways, researchers in both China and the United States agree that teacher quality significantly influences student learning outcomes. However, no clear consensus has been reached on which aspects of teacher quality are the most important (Lai, 2005; Nye, Konstantopoulos, & Hedges, 2004; Rivkin, Hanushek, & Kain, 2005).

Magnitude of Teacher Effects—Research in the United States

In the United States, numerous studies reported that teacher quality has a significant effect on student achievement (Aaronson, Barrow, & Sander, 2007; Hanushek, Kain, & Rivkin, 1998; Palardy & Rumberger, 2008; Rockoff, 2004; Sanders & Rivers, 1996). Research on teacher effectiveness has been remarkably consistent in stating that "teachers have large effects on student achievement, that the measures of effectiveness are stable over time, and that the effects teachers have are on an order of magnitude which dwarfs the effects associated with curriculum, staff development, restructuring, and other types of educational interventions" (Mendro, et al., 1998, p. 1).

Similarly, teachers account for 10% to 20% of the total variability in student gain scores (Rowan, Correnti, & Miller, 2002). Bembry et al. (1998) also agreed that teachers largely affect student achievement, and the effects, whether positive or negative, are cumulative over time. Wright, Horn, and Sanders (1997) conducted a longitudinal, multivariate analysis of student achievement to examine the effect of teachers on student learning. Teacher influences are dominant factors that affect student academic gains, whereas classroom context variables of heterogeneity among students and class sizes exhibit relatively low influence.

Magnitude of Teacher Effects—Research in China

Compared with the rich literature in the United States, only a few empirical studies in China examine the statistical power of teacher effects. In our review, only one

dissertation study (2005) was identified, wherein students were randomly assigned to different middle schools (a move that was possible due to an educational reform initiated by the government in Beijing, China). To our knowledge, the abovementioned research is likewise the first to examine school/teacher effects using random assignment in China, and the results revealed that effective teachers matter in the country. Employing more high quality teachers significantly increase student achievement scores in all subjects. For instance, the school with a 1% increase in the number of high quality teachers saw an increase in the overall scores of students by 0.14 to 0.21 of the standard deviation of the overall test scores, which translates to 2.73 to 5.67 percentile points. The increase in the number of high quality teachers also led to a 3.5% to 10.5% increase in the chances of students to pass the high school entrance threshold.

Contrary to several U.S. reports that effective teachers influence all students, regardless of their SES and prior achievement level (Nye, Konstantopoulos, & Hedges, 2004; Sanders & Rivers, 1996), Lai (2005) indicated that teacher effectiveness is moderated by the level of student academic abilities. In other words, teacher influence varies among different students, and is stronger for those with weaker performance. If student test scores are divided into four quartiles, both positive and negative teacher effects are larger for students in the lower range of the overall test score distribution; these effects are insignificant for students in the top quartile. The magnitude of teacher effects for students in the 25th quartile is twice as strong as that for students in the 50th quartile, and over three times as strong as for students in the 75th quartile. Thus, students with lower academic performance are more susceptible to the effect of the performance of their teachers than their better performing peers.

American and Chinese teachers have variable effects on student learning, and the influence of teachers is both statistically and practically large and substantial, despite the different methodological controls and populations used in research. Less clear are the practices of effective teachers in the classroom, as well as their beliefs on teaching that result in improved student learning.

Characteristics of Effective Teachers

Abundant and convincing studies prove that teacher effectiveness matters and largely varies. However, determining *which* teacher-related factors actually cause these effects is more useful for educational policy and practice. Existing empirical studies usually tackle this issue from two aspects: easily measurable characteristics and specific instructional classroom practices (Darling-Hammond, 2000; Heistad, 1999; Munoz & Chang, 2007; Palardy & Rumberger, 2008; Rockoff, 2004; Stronge, Ward, Tucker, & Hindman, 2008). However, these studies reached mixed conclusions on the effect of specific teacher characteristics on student achievement. This inconsistency of research findings indicates that much is still to be learned.

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Instructional practices. According to Rowan, Correnti, and Miller (2002), one key aspect of instructional practices is the "process variable," which can be defined as "properties of the interactive phase of instruction—that is, the phase of instruction during which students and teachers interact around academic content" (p. 1538). Based on a synthesis of over 500,000 studies on student achievement, Hattie (2003) suggested that teachers account for 30% of the variance. However, only a few of the teacher effects can be attributed to observable characteristics, such as education or experience; most are due to indirectly observable differences in instructional quality. Thus, teachers' practices inside the classrooms have both statistical and practical significance on student learning.

Synthesizing the findings on teacher effectiveness in studies conducted across several decades, Stronge (2007) conceptualized a framework that encompasses the key qualities and behaviors of effective teachers. This framework includes six domains: 1) Prerequisites for effective teaching (such as a teacher's educational background, teaching experience, content knowledge, and certification status); 2) The teacher as a person (such as a teacher's non-academic interactions with students and professional attitude); 3) Classroom management and organization; 4) Planning and organizing for instruction; 5) Implementing instruction; and 6) Monitoring student progress and potential. The first quality is equivalent to the presage characteristics addressed in the last section, and the second to the sixth qualities address teacher skills and practices.

Several Chinese scholars (Cui, 2001; Cui & Wang, 2005; Sun, 2004) also explored the concept of teacher effectiveness and then developed corresponding theoretical frameworks. However, most of those efforts were based on conventional wisdom rather than on evidence generated by empirical studies. Nonetheless, Cui and Wang (2005) also proposed a framework comprising six major domains: 1) Developing an environment conducive to learning; 2) Studying and understanding students; 3) Clarifying goals and organizing learning content; 4) Providing varied learning opportunities; 5) Helping students learn how to learn; and 6) Continuous reflection and innovation on instruction.

Summary of Extant Research

Despite extensive efforts to explain the elusive concept of effective teaching, only a few studies provide clear answers to the question of how effective and ineffective teachers differ, as well as clear directions on developing effective teachers (Redfield, 2000). Extant empirical research has been particularly powerful in estimating the magnitude of the effects of teachers on student learning, as well as in identifying higher- and lower-performing teachers. Nevertheless, this line of research cannot explain the heterogeneity in teacher quality. The variation is not due to observable differences among teachers, such as degree, certification status, and teaching experience. A majority of this variation is associated with intangible or hard-to-observe aspects, such as dispositions, attitudes, and classroom practices. Consequently, the next stage

of research into effective teachers must go inside the classroom to develop a deeper understanding of how highly effective teachers deliberately manage the complexity of teaching, and how their background characteristics and dispositions interact to help students grow.

METHODS

This study builds upon the framework of Stronge (2007), with strong correlations to those of teacher quality in China (Bai, 2000; Cui & Wang, 2005; Sun, 2008). This study was grounded in a broad review of research that explored the qualities and behaviors of effective teachers, to seek these qualities in practice across multiple teaching contexts and, eventually, across cultures. Specifically, we report on multiple case studies that explore the patterns of teaching and the reflection of several teachers who received national-level awards for teaching in the United States and China.

Sample and Participant Selection

This study focuses on a comparative analysis between Chinese and American teachers who satisfied a certain level of scrutiny to be considered representative of excellent teaching in their respective countries. Identifying excellent teachers has the substantial limitations of defining excellence and then finding these teachers. First, in defining excellence (i.e., great teachers), we were guided by the Stronge (2007) framework and criteria from other researchers, as noted earlier. Second, in identifying teachers, we chose to accept national award-winning teachers as the operational definition of excellence. Thus, participants were invited based on their receipt of a teaching award from a national organization that grants recognition across content areas and levels of teaching.

Participants were selected via purposive sampling from the pool of awarding-winning teachers. This method ensured an unbiased representation of years of teaching experience, level of teaching (e.g., elementary or secondary), content area(s), geographic region, and gender. In total, 13 American teachers and 12 Chinese teachers participated in this study, to date.

Data Collection

Semi-structured interviews and standardized observations were used to understand the practices and habits of national award-winning teachers. Case studies involved full-day visits of one or two researchers to each teacher's school to conduct a two-hour formal observation, an interview, a review of selected teaching artifacts (e.g., lesson plans), and an informal session for observation and conversation. This article focuses primarily on what emerged from the interviews and formal classroom observations.

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The questions for the semi-structured interview protocol are linked to the six categories of qualities in Stronge's framework (2007). Similarly, they were connected to the discussions of Bai (2000) and Cui and Wang (2005) on the characteristics of effective teachers noted above. Additional questions were asked to elicit further reflection of the teachers on their practices, broadly defined, and their perspective on why their practice merited an award. The interview questions were designed to obtain participant reflections on their own practices based on the exploration of subjective experiences of the teaching profession. Each interview lasted 45 min to 90 min, depending on the length of participant responses. Interviews were taped and transcribed verbatim. Inductive data analysis was used to code transcripts and to identify emergent themes.

The Differentiated Classroom Observation Scale (DCOS) (Cassady, et al., 2004) was used to record several data points at 5 min intervals: instructional strategies employed, percentage of students engaged, director of the activity (e.g., primarily teacher-directed or primarily student-directed), and levels of cognitive demand. On this scale, observers recorded any instructional strategies employed within a 5 min interval using a set of codes provided with the scale (e.g., lecture, teacher questioning, student response, independent seat work, group discussion, assessment activity, and others). The observer also assessed and noted all levels of cognitive demand evident within the interval using six levels, namely, knowledge, comprehension, application, analysis, evaluation, and creation. For the other two data points, only one data point per interval was recorded: director of learning was recorded as a general observation across the interval, whereas student engagement was recorded based on the percentage of students engaged or appearing to be on-task at a predetermined time point within the interval. One limitation to this method is that the observer may believe a student is "on-task" because the student appears to be engaged, but may actually be daydreaming while looking at the teacher or writing a note to a friend when tasked with writing an essay.

Student engagement can be determined using different sets of criteria to include cognitive (e.g., student effort to grasp the information), behavioral (e.g., attending to class activities or time-on-task), and affective (i.e., student attitude toward a task). Each of these criteria affects the determination of student engagement. Behavioral criteria, or time on task, are supported in literature as a measure directly related to student achievement (Stronge, Ward, Tucker, & Hindman, 2008; Taylor, Pearson, Peterson, & Rodriguez, 2003). Additionally, behavioral criteria can be measured through direct observation.

Data on these lesson features were recorded for the entire class together or for multiple groups, if differentiated groups were identified in advance. The instrument was developed by researchers at the Ball State University to examine instructional practices related to differentiation and high-ability learners. However, the researchers noted that the instrument is valuable for examining instructional practices with any group of students (Cassady, et al., 2004). Prior to the actual observation, the observers in this study convened and then agreed on the process protocol to ensure inter-rater reliability.

Data Analysis

Descriptive statistics analyzed the data from the in-class observation, with a focus on describing similar and different classroom activities employed by award-winning Chinese and American teachers that led to their effectiveness. Interview data were qualitatively analyzed for emerging themes that would not have been apparent using quantitative analysis. The strategy used was constant comparative analysis, which is an emergent categorizing strategy that identifies similarities and differences among data, and then codes and sorts them into appropriate categories. To develop an inter-rater agreement, researchers discussed and agreed on cases where the same phrases were coded differently.

RESULTS

Observation Results

The DCOS yielded data on the nature and number of instructional activities, student engagement, and teacher-directed versus student-directed learning. Means and percentages are provided in Tables 1 to 6 for each of the prospective measures.[1]

Number of instructional activities.   All instructional activities were recorded in 5 min segments using DCOS codes. Table 1 shows that on average, the Chinese and the American teachers used 9.67 and 9.3 different instructional activities during an entire observation, respectively.

Student engagement.   In recording student engagement, researchers scanned the room for 4 min and 30 s into each 5 min segment and then recorded whether engagement was low (1), medium (2), or high (3), based on the established protocol and operational definitions. Table 2 shows that student engagement was relatively high for both groups of teachers. Students were engaged in lessons with means of 2.73 for Chinese teachers and 2.69 for American teachers.

Director of learning.   The director of learning in the classroom was determined based on a continuum of (1) to (5). A (1) indicates that the teacher directs all learning and (5) indicates that students direct all the learning; ratings of (2) to (4) indicate

Table 1. Results from the differentiated observation scale, number of instruction activities, by country

	Chinese teachers		American teachers	
	M	Range	M	Range
Number of instructional activities per classroom observation	9.67	7–12	9.30	6–13

Table 2. Results from the differentiated observation scale, by country

Teachers Measure	Chinese teachers M	American M
Student engagement	2.73	2.69
Teacher vs. student director of learning	1.89	1.70

Table 3. Cognitive levels of instructional activities, by country

Cognitive Level	Chinese teachers M	American teachers M
Knowledge	2.28	2.45
Comprehension	2.70	2.50
Application	2.27	2.44
Analysis	2.22	2.21
Evaluation	1.33	1.64
Creation	1.27	1.43

Note. During each observation segment, cognitive levels were noted as being (1) not evident, (2) evident, or (3) highly evident.

gradations of a shared direction of learning. Table 2 also shows that the Chinese and the American teachers mainly directed the learning, with an average of 1.89 among Chinese teachers and 1.70 among American teachers.

Cognitive levels of instructional activities. Aside from analyzing the DCOS, we analyzed the cognitive levels of instructional activities during each 5 min observation segment. Specifically, each cognitive level of the revised Bloom's Taxonomy was noted as (1) not evident, (2) evident, or (3) well-represented. Table 3 shows the mean representation across observations for both Chinese and American teachers. The cognitive levels of knowledge, comprehension, application, and analysis were all documented as *evident* and *well-represented* for both groups. Evaluation and creation cognitive levels were between *not evident* and *evident*, indicating that students were engaged at the higher levels of thinking but not on a consistent basis, or at least not at the level of the lower cognitive levels. A slight but interesting difference is that the cognitive level most represented in the classrooms of American teachers was *Comprehension*, whereas that for Chinese teachers was *Analysis*.

Nature of instructional activities. Table 4 compares the instructional activities most used by Chinese and American teachers in terms of frequency, as shown by the percentages of teachers who used the instructional activity and of overall observation segments in which the instructional activity was used. The data were analyzed by determining the average use of the instructional strategies across all observation

*Table 4. Comparison of most used instructional activities by Chinese
and American teachers*

Instructional activity	Chinese teachers		American teachers	
	Percentage of teacher usage	*Percentage of observation segments*	*Percentage of teacher usage*	*Percentage of observation segments*
Questioning	100%	84%	100%	62%
Student Response	100%	83%	100%	64%
Lecture	100%	82%	54%	17%
Technology Use-Teacher	58%	40%	46%	17%
Lecture with Discussion	58%	30%	46%	11%
Individual Student Work	83%	29%	54%	16%

segments. Chinese teachers most often used lecture, lecture with discussion, questioning, student response, and individual student work. Comparatively, American teachers used these instructional strategies but to a lesser degree. Most notably, lecture was used by Chinese teachers in 82% of the observed segments, compared with the 17% usage of American teachers of the same instructional strategy. Additionally, lecture was used by each of the 12 (100%) Chinese teachers, but only by 7 of the 13 (54%) American teachers. Based on the percentage of use over the observation segments, Chinese teachers used lecture much more frequently. Questioning and student response were also used on a frequent basis by both teacher groups.

Table 5 compares the instructional activities most used by American and Chinese teachers in terms of percentage of usage during observation segments. Both groups used interactions with students, although in different ways. American teachers most frequently used questioning, student response, teacher interaction with student and group, procedure modeling, as well as lecture. Chinese teachers used interactive instructional activities mainly involving entire groups, whereas American teachers more frequently used those involving interactions with individual students and groups.

Interview Results

Content analysis of the interview data with both American and Chinese teachers identified eight major themes, which were classified into four major categories. Furthermore, subthemes were evident within several of the major themes, with some overlapping across categories. Table 6 lists the categories and key themes.

Only the category of "Practices and Habits in Teaching" is discussed below due to the space limitation and the research focus of this paper. This category

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Table 5. Instructional activities most used by American teachers, compared with Chinese Teachers

Instructional activity	American teachers		Chinese teachers	
	Percentage of teachers	*Percentage of observation segments*	*Percentage of teachers*	*Percentage of observation segments*
Student Response	100%	64%	100%	83%
Questioning	100%	62%	100%	84%
Teacher Interacting with Individual Student	69%	24%	50%	8%
Teacher Interacting with Small Group	62%	24%	25%	4%
Technology Use-Teacher	46%	17%	58%	40%
Lecture	54%	17%	100%	82%

Table 6. Major categories and themes in the interview results

Categories	Themes
Educational Purpose and Place in Society	• Sense of Purpose
	• Awareness of Larger Systems and their Influence
Practices and Habits in Teaching	• Pedagogical Knowledge and Skills
	• Content Knowledge and Content-Specific Pedagogy
	• Differentiation and Attention to Group and Individual Differences
Development as a Professional	• Personal and Professional Growth and Change
	• Use of Reflection
Relationships	• Relationships with Students, Parents, and Other Professionals

similarly captured the largest portion of the teachers' interview responses, within which the most extensive theme was one of pedagogical knowledge and skills. The two additional themes grouped within this category were essential subthemes to the pedagogical knowledge and skills theme, but specifically emphasized the instructional differentiation practices as well as content-specific knowledge and pedagogy. In connection to the qualities of an effective teacher, those qualities included planning and organization skills, effective instruction implementation, and monitoring of students through assessment and use of assessment data as part of instruction.

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Three subthemes emerged under the larger theme of pedagogical knowledge and skills. First, teachers spoke of a strong emphasis on planning instruction, with clear connections to the use of assessments. Second, teachers discussed the attention to variation and flexibility in planning and implementing varied instructional activities with students. Third, their comments focused on student engagement through environmental and instructional elements in the classroom.

Importance of planning. Each of the teachers described their instructional planning in detail. Most of the teachers commented that they begin planning with an in-depth study of curriculum standards while keeping their planning adaptable to student needs. Both groups seemed to agree that effective student education requires a progressive and coherent set of learning objectives. They referred to state/provincial/national standards and school district curriculum for generic domains of subject content to be covered. Furthermore, the teachers expressed awareness of their responsibility to delineate the intended outcomes of each lesson and then describe the behaviors or actions that students should be able to perform after participation in the learning activities. One Chinese teacher stated:

"I will ask myself what's the aim, what kind of goal I want to get and how I can get there. I also ask myself questions like: What issues do I want to clarify? What problems will the students have? How do I organize the activities, etc.?"

In agreement, an American teacher stated:

"I have rough ideas of where I'm going...There are units that they would like for us to cover, like there's an architecture unit in fourth grade they would like us to cover, but we have free reign of how we do that. They would like us to segue way into bridges for fifth grade architecture, so my fifth graders are in the middle of building bridges right now. But other than that it's pretty much up to us what we do. At the beginning of last year I had a really hard time. People would say, 'Oh, the sky's the limit!' and I'd say, 'Oh, the sky is really big, and where do we go?'"

When deciding on lessons, these exemplary teachers stated that they often dissected prescribed standards and retained a blue print in their minds, which would continue to be formed and re-formed over time. Most of them commented that they no longer prepared meticulous, formal lesson plans because of their lengthy experience with their current grade level or content area, as well as their expertise gained over time through a constant process of planning–reflection–refining. Instead, they relied on a combination of plans from earlier years and mental planning that linked familiar past instruction with the current class and context. For example, one U.S. teacher stated:

"If I'm starting something new … I would develop a day-by-day, almost word-by-word lesson plan, unit, that would say anticipatory set I'm going to say this, this, this, and this. In the introduction I'm going to say this, this, this… I'm very detail-oriented when it comes to that. Then after I've done it two years in

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a row, I'll have in my mind what questions are that I think are appropriate, and what extensions I can do to that, so then I'll just be more generic in my daily lesson plan."

Similarly, one Chinese teacher stated:

"Not too much in detail. But I have a goal, main points, the difficulties the students may have, and the procedures I will follow."

Variation and flexibility in planning and instruction. The American teachers tended to emphasize that they keep their planning open to changes and that they continuously adjust plan implementation based on student needs. The classroom is full of ebbs and flows. Correspondingly, these exemplary teachers tended to tap into their pedagogical and content resources in a fluid and flexible manner to maximize student learning. Several of the American teachers specifically commented that with experience, they have become more comfortable with allowing lessons to follow a different path than the one originally planned, because of their own confidence and comfort with the lesson structure and the possible variations. For example, one American teacher stated:

"I try to make sure that I have a linear way of planning so you can follow through and each day's building on the next. But I also try to take the opportunities when they arise, if something crops up to link the outside in, so flexible but structured as well."

The American teachers more frequently commented that they consider assessment while planning instruction. Formal and informal assessment data influenced instructional planning among these teachers; several of them stated that this usage of assessment, as well as their purposefulness in planning and linking objectives and assessment, developed over time as a skill they have carefully honed. One American teacher shared:

"I've recently become more interested in backwards planning… I have sort of forcibly changed my own lesson planning in the last two years, once I started reading Understanding by Design and thinking a lot more about it. I always have loved planning – it's possibly my favorite part. But I think now the planning's better, and the lessons are better, because I always, always now develop the assessment first."

In contrast, effective Chinese teachers tended to focus more on anticipating the difficulties that students may encounter while learning new content, and considering student thinking to evaluate the viability of the lesson plan. They would then promptly modify their instruction. All of the interviewed Chinese teachers mentioned that they visualize being in the position of their students, predict the possible problems they would encounter while learning new content, and then plan accordingly. For instance, one Chinese teacher stated:

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"What is my goal and purpose? What kind of difficulties and problems may I meet? What kind of questions the students would ask? I make a prediction. To give prominence to the students' pre-knowledge and basis. What kind of teaching methods would I use?"

Varied instruction and student engagement. A theme of content knowledge and content-specific pedagogy also emerged from the comments of both Chinese and American teachers. Approximately 80% of the teachers offered specific comments about the ways in which they blend "content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction" (Shulman, 1987, p. 8). Within their responses under the theme of content pedagogical knowledge, both groups commented on the importance of using varied methods of instruction and engagement to involve students in learning. In addition, the teachers commented more directly on their understanding of the needs of particular students or groups of students, and the modifications to their plans and practices to support differentiation. The teachers noted the importance of knowing specific student characteristics, including learning preferences and modalities, the speed and format in which different students learn best, as well as the background knowledge students bring to each lesson each year. One American teacher reflected:

"I try to, not necessarily target specific learning styles but to acknowledge the strengths in each child and rather than teach to their strength, to bring up the other learning styles to be of an equal strength because basically when they get to high school there are certain learning styles that they need to have in place and not all kids are born with that so I try to help fill in the gaps. I try to make things as child- centered as possible so that they have relevance to the children in their everyday lives."

Correspondingly, one Chinese teacher stated:

"I would regard different students with special respect or new views according to the students' needs. To students who learn slower I give more instruction, spend more time, give them more chances to express themselves in class, and different homework. To the students who learn faster I give them more difficult homework, challenge them to do better according to their merit points."

Although most Chinese teachers reported that they vary strategies and methods to deliver instructions, the observation data indicated an over-representation of lecture (76%) in the actual classroom practices of Chinese teachers. Three plausible reasons could explain the gap between their self-reported belief of extensively using various instructional strategies and their observed behavior. One is that lecture is the most efficient method available that can cover large amounts of content in a limited period of time. Another possible reason is the pressure from local and national examinations. Several Chinese teachers acknowledged the challenges of ongoing differentiation,

commenting on the difficulties of managing individual differences within a large group and the obstacles in developing effective differentiation within the time constraints. Finally, with 50 to 70 students, the classes of Chinese teachers are substantially larger than those of their American counterparts. Several Chinese teachers shared:

> "Because of the exams. We have a lot to teach. I don't have as much time to let the students discuss. I spent more time on catching up with the schedule."

> "You cannot use stereotype methods. You should use different methods according to the students' characteristics, to use authentic examples. But sometimes I am not free to use what I think is best methods because of the examination baton."

> "I feel it is difficult to give consideration to students' differences in classroom teaching. There are more than 50 students in my class. They differ greatly."

Although differentiation was limited in terms of learning activities, Chinese teachers stated that they differentiate the pace of learning for one specific learning activity based on the students' individual needs. Many Chinese teachers also mentioned that they differentiate and use the cognitive level of questioning to involve students of all ability levels and then build their self-esteem. The teachers also tended to differentiate the product of learning for students, such as designing diverse types of homework and examinations for students of different levels.

When discussing their classroom teaching strategies, American teachers emphasized designing more authentic learning experiences for their students within a specific content area. For example, one secondary English teacher emphasized that she habitually "*show[ed] them how good writers do use all of this stuff and give them examples of why it's important."* She commented that in developing assessment situations, she strives for authenticity in both the language skills to be used and the simulated circumstances that form the context for language use. This emphasis on authenticity also fit within a focus on their own content knowledge, which is acknowledged by many teachers to be a critical part of their work and of their credibility among the students.

Classroom environment and student engagement. Both American and Chinese teachers discussed how they build an engaging, stimulating, and enriching learning environment in which their students could grow and thrive. They establish and communicate guidelines for expected behavior, monitor student behavior, keep students on task, and infuse humor, joy, care, and respect into the classroom interactions, to develop a climate conducive to student learning. They stimulate student enthusiasm through modeling and careful calibration of the learning experience to the level of student development. Overall, their classrooms are characterized by a positive climate that can encourage student growth in cognitive, motivational, emotional, and behavioral domains. A Chinese teacher stated that he used different methods and tactics to stimulate and sustain student enthusiasm for

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learning. He also used humor to make learning fun and to draw student attention. Similarly, an American teacher shared:

> "Praise from a student for me would be that I've made their learning interesting and their day fun, rather than just we had to sit down and do all these things. They could actually verbalize for me the reason why they're doing it and the value for them out of it."

These teachers also spoke of the learning environment in their classroom as being supportive, safe, challenging, and academically robust. These attributes define why the learning climate in their classroom is conducive to student success. Several supporting statements are listed as follows:

> "I've had a couple students say to me, "You made me want to do better," and to me that's pretty cool. I've taken them beyond what they thought they could do, and they end up doing more. They pushed their boundaries, they pushed their limits."

> "I look to see, am I making it rigorous, am I making it hard for them, because I tell students throughout the building my job is to make their brains hurt, because if your brain isn't struggling it's not growing."

DISCUSSION

Effective teaching can also be viewed in terms of outcomes, that is, whether students learn as a result of having a particular teacher (Mendro, 1998; Nye, Konstantopolous, & Hedges, 2004; Palardy & Rumberger, 2008; Sanders & Horn, 1994; Wright, Horn, & Sanders, 1997). However, observing and talking with effective teachers solicited information as to their practices and beliefs that lead to their effectiveness in the classroom. These practices and beliefs can then be grounded in existing literature to build a composite sketch of the elusive concept of teacher effectiveness. Thus, as reflected in this study, we contend that research on teaching *processes* is crucial for a better understanding of classroom activities employed by effective teachers in different countries and cultures. As stated by one group of researchers, the teaching process was the focus of this study: "… How can processes be improved by inspecting only their outcomes?" (Hiebert, et al., 2005, p. 112).

Similarities. The teachers demonstrated high levels of competence related to the qualities of effective teachers identified in the frameworks of Stronge (2007), Bai (2000), Cui and Wang (2005), and Sun (2008). The American and Chinese cases in this study shared several similarities, including:

- The use of a wide variety of instructional activities across levels and content areas;
- Teacher direction of learning activities;

- High student engagement;
- Evidence of teachers' expertise and professionalism across all the themes, including facility with planning, assessment, classroom management, and reflection;
- Anticipation of student difficulty and improvisation as required by the classroom situation to maximize meaningful learning opportunities; and
- The creation of an optimal learning environment.

Differences. Although both American and Chinese teachers employed various common practices in their classrooms, they presented different patterns regarding specific aspects of their teaching.

- *Instructional activities:* Chinese teachers most frequently used lecture, lecture with discussion, questioning, student response, and individual student work. Comparatively, American teachers most frequently used questioning, student response, teacher interaction with a student and the group, procedure modeling, and lecture. Given these differences, American and Chinese teachers value different types of high-achieving instructional practices.
- *Planning.* In planning instruction, both American and Chinese teachers emphasize alignment between curriculum standards and instruction. In addition, American teachers further incorporate assessment of learning in their planning process.
- *Student challenges.* Chinese teachers more often stressed that they develop and test hypotheses about student learning difficulties. They also reflect more on demands for classroom discipline and teacher control.
- *Differentiation.* American and Chinese teachers differed in the comfort they displayed in conversing about differentiation practices. Chinese teachers find teaching differentiation more challenging due to the large class size, pressure from an exam-driven education system, and the limited instructional time. The primarily whole-group instruction indicated by the observation data further support this finding. In comparison, American teachers use activities that allow interaction with individual students or in small groups.
- *Connections to real-world learning situations.* During the interview, the American teachers emphasized involving students with authentic learning experiences within a specific content area, an issue none of the Chinese teachers discussed. This finding is supported by an earlier study that reported American teachers of perceiving the goal of instruction as teaching students to solve problems in the real world, and of believing that teaching content in real life situations and connecting to concrete models are important instructional approaches (An, Kulm, Wu, Ma, & Wang, 2002). In contrast, Chinese teachers emphasized teaching students through varied learning methods and the ability to transfer learning to the real world, but they seldom incorporated concrete models into their own teaching.

In summary, the study highlighted the cross-system similarities and differences in conducting and reflecting high-quality classroom instruction valued in the United

States and China. Other works that examined student and teacher views of effective teaching as well as empirical studies of effective teaching reported results that are consistent with the findings of this study (Bembry et al., 1998; Hattie, 2003; Liu, 2006; Odden, Borman, & Fermanich, 2004; Stronge, Ward, Tucker, & Hindman, 2008; Taylor, Pearson, Clark, & Walpole, 2000; Taylor, Pearson, Peterson, & Rodriguez, 2003; Wang, 2000).

Distinctive teaching cultures are formed and nurtured in specific educational systems (Stigler & Hiebert, 1999), particularly for the United States and China: two nations that are highly different in terms of demographics, history, political systems, and socio-economic status. As a cultural action, teacher instruction occurs in specific cultural settings and evolves in ways that can reflect the underlying cultural values advocated and nurtured by the wider society (Li & Shimizu, 2009). The present study support earlier studies that examined instructional practices in mathematics in Mainland China, Hong Kong, the United States, and other high-achieving educational systems (Huang & Leung, 2004). The salient feature of classrooms in Confucian culture is the dominance of the teacher in the teaching and learning process; however, high-quality teaching and learning, as well as active student engagement, still occur in a teacher-controlled classroom, even in a large class size. The overrepresentation of the whole-class direct instruction or lecture in China's exemplary classrooms seems counterintuitive based on the Western mainstream thinking of quality instruction. Critics believe that lectures rest on the assumption that students are passive receivers in the learning process, and lectures are associated with learning at low cognitive levels based on Bloom's taxonomy. Nevertheless, empirical research has consistently indicated that direct instruction is one of the most effective strategies in producing high learning outcomes for students across subject areas (Kroesbergan & Van Luit, 2004; Rosenshine, 1995; Schwerdt & Wuppemann, 2009; Stevens, Slavin, & Farnish, 1991), grade levels (Darch, Gersten, & Taylor, 1987; Schwerdt & Wuppemann, 2009; Upadhyay & DeFranco, 2008), different learning abilities, (Algozzine & Maheady, 1986; Rosenshine & Stevens, 1986), and different socioeconomic backgrounds (Rosenshine, 2002).

The present study has the following limitations that affect the generalizability of the findings.

1. This is a case study examining the practices of a relatively small sample of 13 American and 12 Chinese teachers.
2. The observation and interview data were collected from two single classroom visits that lasted a maximum of one day per teacher.
3. The data were limited by the range of options on the observation instruments.

For future research, we anticipate that understanding the work of exemplary teachers would be improved by observation and discussion with more teachers from varying teaching levels and subjects from high-achieving educational systems.

CONCLUSIONS AND IMPLICATIONS FOR PRACTICE

Abundant and compelling studies indicate that teacher effectiveness matters and largely varies. However, determining *which* teacher-related factors actually cause those effects is more useful for educational policy and practice. This study used quantitative classroom observation data to identify the practices of exemplary teachers. Qualitative interview data were gathered to reveal their perceptions and beliefs on their teaching experiences. The data generated by the study have a predominantly different focus from directly accessible teacher qualifications data stored in school administrative systems. Thus, this study differs from those that use naturalistic data on teacher characteristics (e.g., degree, certification status, years of teaching experience) to portray effective teachers. Defining conclusions on factors making an effective teacher may be premature based on merely the findings of one limited study; nonetheless, we trust that the findings would contribute to the current understanding of this vital issue of teacher effectiveness.

NOTE

[1]   Standard deviations were not provided due to the small sample sizes.

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WAN WAI-YAN SALLY

27. HONG KONG TEACHERS' PROFESSIONAL DEVELOPMENT

INTRODUCTION

Lifelong education has been highly emphasized in the global world. In the current complex and dynamic changes and challenges in the school (Herrity and Morales, 2004), continuing professional development (CPD) of teachers has been highlighted in the new education policy of Hong Kong. CPD refers to ongoing education and training for the professions (Earley and Bubb, 2004). Several other concepts are associated with CPD, such as teacher, staff, and professional development. Day (1999) distinguished between these terms and CPD. He stated that most definitions of professional development stressed, as main purpose, the acquisition of subject or content knowledge and teaching skills. Emphasis has to be placed on the nature of CPD as a "continuing" process for improvement in addition to the knowledge and skills gained. As an ongoing process of education, training, learning, and support activities participated by teachers alone or with others (Bolam, 1993; Day, 1999), CPD enhances knowledge and skills, and enables teachers to consider their attitudes and approaches to the education of children, while attempting to improve the quality of learning and teaching. In short, CPD focuses on fostering individual competence to enhance practice and to facilitate dynamic changes in education (Blandford, 2000).

WHAT IS CPD?

No unique definition for CPD of teachers is currently available because it varies from different educational traditions and contexts. CPD of teachers, in a general term, means the learning of teachers in an ongoing way. CPD implies the improvement of the school as well as the professional advancement of individuals. Hence, CPD can embrace personal development (individualized learning) and staff development (the collegiality of group learning/co-learning) (Bell, 1991a). On this point, Day (1999) provided a similar but useful definition about professional development:

> "… professional development consists of all natural learning experiences and those conscious and planned activities which are intended to be of direct or indirect benefit to the individual, group or school and which contribute to the quality of education in the classroom." (Day, 1999)

Therefore, professional development encompasses all activities that cater to the individual needs of teachers and the institutional needs of the entire school (Bell,

1991). The teacher, the school, and the pupils all benefit from the process of professional development (Bell, 1991).

APPROACHES TO CPD

Because of the changing demands on the new roles of teachers in the 21st century, traditional approaches to CPD such as formal courses or one-off seminars are criticized for their inability to prepare teachers for their new role as knowledge facilitators instead of knowledge transmitters (e.g., Darling-Hammond, 1998; Lieberman, 1996). Therefore, two theoretical perspectives lead the alternative approaches to CPD, which effectively support teacher learning (Kwakman, 2003). These two perspectives include cognitive psychological and professional development, which are briefly discussed as follows.

Cognitive Psychological Perspective

Student learning and teaching learning are the same from a cognitive psychological perspective (Borko and Putman, 1996; Putnam and Borko, 2000). Teachers are assumed to learn like students in situations in which the former are considered as constructors of knowledge, and active learners in a self-directed way. Such kind of learning occurs during interaction in the learning context and effects of prior knowledge of individual learners (Borko and Putnam, 1996). Hence, the interplay of the existing knowledge and the learning environment of the individual contextualize and influence this kind of learning. Thus, the learning of the teacher takes place when favorable learning environments are provided in which they are responsible for their own learning (Bransford, Brown, and Cocking, 1999), and staff developers play an important role in creating favorable learning environments for the learning of teachers.

Professional Development Perspective

Instead of emphasizing favorable learning environments for enhancing the learning of teachers, the professional development perspective stresses that teachers have to learn how to teach for understanding, that is, they ought to learn new concepts of content and pedagogy, and to take on new roles (McLaughlin, 1997). Hence, the working context is the best place for teachers to acquire competencies, which they need to fulfill their new roles through practice (Hargreaves, 1997; Kwakman, 2003; Retallick, 1999). The working context for teachers can be the daily teaching context, which includes classrooms, schools, school clusters, and other forms of communities such as partnership with universities, networks, and so on. In other words, the learning of teachers occurs at the workplace at places where their teaching happens, and closely aligns with work in classrooms and schools (Garet, Porter, Desimone, Birman, and Yoon, 2001; Huffman, Thomas, and Lawrenz, 2003; Sparks

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and Loucks-Horsley, 1989). Their learning could be at individual or collaboration levels (Kwakman, 2003).

FACTORS AFFECTING THE PARTICIPATION OF TEACHERS IN CPD

In the past decade, few studies have examined the factors affecting the participation of teachers in CPD activities in different countries. Kwakman (2003) conducted an empirical study about a number of factors affecting the participation of teachers in CPD in the Netherlands. Her study first identified the factors of personal (i.e., professional attitudes, appraisals of feasibility, appraisals of meaningfulness, emotion exhaustion, and loss of personal accomplishment), task (i.e., pressure of work, emotional demands, job variety, autonomy, and participation), and work environment (i.e., management support, collegial support, and intentional learning support). Then, her study used these factors to examine their effects on the participation of teachers in CPD. Among these three factors, the personal was reported as most significant in predicting the participation of teachers in CPD activities. However, this study may have over generalized the factors affecting the CPD of teachers (i.e., personal, task, and working environments), and several factors may have been understated (e.g., family factor). Furthermore, this study was not context-specific to other situations or cultures.

Another study conducted by Lee (2002) identified a number of factors facilitating and inhibiting effective professional development in Taiwan. Among the factors contributing to effective professional development, "relevant/realistic content" was the most important factor (34%), whereas the least important factors were "presenter with recent experience" (9%) and "based on practice" (9%). Table 1 lists the details of the results. He also examined the factors inhibiting effective professional development. The most commonly cited factor that inhibited effective professional development was "insufficient resources to implement learning" (21%), whereas the least frequently cited factor was "school not supportive of CPD" (13%) (see Table 2). Several other aspects related to CPD providers, including contents, formats, and presentations of CPD activities, should be considered as factors affecting the participation of teachers in CPD activities, and they should supplement the factors cited in Kwakman (2003).

To sum up, the above studies examined a number of factors that affected the participation of teachers in CPD activities. The present study takes an exploratory approach to analyze further the factors affecting the participation of teachers in CPD activities in the context of Hong Kong.

CPD POLICY IN HONG KONG

To respond to the global trend, the education system of Hong Kong has greatly emphasized CPD. In recent years, the needs for higher accountability and the improvement in the quality of teaching were of great concern in Hong Kong.

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Table 1. Factors contributing to effective professional development (Lee, 2002)

Factors	Percentage of respondents
Relevant/realistic content	34
Opportunity to share ideas	32
Relevant to needs identified by teachers themselves	25
Hands-on activities	25
Sufficient resources	20
Good delivery	18
Focused content	17
Participants committed	13
School supportive of CPD	11
Presenter with recent experience	9
Based on good practice	9

Remarks: The study was based on the responses of 255 participants. Each respondent could give more than one response.

Table 2. Factors inhibiting effective professional development (Lee, 2002)

Factors	Percentage of respondents
Insufficient resources to implement learning	21
Insufficient money to pay for courses	19
Teacher workload preventing/deterring teachers from taking up CPD	18
Content not well focused/structured	18
Irrelevant/unrealistic content	14
School not supportive of CPD	13

Remarks: The study was based on the responses of 255 participants.

The government has recognized that schools should be given more responsibility in planning and organizing programs to develop their own teachers to satisfy their own needs. The School Management Initiative (Education and Manpower Branch and Education Department, 1991) first announced that in an effective school, the principal should be concerned with his own and his staff's professional development, and thus, schools were encouraged to organize staff development days. In 1997, the Education Commission Report 7 (Education Commission, 1997) affirmed the crucial role of the school in CPD, and stated, "Every school should examine its own needs for teacher development." In 2003, the Advisory Committee on Teacher Education and Qualifications initiated the Towards a Learning Profession: Teacher Competencies

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Framework and the Continuing Professional Development of Teachers (ACTEQ, 2003). The framework outlines the map of generic teacher competencies for the teachers and the facilitators of learning and development of teachers. Specifically, all serving teachers were required to undertake at least 50 hours of structural CPD activities and/or other modes of CPD activities. As stated, "the basic premise of the framework is the personal growth and development of teachers" (ACTEQ, 2003). Undeniably, CPD is vital to all stakeholders in education.

Facing the new CPD policy, understanding how teachers perceive CPD, and identifying factors that affected their participation in CPD are extremely important segments because the data will provide schools with accurate information needed for making effective decisions regarding CPD programs (Fitch and Kopp, 1990). Researchers need to understand the favorable or unfavorable factors affecting teacher participation in CPD activities. The lack of studies concerning teacher perceptions of CPD in Hong Kong makes it worthwhile to explore this topic. Hence, the research aims to explore teacher perceptions of the factors affecting their participation in CPD question of this study by asking, What are the factors affecting teacher participation in CPD as perceived by teachers?

RESEARCH METHODS

This exploratory study does not aim to examine hypotheses or test a conceptual model. Instead, this study primarily intends to elicit the factors affecting the participation of teachers in CPD. To obtain a more accurate and holistic representation of the perceptions of teachers concerning CPD, a multiple approach using mixed methods was employed. This study was conducted in two government-subsidized primary schools located in Hong Kong. Convenience sampling was applied because the researchers gained access to the school sites, and were able to develop a trusting relationship with the teachers. Mixed methods were used to explore further the perceptions of the factors affecting teacher participation in CPD. Two research methods, namely, a survey that used an open-ended questionnaire and two focus group interviews with teachers, were utilized to obtain data. The survey was administered on April 2006, while the focus group interviews were conducted from May to June 2006.

The survey questionnaire mainly focused on exploring the perceived factors that affected teacher participation in CPD. Respondents were asked to write about their perceived factors affecting their participation in CPD. Two focus group interviews were conducted to two groups of three teachers from case schools A and B, which consisted of two groups of small homogenous samples of teachers. Teachers involved in the focus group interviews were selected based on their teaching rank, years of teaching experience, role responsibilities, age, and so on. During the focus group interview, the groups were asked questions corresponding to the questionnaire. This system allowed the participants to elaborate their responses and the survey to deepen its analyses. Furthermore, this process helped obtain an in-depth interpretation of the

questionnaire results. For the interviews to be more convenient for all participants, the interviews were arranged at a suitable time (i.e., after school hours), and were conducted at the schools where the participating teachers worked. Each participant received a copy of the survey results.

The interviewer checked the tape recording and wrote down observations to ensure the validity of the qualitative inquiry (Patton, 1990). Data obtained from the focus group interview were reported and analyzed with the constant comparative method as suggested by Lincoln and Guba (1985). This method is a naturalistic process that is useful for data gathered from interviews. During the process, the interviews were color-coded and categorized based on themes and issues that were numbered and generated. The themes and relationships were then grouped and identified as these data were obtained from different data sources or participants. The complete process of categorization was performed with reference to the research question and the literature review.

FINDINGS

Demographic Background

The response rates of case schools A and B were high, which are 94.6% (N=35) and 100% (N=43), respectively. This rate reflected that teachers of different schools had varying views or responses towards CPD. Females accounted for the majority of the sample (80.5%), while males accounted for only 19.5%, which indicated the condition of the teaching population in the primary school sector (Government Secretariat, Hong Kong Government, 1981).

Overall Perceptions of Teachers on the Facilitating and Inhibiting Factors Affecting CPD

The teacher respondents wrote two facilitating factors and two inhibiting factors affecting their CPD. Table A summarizes the response rate of the survey question relating to the facilitating factors contributing to CPD. Table B shows the facilitating factors that were categorized under six themes, namely, school, personal, financial, time, CPD provider, family, relationship with others, and government. As shown in Table B, teachers in case school A regarded the personal factor as the most important facilitating factor affecting CPD. In contrast, teachers in case school B considered school and financial factors as the most important facilitating factors contributing to CPD. In the literature, time and workload were associated factors that may become obstacles to CPD (Day, Sammons, Stobart, Kington, and Gu, 2007). However, in the present study, only a few teachers (N=2) indicated time and workload simultaneously as obstacles to CPD.

Furthermore, a great difference existed in the numbers of teachers giving and not giving opinions to favorable and unfavorable factors affecting CPD. Teachers in the

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sample seemed to be indifferent to CPD, and they mostly gave brief descriptions of their perceptions in the open-ended questions.

Table C summarizes the response rate of the survey question relating to the obstacles to CPD. Table 6 shows the inhibiting factors that were categorized under six themes, namely, time, heavy workload, financial, CPD provider, school, and personal. Based on Table D, teachers in case school A reported heavy workload as the most inhibiting factor affecting CPD, whereas teachers in case school B regarded time as the most inhibiting factor affecting their participation in CPD.

Perceptions of Teachers on the Facilitating Factors Affecting CPD in Two Case Schools

Questionnaire results of case school A. In case school A, 19 respondents (54.3%) participated in the survey. Six common themes emerged based on the views from their responses, namely, school, personal, CPD provider, financial, family, and government.

The personal factor was perceived as one of the major factors contributing to the participation of teachers in CPD. Seven teachers mentioned aspects of the personal factor that contributed to their CPD, such as their own goal, enthusiasm, and belief. Several examples of what teachers said are:

"My enthusiasm and interest." (S10)

"Sense of responsibility does have effects on teachers' participation in CPD." (S10)

"In time of dealing with changes and making progress." (S10)

"I am still young." (S18)

"One's own belief, including colleagues' common beliefs about education." (S21)

"Personal belief of its urgency." (S30)

"When facing new challenges in work and fulfill personal interest." (S33)

According to teachers in case school A, school is one major facilitating factor to CPD. Six respondents reported that the school is one kind of support to their participation in CPD. A few examples of what the teachers mentioned are:

"The school has provided some workshops or seminars for teachers to participate." (S3)

"School support." (S5)

"More promotion chances should be given to teachers." (S4)

"[There is a need for] some school measures of corporation." (S24)

"The school's encouragement." (S26)

"The working time is regular, and this is more favorable to arrange personal continuing professional development." (S29)

One teacher suggested:

"The school has to understand and support teachers' continuing education, should reduce teachers' workload, in order to let them have much time to study and do the related research." (S32)

Another teacher wrote:

"The school encourages teachers to have CPD; at the same time, but not able to fulfill teachers' need of time, always arrange activities that lead to teachers being absent from CPD courses." (S35)

Five teachers perceived CPD provider as a factor favorable to their choice of CPD.

1. "Lots of choices of CPD course." (S7)
2. "Course contents can suit my needs." (S30)
3. "When it helps enhancement of subject knowledge and grasp more latest news." (S22)
4. "When I can learn about some updated educational information." (S32)
5. "Workshops are mostly held on Saturdays so I can join them." (S8)

Three teachers mentioned the financial factor could be an impetus to CPD. One teacher stated, "When tuition subsidy can be available for teachers" (S35). Another teacher also responded, "When there is a provision of paid leave for CPD" (S33).

One teacher mentioned, "Family support is important to support her participation in CPD" (S11). Only one respondent perceived that encouragement from the government contributed to the CPD, "encouragement from the government" (S33).

Focus group interview of case school A teachers. During the focus group interview with the teachers in case school A, the respondents pointed out the importance of school support to CPD. For example, one teacher suggested, "I hope there will be a reduction in the number of lessons. The workload is so heavy. If employing more teachers, we can have much time" (Teacher J, case school A). Another teacher commented, "Financial support. I remember formerly the school can assist us to pay some money on CPD. It can be helpful" (Teacher E, case school A).

Questionnaire results of case school B. For case school B, 16 teachers (37.2%) provided responses regarding the facilitating factors affecting CPD, while 27 teachers (62.8%) did not indicate responses. Teachers in case school B identified the six facilitating factors affecting CPD as school, financial, CPD provider, personal, relationship with others, and family.

Six teachers considered sufficient school support as one important facilitating factor to CPD. Four teachers mentioned about time as an impetus to CPD, such as conducting the CPD within school hours, and suggested for the school to arrange time for teachers to have more space. One teacher outlined that good management of the use of school resources was helpful in supporting CPD. Three teachers mentioned that financial factor was an impetus to CPD. One teacher indicated that "in-service continuing education with salary" was supportive to CPD. Four teachers mentioned "money" as their supportive factor for CPD. One teacher cited the availability of government subsidy would be beneficial to CPD. Four teachers perceived the CPD provider as a factor favorable to their CPD choice.

Personal factor was perceived as a major factor contributing to the participation of teachers in CPD. Three teachers regarded time, opportunity, and own needs as their personal considerations for CPD. Two teachers mentioned that good relationship with others helped facilitate CPD, which included the presence of support and harmonious relationships from colleagues and friends. One teacher mentioned "without burden for the family" (37) as one important factor supporting his CPD.

Focus group interview of case school B teachers. During the focus group interview, similar with the teachers in case school A, teachers in case school B mentioned about the importance of school support to CPD. One teacher mentioned:

> "The school is very willing to support us to take courses. When the school knows that there is a need. So when there is a need to substitute lessons, there will be some special arrangements. The principal will not give you any "colored face" or say "again?" She knows you are willing to learn for the school." (Teacher F, case school B)

She continued:

> "The school also holds different types of CPD activities co-organized by different institutions. That is also one kind of support to CPD. Just like we went to CUHK (Chinese University of Hong Kong) to attend the conference which was actually not free, however the school had paid for us." (Teacher F, case school B)

Another teacher pointed out the importance of getting support from others. She said:

> "Actually the support also comes from colleagues. They do not complain about their extra work because of others having CPD within school hours." (Teacher Y, case school B)

Moreover, the participants raised several opinions for promoting CPD. They suggested more resources should be given by the government. These suggestions were similar to the favorable factors for CPD:

"And we are in a whole-day school and we have our families. If there is really a need for CPD, there should be more resources and this thus helps release us to share work. We not only have jobs, we still have families. There should be some space for us…less teaching periods." (Teacher T, case school B)

"When teaching can be separated from administrative work… It is not the school to provide more space and time to us; it should be the EMB (Education Manpower and Bureau) to give us more extra resources. The school can thus have more resources to support us." (Teacher Y, case school B)

Perceptions of Teachers Regarding the Inhibiting Factors Affecting CPD in Two Case Schools

Questionnaire results of case school A   Only 24 teachers responded to the question regarding the inhibiting factors affecting their CPD, while 11 teachers did not give any response. Based on the responses, six common themes emerged, namely, time, heavy workload, financial, CPD provider, school support, and personal.

Heavy workload was identified as one of the most common factors considered as an obstacle to CPD. Around 13 teachers reported they did not participate in CPD because of heavy workload. The following are several examples of the responses of the teacher participants:

"Work pressure is too large, hope to have some rest." (S2)

"Heavy school workload." (S4)

"Too busy teaching work and private affairs." (S6)

"School work is too tiring." (S9)

"Daily work is too busy." (S24)

"Too much non-teaching workload in the school." (S26)

"Too much school work, it greatly diminishes time for leisure." (S29)

"Too much pressure from work, leading to no interest in CPD." (S33)

Time was the most common factor that inhibited teachers from CPD. Twelve teachers expressed they lacked time to join CPD. Here are some examples of what they said about time factor affecting their participation in CPD:

"Family responsibility, no time to do so." (S1)

"Too much workload, no time." (S1)

"School teaching work or lesson periods, no time to participate." (S3)

"Lack of time." (S27)

"Too busy with work, cannot have time for CPD." (S33)

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Four teachers from case school A expressed that financial factors could also inhibit them from participating in CPD. The following are examples of what they said:

"Tuition fee is too expensive." (S7)

"Money." (S10)

"Financial problem." (S32)

"Financial pressure." (S33)

Three teachers expressed that the quality of the provision of CPD can affect their participation in CPD. One teacher wrote, "The quality of CPD course is too diverse." (S7). Another teacher cited, "Practicality of the course, e.g. teaching Mandarin as a medium of instruction." (S10). Sdentified as an obstacle to CPD. As one teacher mentioned:

"The school suggested teachers not joining those workshops within school days, except in the case that the school recommends to do so, hence, participation in those workshops on school days is difficult." (S8)

Another teacher wrote:

"Sometimes school development needs would be obstacles to personal continuing professional development." (S25)

Personal factors, such as health problems, feelings, or thoughts, also affected the participation of teachers in CPD. One teacher mentioned about personal factors affecting his participation in CPD. This respondent identified "Personal health" (S33) and "Sudden changes in the family." (S33). He also wrote "too directive (from EMB and the School), but not for self-interested CPD" (S33).

Focus group interview of case school A teachers. During the follow-up focus group interviews with the teachers from case school A, the views gathered were consistent with the quantitative findings in the questionnaire. One teacher pointed out "It is common to encounter those obstacles as stated here. Everyone has different levels of obstacles" (Teacher F, case school A). This response was in line with the obstacles reported in the questionnaire results. However, this particular teacher gave an example of heavy workload and time as her obstacles towards her CPD. She expressed that:

"Busy…so much work … at 7 p.m. I am in a hurry to go to study. On Saturdays and Sundays, we don't have time to do assignment because we sometimes need to be on duty for doing some activities like open campus days or extra-curricular activities. I am not spiritual and am physically tired." (Teacher E, case school A)

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Another teacher explained why teachers have heavy workload, stating that, "As a teacher today, we do have a lot of work. You need to put a lot of effort on it" (Teacher F, case school A). Another teacher shared a very similar view, "Much work needs to [be done] in detail. There is so much clerical work to do" (Teacher J, case school A). This teacher also pointed out several factors, such as personal interest, can be favorable or unfavorable to CPD. She said:

> "Interest can have two sides. It may be a favorable factor or an unfavorable factor. I think CPD should be continuing, beneficial to teaching and learning to bring about satisfaction and teaching better."

Questionnaire results of case school B. For case school B, 15 teachers cited several obstacles to CPD, while 28 teachers did not express that they had any obstacles to CPD. Based on the responses, four common themes emerged, namely, time, heavy workload, financial, and CPD provider. As identified by 13 teachers in case school B, time was one major factor that served as an obstacle to their participation in CPD. The following statements are examples of what they wrote in the questionnaire:

> "Time constraint." (L1)

> "Busy school work." (L2)

> "Time arrangement for CPD is difficult." (L22)

> "Because of after-school meetings, I have no time to participate." (L34)

> "Serious lack of time." (L41)

Only three teachers mentioned heavy workload as an obstacle to their CPD. One teacher wrote, "Busy work" (L15). Only two teachers responded "expensive tuition fees" (L15) and "money" were obstacles to their participation in CPD. One teacher mentioned the quality of professional development courses affected her participation in CPD (L33).

Focus group interview of case school B teachers. During the focus group interview, the teachers conveyed heavy workload and time were two major inhibiting factors affecting CPD. Some examples of their comments are:

> "Maybe not just related to workload. It's mainly just because of shortage of time to do so many things as mentioned at the same moment. Time and money are very common obstacles." (Teacher K, case school B)

> "Most of Hong Kong people are like the same. It is very common in Hong Kong. Time is always not sufficient." (Teacher F, case school B)

> "And we still need time to spend on family. If we can much space, that will be better." (Teacher Y, case school B)

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However, a teacher indicated a different view about workload and time from that of teachers in case school A.

"This may not be just related to workload. It's mainly just because of shortage of time to do so many things as mentioned at the same moment. Time and money are very common obstacles… I think it's not related to workload. It actually is related to insufficient time here, and we felt hat CPD is what we need to do. But because we just have two hands and we can't do it at the same time." (Teacher T, case school B)

The comment may be related to the school background of the said teacher. During "the time of survival," most housing estate schools faced the problem of "being killed" because of the shortage of students enrolling in such schools. Moreover, the government had already reduced the number of schools that could enroll the officially recognized number of students (i.e., at least 23 students per class). Case school B is a famous school in the district, and has always attracted the sufficient number of students. However, case school A is a less famous school that faced the problem of having lesser number of students. This school factor may have indirectly affected the CPD of teachers because teachers in case school A needed to do some extra work, such as promotion of the school, to keep its attractiveness to parents. Therefore, school factor, to a certain extent, affected the participation of teachers in CPD directly and indirectly.

Another teacher pointed out that time and school arrangement had a relationship that affected the participation of teachers in CPD. She said:

"That's time, I think. How to manage time. Because I am responsible for WEBSAMS. When taking WEBSAMS class, it is always held within school hours. I don't want my colleagues to substitute my class always. So in this case I need to change the schedule for my classes and my classes will be put together in a crowded block and it actually shortens my working time." (Teacher F, case school B)

Heavy workload, time, and school factors were, thus, the major factors that affected the participation of teachers in CPD. School factor was crucial and influential as if affected the participation and satisfaction of teachers in CPD activities. In other words, if the school allowed time for the CPD of teachers and equally distributed workload to teachers, then such actions could greatly facilitate the CPD of teachers.

Demographic Characteristics and Perceptions of Teachers on the Facilitating and Inhibiting Factors

Frequency counts were used to determine the total number of responses to the facilitating and inhibiting factors affecting CPD. Chi-square tests were used to explore if any significant differences existed between demographic characteristics and perceptions of teachers on the facilitating and inhibiting factors affecting CPD.

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The chi-square test results showed no significant difference among demographic characteristics (i.e., gender, age, highest academic qualifications, years of teaching experience, teaching rank, and school) and facilitating factors affecting CPD. However, the chi-square test indicated that a significant difference between school and heavy workload (Factor 6) inhibited CPD ($x2 = 18.830$, df = 2, $p < 0.05$). A significant difference was found between gender and financial (Factor 3) ($x2 = 6.846$, df = 1, $p < 0.05$) as well as between gender and heavy workload (Factor 6) ($x2 = 4.826$, df = 1, $p < 0.05$).

CONCLUSION AND DISCUSSION

CPD is an essential process for school improvement as such programs promote the continuous personal growth and self-actualization of teachers, and improvement of school structures and processes. This study presented the perceptions of teachers on the facilitating and inhibiting factors affecting CPD. The facilitating factors included school, personal, financial, time, CPD provider, family, relationship with others, and government. The inhibiting factors consisted of time, heavy workload, financial, CPD provider, school, and personal. Interestingly, the overall response rate for the facilitating factors by case schools A and B was 44.9%, while their response rate for the inhibiting factors was 50%. The similar response rate may reflect that both facilitating and inhibiting factors co-existed in both schools.

Minor differences were found in the perceived facilitating and inhibiting factors affecting CPD in the two case schools. For teachers in case school A, workload was the most inhibiting factor affecting CPD, whereas personal factor was the most important factor contributing to their CPD. However, for teachers in case school B, time was the most inhibiting factor, whereas school and financial factors were the most important factors affecting their CPD.

Furthermore, male teachers perceived heavy workload as a barrier. Among the 24 teachers with ranking of APSM or above, 9 belonged to the middle management level, and thus, their workload may have been heavier than their female counterparts. At the same time, this finding may be related to role expectation in Chinese society. A deeply rooted conception is that males are responsible for bearing the living of a family, and females are expected to take care of the family. Further study can be conducted to examine the impact of cultural factors on the CPD opportunities of teachers.

Outstandingly, school factor seemed to be an influential and determinant factor that affected the participation of teachers in CPD. Heavy workload, time, and school arrangements were all controlled and managed by the school. A significant difference was found between school and heavy workload (Factor 6) ($x2=18.830$, df=2, $p<0.05$). This result reflected that workload varied from school contexts. Furthermore, the initiative of the Hong Kong government, "School Based Initiative," could have several effects on schools that were allowed their own right to formulate policies and practices differently. Meanwhile, this finding indicated that different teachers in various schools were treated differently towards CPD opportunities. Thus, further

investigation can be performed on this diversity, its impact on the CPD opportunities of teachers, and its effectiveness on schools and teacher learning.

In general, compared with case school B, with a response rate of 37.2% (n = 16), the response rate of the survey question regarding facilitating factor was higher in case school A. This observation showed that the respondents from case school A had more positive perceptions towards CPD. However, compared with case school B, the response rate of the survey question concerning inhibiting factors was also higher in case school A. Seemingly, the respondents from case school A experienced more obstacles to CPD, which included school support and personal factors.

Interestingly, some of the factors contributing to CPD did not appear in the list of inhibiting factors. These factors included family, relationships with others, and government. This observation may imply that none of these factors hindered CPD; instead, these factors most probably existed in support to CPD. The factor "workload" did not appear as a facilitating factor, and this finding indicated that no release of workload was done for assisting the participating teachers in their CPD. This finding brings to the fore the idea that schools should formulate school-based professional development plans based on the workload and needs of teachers.

The present study has several limitations. Firstly, this study lacks generalizability because only a small number of schools were involved in the study. Secondly, the perceptions of other stakeholders were not considered. Further research can be conducted in other schools, while different stakeholders could be involved to provide a more comprehensive understanding of the topic. Other research methods, such as observation and document analysis, could be applied to examine the real situation of CPD practice, and to obtain a more holistic view of how CPD is put into practice.

ACKNOWLEDGEMENTS

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28. THE CURRICULUM INNOVATION IN MAINLAND CHINA AND JAPAN: A SCHOOL-BASED APPROACH

BACKGROUND

One of the key reforms in the school curriculum of Japan and China in the 21st century is the focus on integrating subjects in the school curriculum and on promoting integrated activities in schools. This research attempts to analyze the integrated activities in Japan, a new aspect in the current curriculum reform, from its inception to its development, as well as the problems in its implementation in Japanese schools. A case study on an integrated project conducted in the northeastern part of China is also used to illustrate the issues and concerns in planning and implementing integrated activities in schools in Japan and China.

The new curricula, "Integrated Learning Time" in Japan and "Integrated Practical Activities" in China, were initiated and implemented concurrently, and their contents and approaches share many commonalities. However, the latest changes in Japan's curriculum policies on educational reforms in 2008, specifically the reduction of the time allocated to the new integrated learning, show that the new curriculum may have encountered resistance from local schools and difficulties in its implementation. The decrease in time allocated for the schools' integrated activities and the increase in time allocated for the core subject studies may indicate a decrease in their importance in Japan's educational reforms or a possible failure in their implementation. The reversal to core subject studies in Japan may be due to the strong resistance from parents who object to the sharp decrease in subject content in the school curriculum, and who attribute the cuts in curriculum contents to the creation of the new integrated curriculum activities. Another concern from the public is the decreasing achievements of Japanese students among Asian countries in the league table of the Program for International Student Assessment. Japan's Ministry of Education (MOE) has begun to wonder if the "relaxation" in education requirements and learning is the cause for the decrease in Japanese students' academic performance in international assessment exercises.

In China, on the other hand, school-based integrated activities are being further developed and strengthened, and there is no indication of resistance with regard to their implementation. In fact, school-based approaches to curriculum development not only encourage schools to take more initiative in developing their own school-based learning materials, but also enhance the implementation of school-based curriculum development (SBCD) as well as other aspects of school reform.

The case school selected by the author has implemented the integrated approaches to organize learning activities; this paper is based on its experiences and reflections. Integrated approaches to organize learning activities are considered an essential feature in the contemporary educational reforms of Japan and China. Nevertheless, a comparison of the amount of teaching time allocated to conduct integrated learning shows a more positive bias toward integration in China than in Japan. Integrated learning amounts to the second largest subject studies next to Chinese language studies in China's school curriculum, which is continuing its policy of advocating various forms of integrated learning in the school system. Further details on the trends and practices in Japan and China are discussed in the following sections.

This paper will focus on the differences and similarities in integrated learning in Japan and China. It will then outline in great detail the policies that promote integrated learning in China. Afterwards, a case study will be used to illustrate the impact of a school-based approach on China's curriculum, which is contrary to Japan's educational policies, given that policies on integrated learning have been treated quite differently in the two countries. Detecting and obtaining evidence regarding the success or failure of these policies may even take several years.

Integrated Learning in Japan: Status Quo and Concerns

"Relaxation" approaches to school education as part of the educational reforms in Japan started in the 1990s. A large-scale reduction of subject content and the creation of integrated learning time were the two reform initiatives. The initiation of an integrated approach to organizing learning activities was began as early as July 1996 by the Central Education Committee in its policy document "Looking Forward to the 21st Century of the National Educational Reform," which was later approved during its first meeting. The Japanese government was serious about the inclusion of a new curriculum on integrated learning time and prioritized its policy implementation. After several years of pilot studies and experimentation in selected schools, the policy of having an integrated learning component in the school curriculum was implemented in 2002.

According to the school learning guide published in 1998 and distributed to the primary and secondary schools in Japan, the goals of this new curriculum were to encourage students to discover their own learning direction independently, to nurture the students' capability to think and learn independently, to be able to make judgments, and to acquire abilities to solve problems in life.

Curriculum Guide for Primary Schools by the MOE (1998)

The "Curriculum Guide for Reforming the School Standards" was issued to all kindergartens, primary and secondary schools, high schools, and special schools in 1998 in Japan. The inclusion of "Integrated Learning Time" was a breakthrough for the traditionally compartmentalized curriculum and its constraints, allowing school

Table 1. Allocated Hours for Integrated Learning in Japan

Year	Primary schools				Secondary schools		
	Yr 3	Yr 4	Yr 5	Yr 6	Yr 1	Yr 2	Yr 3
2008	105	105	110	110	70–100	70–105	70–130
2009	95	100	75–110	75–110	50–65	70–105	70–130
2010							
2011	70	70	70	70			
2012					50	70	70

teachers more flexibility and freedom to design curriculum content and activities. The new curriculum aimed to cultivate habits of independent learning among students and to equip them with survival skills in a changing society. The MOE, however, was still unsure whether teachers could develop and design the curriculum and whether they should be left to make curriculum decisions without any guarantee of success. Generally speaking, the Curriculum Guides issued by the MOE are mandatory and outline in great detail the teaching contents and objectives; this is the new integrated curriculum. The contents include Understanding International Affairs, Environmental Studies, Social Welfare, and Health Studies, and cover thematic studies, integrated activities, and topic learning, which attract the interest of students, with strong regard for localism to student life and the community. After 10 years of implementation, however, the MOE has changed its policy, drastically reducing its lesson time, with one third of the original allocated time in primary schools and half in secondary schools.

Problems and Issues with Integrated Learning in Japan

Traditional practice and detailed guidelines have ensured a uniform model of practices among teachers. This model does not provide teachers the flexibility to make adjustments based on the needs of the students. Teachers used to follow the details contained in the curriculum guides; however, the new curriculum encourages decision making on the part of the teachers. In particular, it encourages the adoption of independent and enquiry-based learning styles among students and enhances the students' personalities and individuality, such that learning is motivated and in depth. Teachers, however, do not seem to have a full understanding of this new curriculum and, therefore, lead students to achieving independent thinking and acquiring the ability for problem solving.

The authors observed a lesson of integrated studies in a secondary school in Japan. The teacher decided on a topic of understanding China and divided the students into small groups of six. The groups were then dismissed to spend their study time in the library searching for materials and information using two computers. The latter half of the study time was allocated for student presentations without much

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in-depth discussion and deep learning. Worse, the lessons on two subtopics such as Traditional Chinese Martial Arts and Traditional Student Games provided no information at all, and the lesson was dismissed without any further investigation into these two subtopics. The lesson objectives were not achieved and the majority of students was distracted. This situation is very common in schools where integrated learning is conducted. Instead of using the time for integrated learning, some schools choose to use the time for teaching core subjects like Mathematics and Language. The failure of the reform is that teachers were not prepared to take up the new curriculum. Kobayashi (2008) points out that many schools and teachers complained that they lacked time and that integrated learning should be abandoned. In addition, investments in the school education were not enough to sustain the implementation and institutionalization of the new curriculum, which was still in its embryonic stage in its experimentation. Hideo (2004) points out that schools should explore themes and topics regarding their own interests for integrated learning, and teachers should be involved in the entire process of planning, designing, and implementing. Reports indicate, however, that the teachers did not participate in the decision-making processes and were therefore not motivated to implement it with commitment. The effectiveness was, thus, in question. Other problems with implementation were the lack of appropriate teaching materials and the difficulties teachers encountered in adjusting to the new approach embedded in the new integrated curriculum. Lack of training also diminished the quality of the new curriculum. In addition, lack of specifications in objectives made assessment difficult, which could hardly be assimilated into the whole assessment system in Japan. Integrated learning has become a dead end in itself in Japanese schools. Abiko (2003) points out that the new curriculum has problem solving and survival skills listed as its stated objectives, which are so abstract and vague. Many schools were not prepared to set achievable objectives from these broad and abstract concepts of skills; in turn, the intentions of the curriculum were viewed by the teachers as vague and lacking direction. Mizukosi (1998, 1999) also points out that the new curriculum of integrated learning does not establish a clear assessment for teachers.

Development of Integrated Practical Activities in China

The implementation of the Integrated Practical Activities in China's school curriculum was similar to the implementation schedule of integrated learning in Japan. First, Japan introduced reforms in 2002, a year after curriculum reforms were introduced in China (the major curriculum reforms were announced on June 8, 2001). The policy document in China, named "Reform Guide for the School Curriculum in Basic Education (experimental)," outlined the direction for educational reforms in 21st century China. It showed changes from an examination-oriented education toward an education that aims for quality in learning. The document emphasizes nurturing student creativity and cultivating their ability to apply practice as the two main educational goals. The creation of the new curriculum, Integrated Practical

Activities, as a core and compulsory subject in 90% of the primary and secondary schools aimed at achieving these two main goals in the educational reforms. In 2007, China announced its educational plan, entitled, "Educational Plan 11th Five-Year Plan 2006–2010," which reiterated its commitment to the promotion of quality-based education. The creation of Integrated Practical Activities aimed to move the focus of education from examination purposes toward an education that aims at quality learning beginning in the 1990s. China had some experience in organizing school learning around the concepts of "extracurricular activities," which were implemented in the 1980s, and "activity curriculum," which was created in the 1990s. These two curriculum innovations have built the foundation for the new integrated curriculum in theory and practice.

Guo and Wu (2003) summarize the key pedagogical functions of Integrated Practical Activities in China. First, the new curriculum assists students in learning from multiple perspectives. Second, it establishes links between school learning and social life experiences so as to minimize the alienation between the needs arising from real life and school knowledge. Third, it encourages a multiple approach in organizing learning for students. In 2009, China's MOE compiled books containing cases of good practices in schools for dissemination purposes. This was accompanied by the establishment of a reward system for teachers who excelled at implementing the new curriculum. It seemed the new curriculum had been working well with the school teachers and had become part of the school curriculum's infrastructure. Second, the contents and objectives of the new curriculum in Japan and China appear very similar. Integrated Practice Activities in China has several domains of learning: enquiry-based learning, community and regional learning, information technology, and physical education; the new integrated curriculum in Japan has similar areas of learning. Both curricula have information technology, which covers the ability to collect data, conduct analysis, and provide an interpretation. The curriculum guide for Integrated Practical Activities in China has clearly outlined the nature of practical activities based on the direct experience of the students, using the personal experience of learning, social living, and building linkages. The new curriculum emphasizes integration and application of school knowledge. Learning is organized around the life experiences of the students and their practical implications (Zhong and Fang, 2004). Third, with regard to education management, both systems in Japan and China are centralized with the presence of a MOE in both countries. Furthermore, both rely on their ministries and ensure the publications of the curriculum guide, its contents, and assessment. All these publications are mandatory for all schools in Japan.

From the discussion above, both Japan and China have become more aware of the importance of the practical and useful aspects of school knowledge. Below is a comparison of the changes in the time allocation for each subject between primary 6 and junior secondary 3.

Based on Table 2, China shows more commitment to the role of the new curriculum in educational reforms in the 21st century. Four core subjects are listed, and in China,

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Table 2. Changes in time allocation to subjects between primary 6 and
secondary 3 in Japan and China

China (primary 6 years and secondary 3 years)	1. Language	1904–2094
	2. Integrated Practical Activities; local and school curriculum	1524–1904
	3. Mathematics	1238–1428
	4. Physical Education	952–1047
Japan (primary 6 years and secondary 3 years)	1. Language	1727
	2. Mathematics	1184
	3. Physical Education	810
	4. Integrated Learning	685

(Ministry of Education China, 2001; Ministry of Education, Culture, Sports, Science and Technology Japan 1999)

the regional and school curricula and the Integrated Practical Activities are treated with equal importance. In Japan, integrated learning is fourth in the priority list and the total curriculum time is less than half of that in Chinese schools. In 2008, the time allocation in the school curriculum was further cut back from 685 hours to 470 hours, whereas no reduction has been applied in China and the new curriculum is still regarded as a core subject in the school curriculum. Integrated learning has been developed further within the SBCD activities in China. In some schools that we observed, the new curriculum has been further diffused and accommodated in other core subjects.

Below are our observations from two visits to a primary school. Our focus is on the SBCD and its linkages with the new integrated curriculum in China.

Enhancing Integrated Practical Activities via a School-based Curriculum

In China, SBCD was formally accepted as part of the curriculum structure in the last century. In the June 1999 Third National Educational Conference, a document entitled "Decisions on Further Developing Quality Education with Deepening Educational Reforms" was announced. The document shows that three levels of curriculum decision making should be established at the national, regional, and school areas to reconstruct a new curriculum system with respect to its structure, contents, and assessment. The MOE also announced new curriculum reforms for basic education and clearly stated the three levels of curriculum management that should be established in China, emphasizing the orientation of the new curriculum structure as aligned with the needs of the students and the schools. The document clearly states the proportion of time on school-based curriculum as 16% to 20%, including the regional and school Integrated Practical Activities (MOE, 2001). It also marks the inclusion of SBCD as part of the school curriculum structure and mandatory for all schools to follow, as well as states the time to be allocated

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for the new curriculum. In other words, the new curriculum has been assimilated into the curriculum structure of the schools. Unlike the previous curriculum structure, which was largely managed and controlled by national agencies, the new curriculum is more open to influences from the regions, communities, schools, and teachers. Schools and teachers, therefore, can plan and review the adequacies of the curriculum, and plan, design, and develop new curriculum innovations for their students. Thus, SBCD becomes a national endeavor with the participation of the majority of teachers around the country, which has a positive impact on enhancing teacher professionalism.

The authors of this chapter visited a primary school twice, in August 2007 and October 2011. School A is in Changchun City, Jilin Province in the northeastern part of China and is attached to the Normal University established in 1948, also in the city. This school was selected because the principal is a curriculum development expert, having edited and compiled several books on SBCD and Integrated Practical Activities. The school is considered as a model research-based school and has received widespread publicity in China. Furthermore, it is a well-established school in the country. Using this case will allow us to understand how Integrated Practical Activities have been implemented in schools in China. School A has several stated aims for the new curriculum. First, it should be open and should develop the unique characteristics of the students. Second, education should aim at nurturing the students' broad and healthy outlook. Third, the quality of the teacher education program should be enhanced. Fourth, the suitability and developmental nature of the curriculum should be focused. Four levels are identified: school, students, teachers, and curriculum.

Three levels of evaluation should then be conducted: student evaluation, teacher evaluation, and school evaluation. Evaluation of student learning should focus on motivation and its need to be satisfied. Teacher evaluation should focus on professional development and on whether decision-making processes are democratic or not. School evaluation should focus on the systematic approach for SBCD. School A has integrated all subject curricula with the Integrated Practical Activities and ensured a whole school approach is adopted (Xiong, 2009)

The authors used the school-based curriculum materials as the basis of our analysis because curriculum materials used to be developed by the central agencies in China and textbooks were assigned and mandatory for all schools. However, in 2001, the curriculum reforms clarified curriculum management and required a wide variety of high-quality learning materials. This primary school had reorganized learning between moral education, life education, and social education. New domains of learning were established with more clarity and school-based curriculum materials were developed and piloted.

In 2006, 48 teachers were selected from two educational districts and development work was started. Five phases were identified (Xiong, 2009):

1. Teacher development seminars and activities (first half of January 2006)
2. Determining contents and framework (second half of January 2006)

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3. Clarifying objectives and materials, drafting of learning materials and teacher handbook (February 2006)
4. Piloting the materials in the lessons of the 48 teachers (March to June 2006)
5. Teacher Development Activities (July 2006)

This case illustrates that teacher participation in developing the curriculum enhances teacher commitment and awareness of their changing role, promotes school-based research on pedagogy, and improves spiritual and values education. School has also prepared other school-based learning materials and curricula such as the Information Technology Program for Primary Schools because they found the official and popular textbooks and learning materials unsuitable for use in their school. These school-based development works and learning materials were not found in Japan at all. School and teacher participation in preparing and producing high-quality learning materials was in contrast to the diminishing role of the SBCD in Japan. All these factors contributed to the successful implementation of the Integrated Practical Activities in China.

All these school-based and teacher-led curriculum development activities were contrary to the policy change on implementing integrated learning in Japan. In China, it seems that the new curriculum found a home in numerous schools and teachers.

CONCLUSION

This paper outlined in some detail the new curriculum on integrated studies in Japan and China. Comparisons were made on its contents and implementation strategies. The paper also illustrated the different approaches adopted by the educational authorities of the two countries but with different effects and impact. SBCD emerged in Europe and the USA, but was transferred to Japan and China in the 1990s. The SBCD movement has received criticisms on its centralized systems, in particular, the lack of democratic participation of the majority of school teachers. Both Japan and China adopted integration as a key focus for reforms in the 2000s. This chapter analyzed the development of the new integrated curriculum and its problems in implementation in Japan. Its failure was marked in the policy changes when the time allocated to the new curriculum was drastically reduced. Conversely, in a primary school in northeast China, the implementation strategies were different. Teachers participated in its experimentation and were active in developing new learning materials. This type of participation ensured a good level of ownership and commitment on the part of the teachers. Their participation also became part of the infrastructure in developing a school-based curriculum for students. School-based approaches allow room for teachers' participation which, in turn, increases ownership and commitment. The two cases here, however, are illustrative and are not conclusive about the failure in implementing integrated learning in Japan. Moreover, we cannot claim that what happened to a primary school in northeast China implies the success of the new integrated practical activities in all schools in the country.

More large-scale research projects should be conducted to evaluate the success and failure of the new curriculum innovation in both Japan and China.

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29. CURRICULUM REFORM IN RURAL AREAS IN MAINLAND CHINA*

INTRODUCTION

A new round of curriculum reforms for basic education was officially launched at the beginning of this century. After eight years of exploration and practice, the primary and secondary education curriculums are undergoing profound and extensive changes, thereby obtaining apparent benefitsand accumulating experiences. The current curriculum reform has moved toward a systematic system of evaluation. The improved system signifies a breakthrough in the development of educational curriculum. However, the current curriculum reform faces environmental and system changes, including challenges and issues that involve teachers, investment, and security. These problems and challenges are especially obvious in rural areas, where teachers and curriculum resources cannot meet the needs of curriculum reform. Traditional educational and teaching methods are still reflected in rural middle and primary school classrooms. The national assessment of basic education shows that curriculum reform promotes urban and rural differentiation, rural area curriculum reform, confidence in curriculum ideas and reform, as well as achievement of the goals of the new curriculum. The estimated degree of teaching pattern recognition is significantly lower in rural areas compared with that in cities. This finding indicates that deepening the curriculum reform in rural areas would further promote and improve their quality of education. An accurate understanding of the problems faced by rural curriculum reform is necessary to analyze the reason and to seek solutions.

METHODS AND TOOLS

This study adopted the questionnaire survey method. We conducted surveys in the urban primary and middle schools in the western provinces of China from 2006 to 2010. The questionnaire contained several research topics, including the development and utilization of curriculum resources (2009), implementation of integrated practice (2007), current status of implementation of school-based teaching

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* *This chapter was written based on Hao's personal experience and observations in his work in the Research Center in Mainland China.*

and research (2006), adaptability of teachers to the new curriculum (2009), and the compulsory stage of textbook use completion (2010).

MAIN EXPERIENCES IN CURRICULUM REFORM

Curriculum reform was implemented according to the unified deployment of the Ministry of Education, undergoing practice exploration and several successful transformations.

Establishment of Local Course Management System in Provinces

Jiangsu province will be incorporated into the macroscopic management system curriculum reform in basic education. This development is cogent to strengthening provincial coordination, scientific planning, and utilizing curriculum reform as an opportunity to achieve connotative development in the strategy transition in basic education. Shanxi province would utilize four years of practical experience, three years to achieve a key breakthrough, and three more years to implement the 10-year plan, when the stage of compulsory education curriculum reform is expected to have been achieved. Fujian province highlights a layered management, clarifies responsibility, and mobilizes the government at all levels, as well as establishes an orderly reform operation mechanism. Hangzhou City in Zhejiang province focuses on the county level to guide schools in implementing the national curriculum, school-based curriculum development and implementation, exploring the formation of "arrive by the dot face, from individual to general, to drive the school-based research" reform operation mechanism.

Teachers as the Key Elements for Promoting Curriculum Reform

Shandong, Hainan, Xinjiang, Fujian, and other provinces attach significant importance to the use of modern means of distance education, teacher training, delivery of high quality educational resources, organizational network platform of teaching and research activities, as well as the construction of a multi-subject, interactive, crossing time and space, low-cost, and high efficiency distance teacher training mode. For instance, through extensive exploration, Shandong province independently developed a remote training platform for teachers in 2008. The remote training and school-based teaching continued for two consecutive years, which resulted in the successful implementation of full distance research and training for 100,000 high school teachers. Fujian province established a network platform to enable teachers to grow together in a virtual home. The construction of the "Fujian new curriculum of basic education net" website has achieved abundant domestic foreign research results, which optimized teaching coursework, research papers, as well as other educational and teaching resources. The site home page features columns on different disciplines, news, research, curriculum presentation,

and literature, among others. The column on different disciplines provides teaching materials, research resources, as well as examination and evaluation. Teachers conduct remote research activities through the website forum, blog, and online research advisory Q&A. Teachers likewise provide timely solutions to the vast number of difficulties and problems experienced by their colleagues, especially those in rural areas.

Chengmai County in Henan province deepened its school-based research by conducting "the special observation, partial exchange" classroom teaching research activities. The pattern of "a predetermined focus – concentrated classes – special observation – partial exchange" was adopted as the basic flow. In this method, classes are assigned with a specific task and teachers focus on teaching a part (special observation), which has a definite object in communication. Each semester, the Education Bureau organizes middle school and primary school senior teachers to evaluate classroom teaching activities, which include the collective preparation of lessons and reporting. The evaluation is conducted to promote teacher reflection on how to improve the quality of classroom teaching. Senior teachers take the lead in organizing demonstration lessons. This activity enables teachers to conduct guidance demonstration classes and special reports. Collaborative research activities are also organized for inexperienced teachers; at the same time, the Internet blog is used to widen the school-based research.

Difficulties and Focus in the Advancement of Rural School Curriculum Reform

Chongqing Jiangjin district is used to measure the following resources in local curriculum development.

Creative use of teaching resources. First, village teachers are provided with requirements and guidance on the creative use of materials according to their own situation and school curriculum needs. For instance, the use of textbooks requires children to shop in the village and the teachers to drive the children to their destination. Urban children count vehicles, whereas small village teachers teach rural children the statistics of household poultry. Second is the creative use of materials according to the rural students' starting point. For instance, in teaching "classification," rural students become familiar with corn, wheat, and other crops. Students are divided into groups, and then asked to arrange the crops that belong to the same class. Finally, teachers are taught to mine the output of rural students to generate learning resources. For example, the teacher can use student compositions about a "chick" as teaching materials. The teacher would ask the students to observe a chicken, and then introduce themselves in a composition based on their observations of chicken behavior. The class is asked to comment afterwards. Using the excellent composition of students as a local "textbook" does not only make them feel at ease; this method is also a good training for students to achieve successful experiences and to develop their confidence.

Development and utilization of rural natural resources and rich curriculum resources. Teaching in small villages integrates the familiar life situation and

interests of students into the teaching material. This method makes the students feel that the knowledge in the book is closely connected to them and their daily lives. This method stimulates the learning interest of students and encourages their enthusiasm. For instance, language teachers ask the students to carefully observe the rural landscape to learn how to vividly describe the scenery. Mathematics teachers ask students to visit the pond, and construct plastic sheds for the vegetables, flowers, and fruit trees in the hillside. This task enables them to calculate and measure the studied land area and provide estimated yield. This teaching method allows students to observe, operate, compare, guess, communicate, and reflect on actual situations. Small villages lack teaching and learning aids, and some of these materials cannot be used for the situations in the village. Instead, teachers and students utilize local resources to produce self-made teaching aids. For instance, students use sand, mud, grass stems, flowers, and other materials to create art works. They also use harvested corn rod or bamboo stick as production sticks. Mud, foam, or even radish, are transformed into a rectangular base where beaded chopsticks are plugged to serve as a counter. Paper wastes are likewise used as rectangle, triangle, trapezoid graphic models, whereas used cardboards are made into homemade calculating cards.

The development and utilization of rural human resources cultivates the feelings of students. Students devise specific arrangement and planning in cultivating after-school activities to collect materials, such as the collection of special purchases for the Spring Festival, the Dragon Boat Festival, and the Three Gorges immigration resettlement, which are among the fresh themes for rural students. This method incorporates local cultural resources into teaching. For instance, teaching the months and days of the year enables students to understand history and the future. Integrating culture into the teaching process enables students to love their hometown. This process also guides students in achieving the future development of their hometown and research on some problems, such as population and development, land use, fund investment, and town planning. The vivid observation of the real situation improves the ability of students to analyze and solve problems.

Improving Teaching Quality by Focusing on the Classroom

Fujian province focuses on classroom reform. The teacher determines the problem in the curriculum; the shortage of class hours through research, lectures, interviews, and analysis of problems cause a heavy burden to the students. The Provincial Department of Education is the lead organization that implements compulsory education. In this system, ordinary high schools are guided by the official documents on teaching. The organization starts "with heterogeneous class case teaching," "activates classroom special research," and focuses on classroom teaching and research activities to help teachers who cannot revolutionize their teaching methods. The preparation of various disciplines in the new teaching curriculum with an "excellent" case analysis guides the reform in classroom teaching. Dalian City constructed a base of quality education and a comprehensive practical activity curriculum. The city will build

a technology center, an agricultural education base, a national defense education center, and 15 other types of student practice bases. These establishments would receive 630,000 students annually for study and practice activities.

Strengthening course reform and professional guidance

Curriculum reform is a highly professional work. The Ministry of Education coordinated with a number of relevant institutions in higher learning, such as the Scientific Research Institute of Beijing Normal University, East China Normal University, and Northwest Normal University, to establish 17 basic education curriculum research centers and the University Center in curriculum reform theory research. This development aims to strengthen the reform in several theoretical and practical problems, and to provide research guidance. Practice and teacher development would play an important role in professional support. For instance, Northwest Normal University and Southwestern University provide services to the western region and actively drive the curriculum reform in western rural and minority areas. They organize experts and scholars to conduct extensive investigation, study, and test the teacher training and guidance activities in Gansu, Ningxia, Qinghai, Xinjiang, Chongqing, Sichuan, Yunnan, Guizhou, and other provinces. Curriculum plays an important role in several remote schools in the western rural areas. The country has recently established a national basic education curriculum Advisory Committee of experts to enhance curriculum leadership and decision making. The committee is composed of 41 senior experts and scholars with high academic status and social visibility. These experts are responsible for constructing the basic education curriculum and teaching materials, as well as providing decision-making advice to ministers and heads of leading groups.

MAIN PROBLEMS IN CURRICULUM REFORM

The compulsory education stage in the country reported a total of 159,164,000 students in 2008. This number includes 130,425,000 rural primary school and junior middle school students, who account for over 80% of the entire rural student population. Rural high school students account for 64.6%. This large student population distribution in rural schools has brought severe challenges and difficulties to the rural basic education curriculum reform (The Ministry of Education, Department of Development and Planning, 2009).

Multidisciplinary Structural Contradiction of Several Teachers
with Low Levels of Configuration

The low levels of configuration in teachers, which is related to the lack of teachers, result in new curriculum programs that provide English and art subjects that are not normally offered in rural schools. The shortage in teachers likewise increases

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the workload of rural school teachers. In 2006, nine schools in central and western provinces (autonomous regions) had 30,000 rural primary school teachers. The average teacher–class ratio was only 1:1.3. In contrast, the average ratio of over 40,000 teaching classes and teachers is 1:1, which is lower than that in the national primary school that has a 1:1.9 average configuration level. Rural mid-western schools lack teachers in foreign languages, music, sports, arts, and information technology. In 2006, each of the 508 counties had an average of five primary schools with a foreign language teacher. Schools in the western mountainous areas had an average of 10 music teachers. Music, fine arts, and information technology teachers in junior high schools in western impoverished areas, minority areas, and rural areas were also lacking. Thus, some schools cannot normally open the prescribed course. Primary school teachers also handle package classes; that is, one teacher handles Chinese, mathematics, and other courses, as well as the management of the class. Such challenging tasks cause difficulties for teachers to spend time for self-learning and training, as well as obstacles in the implementation of new courses. Thus, various areas, especially rural areas, could only hire substitutes to address the insufficiency of teachers. Substitute teachers have generally low education and lack systematic professional training. Thus, guaranteeing the quality of their teaching is difficult, which increases the challenges in the implementation of the new curriculum system.

Teaching Difficulties in the Rural School Adoption of the New Curriculum

Curriculum reform is not a unilateral partial reform. Development of the fundamental change emerges from teaching methods, as well as the curriculum objectives, structure, content, evaluation, and management to undertake comprehensive adjustment and innovation. The complexity of the difficulties in system reform that results from the overall low level of rural school teachers increases for both schools and teachers. A survey determined that teachers' adaptability to the new curriculum in eastern and western provinces is mainly embodied in the following aspects.

Pairs of Comprehensive Courses

Curriculum reform emphasizes the curriculum structure of the integrated primary school, which mainly comprises the integrated curriculum of junior middle school, as well as the combination of division and integration courses. These factors cause difficulty in the adaptation of rural teachers. Rural principals likewise believe that a considerable part of teaching is difficult for teachers and requires the development of curriculum resources, integrated practical activity curriculum, and school-based curriculum.

The curriculum emphasizes guiding students to participate actively, encourages their willingness to explore, communicate and cooperate, as well as enhances abilities in gathering and processing information, acquiring new knowledge, and analyzing and solving problems. Clearly, teachers advocate inquiry learning for the new

curriculum because they fail to completely grasp, accept, and organize cooperative learning. This situation creates difficulty in guaranteeing the quality of teaching.

Teachers Cannot Adapt to the Pairing of English Curriculum and Teaching.

Teachers in rural areas cannot adapt to English teaching, especially in open English classes in rural schools. English teachers in primary until junior high schools generally agree that "English gap in rural and city children is the widest; with rural students, existing quality is very difficult to adapt to the mission type teaching mode."

Rural School Curriculum Resources and the Difficult Parts of
Curriculum Implementation

Investigation on "the new curriculum resources development situation" in the 16 provinces in east and west China (autonomous regions) indicates that nearly 300 schools, which is close to 90% of the rural schools, cannot fully meet the demands of the new curriculum, especially the lack of language laboratory, computer classrooms, multimedia classrooms, and other modern teaching facilities. Information technology education practice and operation is a very strong discipline. However, modern teaching facilities in most rural schools are insufficient, which make teaching difficult. Approximately 20.8% of teachers believe that the biggest difficulty at the beginning of the new curriculum is the lack of education, whereas 41.6% believe that the main difficulty of open, school-based curriculum is related to the lack of resources. The shortage of curriculum resources directly affects curriculum reform. Thus, the implementation of one of the highlights of comprehensive practice activities becomes difficult.

Our survey indicates that the overall condition of the implementation of integrated practice includes nationwide, comprehensive practical activities to implement the overall favorable situation, development of poor rural city, and the promotion of primary (that offers better education without pressure) and middle schools. The leader promotes the development of regional schools and does not attach importance to the leadership of regions and schools, which are completely different. Comprehensive practice activity is conducted weekly for three hours. However, the survey indicates that less than 20% of the students can attend the class for three hours, and nearly one-fourth indicated the lack of a fixed class. Approximately 31.9% of the students in one class attended other classes, and 8.8% indicated that the changes in other classes in primary and junior high schools are more obvious. In addition, approximately 40% of the schools lack comprehensive practice activity courses in overall planning, and 75.9% have no corresponding regulations and measures to regulate the behavior of teachers.

Ensuring the normal implementation of student activities is very difficult. The integrated curriculum of practice activity is only a part of the school and of the class set. This activity is only offered in open classes and demonstration class levels,

especially in some rural schools. At present, the full description of the current implementation of the integrated practice curriculum is unoptimistic and requires attention and research.

Need to Strengthen Rural Curriculum Reform Policy

Curriculum reform has issued a series of curriculum policy documents, which mainly includes three aspects, namely, the master course, experiment and curriculum standards, and the topic or subject guidance. Several supplementary provisions are likewise included. The policy documents in the national curriculum reform play a leading and guiding role, but lack focus on the rural reform problems.

In 2001, the Ministry of Education issued the "outline of basic education curriculum reform," which contains nine parts with 20 entries. Only the second and the sixth sections discussed rural curriculum reform; that is, the "compendium" on the rural curriculum reform provides only 1 or a total of 5%. According to the generation of agricultural development and rural industry structural adjustment, one's measures should suit local conditions in line with the local needs to deepen the combination of "farming science and education" and "the overall" reform. For trial through the "green certificate" educational and other technical training to obtain "double certificates' approach," no specific guidance was provided for rural curriculum reform rules and suggestions.

On Curriculum Standards

Curriculum standards exist in selecting content theme and teaching ideas in rural living. This curriculum reform demonstrates and represents the "full-time compulsory education mathematics curriculum standard (experimental draft)" as an example. Mathematics, especially traditional mathematical knowledge, is neutral. However, curriculum reform in mathematics is in a "point of growth," and rural society is far from reality. From the perspective of philosophy, emphasizing that the "design and implementation of mathematics curriculum should pay attention to the use of modern information technology, in particular to fully consider availability of calculators and computers in mathematics learning contents and ways, to cultivate energy and provide students with more abundant learning resources. Modern information technology could motivate the students to study mathematics and would solve the question on powerful tools. Curriculum design must be committed to changing the way of student learning, make students willing and eager to invest into reality and in Exploring Mathematics activity." This approach represents the direction of mathematical development, in which student quality demands new requirements; nevertheless, the implementation of the curriculum is difficult due to the relative shortage of resources and poor rural school conditions. "Standards" are arranged in a number of cases, except for some neutral subjects, based mostly on city life to further explain the contents of the course and teaching requirements. Three

cases are related to rural life. However, the depth and width of mathematical cases combined cannot be compared with realistic materials in rural life.

Guidance on Certain Topics or Subjects

The guidance and standard parts of the new curriculum policy documents are not perfect. These parts include the "comprehensive practice activity curriculum guidelines," which has not been formally introduced and restrict the implementation of the course on comprehensive practice activities. A part of the disciplines is lacking in the corresponding subject of teaching guides, especially the new curriculum teaching in the rural areas, which is inadequate. The curriculum standard provides "suggestions"; however, some elaborations are vague, general, and lack clear, detailed guidance for teachers. This inadequacy causes difficulty in understanding the curriculum standards, especially for the rural teachers. The question, "What kind of classroom teaching is in line with the national curriculum standards for teaching?" is thus a difficult problem for rural teachers.

External Security Mechanism in Curriculum Reform is Unreliable.

Rural Curriculum Reform Funds are Inadequate. The special funds for rural curriculum reform are insufficient, especially in rural western China. For instance, among the special funds for teacher training in Jiangsu, Shanghai, Hainan, Gansu, Inner Mongolia, and Tibet from 2001 to 2007, the largest fund was allocated to Jiangsu province, which was 410,000,000 yuan; the smallest was allocated to Gansu province, which was only 420,000 yuan. The difference between the funds for the two provinces is 368,000,000 yuan. West China has no special funds for teacher training and curriculum reform because of their undeveloped economy and financial difficulties. Therefore, these areas offer a special policy on free tuition and fees in compulsory schools. Schools lack funds to invest in curriculum reform experiments, and thus experience difficulties in experimenting changes in classrooms.

Professional Support Mechanism for Teachers is Not Perfect. The teacher is the main force in the implementation of curriculum reform. Thus, strong teacher training and effective professional development supporting mechanisms should be promoted in the curriculum reform of rural basic education. At present, however, the comprehensive professional support mechanism in rural schools is still not well-established. In our school-based educational research survey in six provinces in China, over 70% of the teachers do not often receive expert guidance, whereas 32.1% have never received external expert guidance or training. Thus, the majority of the teachers feel that the school-based teaching and research failed to promote the professional growth of teachers' values. Approximately 64.4% of the teachers believe that the research content mainly focuses on the examination. Teachers lack teaching, research, and sustainable development abilities. Moreover, east China has

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more urban schools compared with central and west China. The size of research staff in rural areas, especially in western rural areas, is usually smaller. Thus, conducting teaching guidance is difficult. The teaching and research departments and the District Education Office are not divided according to the subject with completed research due to the shortage of teachers. This method is also adopted to guarantee the teaching of first-line normal courses. Every researcher in the Western Rural County Department, which has less than 20 people, should consider two to three county subjects. Thus, the teaching and research team encounters difficulties in guiding primary school curriculum reform.

Monitoring and evaluation system for the curriculum reform is not perfect.   China lacks a sound monitoring program and evaluation system. The Ministry of Education in Beijing Normal University and East China Normal University established a foundation for an educational quality monitoring center. However, this center is still in its infancy. China, with its vast territory and obvious geographical differences, experiences difficulty in grasping the quality of basic education, especially in reforming the entire system. Second, effective guidance for local research in basic education curriculum reform and resource development was not provided, which would have served as experimental bases and mechanisms. The central and local governments, as well as the schools, teachers, and professional support team, failed to establish an effective communication mechanism. Moreover, the National Curriculum Experimental Zone in rural areas, which integrates the curriculum reform of the National Experimental Zone, was not implemented in rural areas with less than 100 counties and less than 5% of the total number of countrywide county class. Thus, the curriculum reform of rural basic education does not reflect the actual situation, especially the implementation of the new curriculum in rural schools, which encountered difficulties and problems in terms of timely feedback, class changes in rural unique classes, and the promotion of successful results. The lack of monitoring and evaluation system restricts the pace of development of the rural basic education curriculum reform.

COUNTERMEASURES AND SUGGESTIONS

After eight years of experimental research, the present elementary education curriculum reform in China has entered a new stage of development, which demonstrates new characteristics, such as the establishment of age and quality education requirements in the basic education curriculum system. Primary and secondary education teaching have undergone several positive changes, but innovation and institutional obstacles remain. The development of curriculum reform from the experimental to the implementation stage continues to advance. However, narrowing the urban and rural difference and improving the overall quality of education remain difficult. The exploration process has accumulated rich experiences, but systematic evaluation and promotion is remains onerous. The accurate understanding of the current basic

education curriculum reform indicates the need to deepen the reform as the premise and foundation of rural curriculum changes.

Strategic realization of educational equity improves the rural teaching conditions and deepens the foundation of rural education reform

According to the report of the 17th Party Congress, equality in education should become a basic educational policy. The educational reform and development process must start from the realization of equality in education, strengthening the development of basic education by the provincial government, especially the fiscal responsibility in compulsory education, and strengthening transfer payment to eliminate economic development imbalance in the city and county level. This economic imbalance is caused by the different conditions of compulsory education and the development level in the contractible area or by the huge gap between urban and rural education. Standardization, allocation of teachers and teaching equipment to rural schools, and other aspects of the basic educational standards should be considered to promote the completion of compulsory education. A reasonable student–teacher ratio should be formulated after the rural primary and secondary school teacher preparation has been approved based on the needs of curriculum reform and the local actual situation. This process ensures that rural schools follow the curriculum provision of the course.

Strengthening all Levels of Government on the Reform of Curriculum Leadership Responsibility, and Earnestly Implementing the Rural Curriculum Reform Through Special Funds

The curriculum reform of basic education is a breakthrough in the comprehensive promotion of quality education. The new curriculum system covers compulsory and high school education, which includes areas of curriculum objectives, reform, content, structure, management, as well as teaching and evaluation at the microscopic or macroscopic levels. These areas are likewise huge systematic projects. The central and the local government should be aware that teaching is the core position in school and basic education curriculum reform. The leading agencies in curriculum reform, main leadership, regional development, implementation of the national curriculum, management of local curriculum development, and in the guidance of school curriculum policies assume overall coordination and responsibility. The implementation of curriculum reform adopts the multi-channel financing of its special funds. Various finance and educational administrative departments should provide special funds to support impoverished areas. Focus should be given to the protection of rural school teachers who participate in curriculum reform, as well as to training and augmentation of insufficient teaching equipment and library funding. Hubei and other provinces and cities provide special funds to rural primary and secondary school teachers, and are adapting the new policy for free charge to implement the reform of new curriculum training.

*Accelerating the Improvement of System Policies by Providing
Guidance to Rural Schools and Teachers*

Reform in the science curriculum standards only contains the curriculum objectives, content standards, and teaching suggestions. The evaluation criteria and supporting teaching guide are lacking. This inadequacy undoubtedly widened the curriculum standards and teaching practice, which resulted in the implementation of the new curriculum to enable teachers to grasp the new teaching requirements. This situation is more obvious in rural areas. The government should formulate published teaching guides and evaluation standards to improve the implementation of the project documents of the new curriculum, such as "comprehensive practice activities" and the "implementation guidelines for the development and utilization of curriculum resources". Curriculum standards, teaching materials, and relevant policy document revisions should consider the rural economic and social development levels, as well as the characteristics of rural areas. Curriculum design and implementation should be clearly presented to ensure the quality of teaching and education in rural schools.

*Accelerating the Establishment of the Curriculum Reform of Basic Education,
Monitoring the Support System, and Improving the Rural Curriculum Reform
Mechanisms*

First, the national monitoring support system and effective network of curriculum reform should be built under the leadership of governments in all levels, relying on local education administrative departments, research institutes, educational research institutes, and normal universities. The evaluation of curriculum reform and announcement at all levels of government should be established and conducted with regular supervision and evaluation. The administrative departments in local education should assign a person who would be responsible for data collection, updating the teaching and research results of published work of teachers, establishing the curriculum reform process database, supervising the basic level and especially the rural curriculum reform progress, checking and answering the main problems and difficulties, summarizing the main experiences and achievements of upward feedback, and providing suggestions to the government. Second, each city (conditional counties) should establish a basic education curriculum development research center under the local education administrative or research department to absorb as many experts as possible from the local government. The local and school-based curriculum development should provide advice and guidance to rural primary and secondary school teachers. Third, the National Curriculum Reform Experimental Zone in rural areas, regional research, and joint teaching experiments should work together to explore suitable measures for the scattered teachers in the rural areas. The gradual establishment of rural area research, joint teaching systems, and promotion of rural school-based teaching research should likewise be implemented. Fourth, 1 to 21 junior middle schools should be selected as the curriculum reform

base in each Township Central Primary School to strengthen the curriculum reform demonstration and lead action. This process would similarly utilize the township of primary and middle school teachers as training and exchange or information center.

Developing Rural School Teachers in Curriculum Reform, and Providing the Training Policies to Determine Various Ways of Raising the Overall Skill Levels of Teachers in Rural Areas

China should implement the special policy of increasing the number of rural primary and secondary school teachers in curriculum training to increase the chances and numbers of rural teachers and amount of training opportunities. First, the national training funds for teachers should be focused on the county rural schools to increase opportunities for rural teachers to obtain national training. Rural school principals and teachers in the next five years would receive free comprehensive or special training in national curriculum reform. Second, with the aid of regional principals, the exchange system for teachers, targeted assistance and normal college internship systems, and the government should pay for and establish the educational exit system for rural school teachers and principals according to the length of services for providing full-time study and training opportunities. This approach would create high-quality classroom teaching, facilitate the exchange of learning and experience in curriculum reform, promote the training of familiar country, and strengthen the role of rural school subjects as backbone teachers and principals. The school-based teaching research system should be further improved. Moreover, appropriate policies and guidance should be adopted. The national research departments should have various professional research staff members, strong staff training programs, and improved teaching abilities. Utilizing the leading role of rural school principals and teachers strengthens problem and research consciousness, and guides teachers in the integration of teaching and research in solving practical problems, refreshing the idea of teaching processes, as well as improving teaching and teaching levels. Conditional places should gradually conduct network teaching and research to seek more extensive professional support resources. The government and related research institutes should also provide timely and regular guidance and training for principals and teachers in the rural areas in designing the curriculum and teaching materials.

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PART V

CONCLUDING REMARKS

JAN VAN DEN AKKER

30. A EUROPEAN PERSPECTIVE ON CURRICULUM DEVELOPMENT AND INNOVATION

INTRODUCTION

During dinner about five years ago, I asked Madame Zhu Muju, who was then the director of the Chinese National Institute for Curriculum and Textbooks (NCCT), about the size of scale of basic education in her country. Without hesitation, she told me that China approximately has 10 million teachers and 200 million pupils.

Coming from a small country of about 17 million people, I must admit that I felt somewhat overwhelmed, if not intimidated. Nevertheless, from my experience in several international contacts over the years, the differences in size and scale of operations are not obstacles in exchanging meaningful experiences and learning from one another.

Thus, having received the opportunity to preview parts of this very interesting book and to provide comments and ideas from the "European" perspective, as the editors have asked me, could be quite challenging. The attempt to compare the curriculum trends between Europe and Asia, in particular, China, is tempting. However, that approach would seem to be a rather reckless adventure in view of the vast differences within Europe and the rapidly changing nature of curriculum policies and practices in China, which is a vast country with its own increasing variety. Moreover, I realize that the contexts in Taiwan and Hong Kong (also prominently featured in this book) as well as other Asian countries have their own specific characteristics (see also Law & Nieveen, 2010).

Although I am fascinated with these Asian developments in general (and mainland China, in particular), my knowledge about the Chinese curriculum scenery is too limited to make bold statements. However, over the last decade, I had the privilege to gather a number of impressions from the following experiences besides reading literature on curriculum development in China:

- Visits to schools in Beijing, Shanghai, Taiwan, and Hong Kong, including classroom observations and talks with principals, teachers, and students
- Numerous meetings and conversations with policy makers, researchers, and curriculum developers
- Various conferences, including three consecutive curriculum conferences between Chinese and European colleagues in The Hague, Beijing, and Guilin

- Professional exchange and cooperation between my own institution (SLO, Netherlands Institute for Curriculum Development) and NCCT (National Centre of Curriculum and Textbooks in Beijing)
- Collaborative professional development experiences on school-based curriculum development in a joint Chinese-Dutch project in Gansu province (see Wang Bingyan, 2012)
- Guidance of several Masters and PhD students from China at the University of Twente
- Conducting a seminar (at East China Normal University in Shanghai) on "Educational Design Research" with a large group of Chinese doctoral students and their professors from different universities (see the proceedings by Plomp & Nieveen, 2009).

All these experiences have led to my similar feelings of amazement and fascination with many European colleagues who participated in various Chinese-European curriculum conferences about the quickly moving curricular landscape of China. To consider the ongoing curriculum reform in China as the biggest curriculum change effort the world has ever witnessed in scope, scale, and speed, is not an exaggeration. Of course, this spectacular reform effort does not go without various problems. However, the openness of the Chinese colleagues about those challenges is evident as is their eagerness to share and to compare their experiences and findings with colleagues from abroad.

What may Europe and China learn from each other? What are inspiring examples and sobering (often even more meaningful) lessons learned from and for both sides?

To address those questions, we may discern (but not separate) different emphases (cf. van den Akker, 2003):

- substantive issues regarding the vision, aims, and contents (the "What") of teaching and learning
- procedural-strategic issues (the "How") of curriculum development that relate to technical-professional aspects and socio-political perspectives.

These various emphases are all embraced in integral curriculum thinking and are faced with continuous changes in the Chinese context. A helicopter view is oftentimes needed to get clear and broad sights, but even then, comparing should be done with great caution and care.

I will start with an outline on the current curriculum landscape in Europe and then, proceed with an intermezzo to clarify some conceptual issues before focusing on my interpretation of the curriculum trends in China. Thereafter, I will sketch some common challenges and prospects for mutual professional learning.

CURRICULUM LANDSCAPE OF EUROPE

As already stated in the introduction, to speak about common trends across the many countries of Europe is almost impossible because the differences seem more visible

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than the commonalities. Surprisingly, comprehensive literature on curriculum development in Europe is scarce, with a few notable exceptions:

- An edited collection of curriculum papers from a number of European countries (van den Akker, Kuiper & Hameyer, 2003), which was built from a conference of the then existing European Curriculum Researchers Network. This network later transformed into the increasingly active Network on Curriculum Innovation within the European Educational Research Association. See http://www.eera-ecer.de/networks/network3/.
- The series of yearbooks published by the Consortium of Institutes for Development of Research and Development in Education in EUROPE (CIDREE) has a strong curriculum emphasis. The most informative yearbook about curriculum issues is probably the issue highlighting the 20th anniversary of CIDREE (Stoney, 2010). See www.cidree.org for more publications.
- A recent special issue ("The European curriculum: Restructuring and renewal") that was published in the *European Educational Research Journal* (Sivekind, van den Akker, & Rosenmund, 2012).
- The aforementioned book, "Schools as curriculum agencies: Asian and European perspectives on school-based curriculum development" that was edited by Law and Nieveen (2010), is quite informative.

Despite the limited degree of documentation, some patterns can be described based upon several information exchanges and discussions in meetings and conferences of the various organizations mentioned.

First, Europe does not have a common curriculum. Differences in documents, policies, and practices dominate the curriculum.

The Council of Europe has initiated an effort to formulate a set of "European Key Competences" to address the question: Which combination of knowledge, skills, and attitudes does one need for personal development, active citizenship, and work (from a perspective of life-long learning)? The key competences include a set of very broad areas:

1. Communication in the mother tongue
2. Communication in foreign languages
3. Mathematical competence and basic competences in Science and Technology
4. Digital competence
5. Learning to learn
6. Social and civic competences
7. Sense of initiative and entrepreneurship
8. Cultural awareness and expression

This set is perceived as a valid list, but its level of abstraction limits its impact. At the same time, any effort to design a more detailed and specific overall curriculum framework for education in Europe would most probably meet much resistance, as all countries are quite keen to preserve their own education identity. An interesting

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exception is the "Common European Framework for Foreign Languages (CEFR)," which is used as a guideline to describe achievements of learners of foreign languages across Europe. The main aims of CEFR are to provide a method of learning, teaching, and assessing that applies to all languages in Europe and to set up systems of validating language ability.

Thus, in most respects, the curricular variety within Europe is quite expansive. An overview of several issues is as follows:

- Most countries place strong priority on the basic skills of literacy and numeracy. Public dissatisfaction with mastery of these skills and the disappointing results on international tests (like PISA and TIMSS) are often reinforced by ample attention from the mass media (and their obsession with rankings), which have contributed to this trend.
- Overall, countries are striving toward better learning results, not only for the average pupils, but also for all learners, including the weaker achievers and the more talented ones. Excellence is a popular term nowadays.
- At the same, several other upcoming aims and claims for more attention are found within the curriculum. Some examples of slogans include learning for earning and living, preparation for the labor market, science and technology, citizenship, broad personal development, and well-being. A particular trend is the claim for future-oriented "21st century skills," which emphasizes the four C's of communication, cooperation, creativity, and critical thinking.
- Not only do European countries differ significantly in their focus on aims and contents of learning, they also vary in their choices at the national level for a narrow or broad scope, for abstract or specific wording, for national prescription or local autonomy and flexibility, for central versus decentralized decision making (Nieveen & Kuiper, 2012).
- Countries vary considerably in the relations of curriculum development with two other crucial factors in school practices, namely, assessment and textbooks. It seems fair to say that in most countries the roles of those two factors are more dominating than many would like to see. These roles reach the extent of running the risks that curriculum decisions are less influential on what pupils learn than assessment policies, and textbooks, instead of the conscious and deliberate curriculum choices, routinely drive teachers.
- Almost all countries have high expectations of their teachers in contributing to the quality of educational practice. However, the space and professional support for teachers in reality are often less generous than what the policy rhetoric suggests.
- Most European countries are affected by the very same and often confusing "educational speak" that permeates policy debates worldwide, with its peculiar mixture of conservative elements, such as the emphasis on the basics and progressive references to 21st century skills. Only a few countries seem to succeed in an effort to formulate a forward-looking, integrated, and consistent curriculum vision at national level, such as the Curriculum for Excellence in Scotland and the Finnish National Curriculum for Basic Education.

Obviously, the curriculum patterns and trends in countries are influenced by differences in history, culture, economy, and social-political development. Moreover, when we compare Asian and Chinese perspectives, the relevance of the underlying patterns is evident. Before making that step, to clarify some of our favorite conceptual lenses for curriculum analysis is appropriate (building upon van den Akker, 2003).

ANALYTICAL INTERMEZZO

What Is A Curriculum?

A common complaint about curriculum literature is that the term "curriculum" has as many definitions as authors. Although some authors are expansively verbose, others demonstrate a rather narrow view limited to a specific context. In such confusion, searching for the etymological origin of the concept often helps. The word "curriculum" originates from the Latin verb, *currere*, which means *to run*. The Latin noun curriculum refers to both a "course" and a "vehicle." In the context of education, the most obvious interpretation of the word, curriculum, is as a course for "learning." The very short definition of curriculum as a "*plan for learning*," therefore, seems quite adequate. The definition is reflected by related terms in other languages, including the Dutch term *leerplan*, the German *Lehrplan*, and the Swedish *läroplan*. This simple definition of curriculum as a plan for learning prevents a narrow perspective and permits all sorts of elaboration for specific curricular levels, contexts, and representations. Such specifications are quite helpful to interpret, understand, and communicate about curriculum issues.

Levels and Curriculum Products

The first and very useful distinction appears to be a specification of the level of curriculum and curriculum development. Although further refinements are possible, the following division of five segments clarifies the different levels to which curriculum products may apply.

Level	Description	Examples
SUPRA	International	• Common European Framework of References for? Languages
MACRO	System, national	• Core objectives, attainment targets • Examination programs
MESO	School, institute	• School program • Educational program
MICRO	Classroom, teacher	• Teaching plan, instructional materials • Module, course • Textbooks
NANO	Pupil, individual	• Personal plan for learning • Individual course of learning

Curriculum Representations

The second and clarifying distinction concerns the different forms in which curricula can be represented. Although further refinement is possible, the following three levels, which are split further into six forms, will normally suffice for clear communication.

The division into six representations is useful in the analysis of the processes and the outcomes of curriculum innovations. The more global three-way division is often used in international comparative studies that frequently focus on large-scale assessment of attainment levels within the curriculum. Moreover, the division sometimes centers on the endeavors to relate the effects to the original intentions, and regrettably rarely yet, to the process of implementation.

INTENDED	*Ideal*	*Vision (rationale or basic philosophy underlying a curriculum)*
	Formal/Written	Intentions as specified in curriculum documents and/or materials
IMPLEMENTED	*Perceived*	Curriculum as interpreted by its users (especially teachers)
	Operational	Actual process of teaching and learning (also: curriculum-in-action)
ATTAINED	*Experiential*	Learning experiences as perceived by learners
	Learned	Resulting learning outcomes of learners

Curriculum Spider Web

The core of a curriculum generally concerns the aims and content of learning. Changes to this core usually presuppose changes in other aspects of (the plan for) learning. A clear way to visualize the relationship between the various aspects is through the *curriculum spider web*.

The core and the nine threads of the spider web refer to the ten parts of a curriculum, and each concerns an aspect of learning by pupils.

The rationale (or mission or vision) serves as a central link that connects all other curriculum components. Ideally, these components are connected to each other, and provide consistency and coherence. The metaphor of the spider web emphasizes the vulnerable nature of a curriculum. Although a spider web is relatively flexible, the web will most certainly rip if certain threads are pulled more strongly or more frequently than others. The spider web, thus, illustrates a familiar expression: every chain is as strong as its weakest link. Therefore, the extreme difficulty in realizing that sustainable curriculum innovation is not surprising.

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CURRICULUM LANDSCAPE OF CHINA

The ongoing curriculum reform of basic education in China started about 15 years ago. Several authors have documented the reasons and major motives for this huge enterprise (see the chapter of Zhong and Tu in this book, and Zhang Hua, 2009, and Zhu Muju, 2007).

The reform implies a spectacular jump from a rather traditional and selective curriculum that focuses on academic achievements in an exam-oriented system. The new curriculum aims toward very innovative approaches in relation to rapid social, economic, and political changes. The underlying vision deviates radically from the past. The vision includes a somewhat surprising amalgamation of a progressive and child-centered pedagogy that aims at quality education for holistic development of all children and emphasizes 21st century skills (creativity, communication, cooperation, critical thinking). Thus, the substantive scope of intended change is vast.

In addition, the speed of policy change is very fast. The first curricular guidelines were published in 2001. The national rollout (at an almost incredible scale of operations), only after some years of experimentation, started already in 2005!

With such enormous ambitions (about the *intended* curriculum at the *macro* level), one can expect huge implementation problems (*interpretations* and *actions* at *meso* and *micro* levels). The information about these practices is rather limited, but some patterns have emerged:

- First, in view of the large-scale implementation with big regional differences in many respects, the variety in nature, degree, and speed of implementation is enormous. This variety is reinforced by the distinction between the quality and facilities of "advanced" and "regular" schools.
- In general, the acceptance of the intentions by practitioners seems reasonable, although many are struggling to obtain sufficient clarity about the practical meaning of the proposals. Many people feel uncertain in dealing with the changes.

- From a social-political perspective, the discrepancy of the new policy with previous patterns of strict control by government and very limited local autonomy is striking. Provinces, regions, districts, local communities, schools, and teachers are permitted and even encouraged to assume more responsibilities. However, to break away from a traditional culture with hierarchical relations from the top down is not easy.
- In terms of overall mission, new expectations on the holistic and child-centered education are in conflict with the previous emphasis on academic achievements. How to transform past behavior and beliefs is an enormous challenge not only for schools and teachers, but also for parents and the public.
- If one analyzes the reform with the curriculum spider web in mind, the intended changes appear to be very comprehensive in addressing probably all components of the web, such as the why, what, and how of learning in almost every respect. This view underlines the complexity (and vulnerability) of the innovation task for all involved.
- The most difficult and pivotal challenges are, of course (and as experienced worldwide), for the teachers. Without changing their role (use of materials, teaching patterns, and subjective beliefs about what constitutes as "good" education), much will remain the same for the pupils. Moreover, school leaders and regional/local administrators are facing major changes.
- Many teachers seem to struggle with the interpretation of newly formulated standards and with the practicality of new textbooks. Moreover, the discrepancy between the traditional and new pedagogy creates tensions and uncertainty.
- For all involved, the speed of policy changes (including almost continuous adaptations within the overall framework) is difficult to manage. Not surprisingly, the policy pressure initially tends to bring about more symbolic reactions than real changes (along the policy intentions) in classroom practices; let alone student outcomes (the *nano* level).
- A prominent problem relates to the alignment of the new curriculum with existing assessment approaches. The gap between final examinations and college entrance examinations is a major obstacle that is not easy to overcome. However, the problem manifests itself at the micro level of instructional processes in the classroom, which is how to find appropriate ways of assessing student progress on learning goals that go beyond the surface of memorization and routine tasks.

All those (very understandable) complications require massive and long-term investments in professional development at several levels. Capacity building is needed for teachers as well as school leaders, administrators, and other professionals. Curriculum reform without investing in continuous and extensive professional learning is a lost case as shown in experiences worldwide (Hargreaves & Fullan, 2012).

The shifting roles and power distributions between the (previously strongly dominating) central and national level and the (increasingly influential) levels of

province, regions, and local communities towards the schools and teachers (gaining more autonomy) are very interesting. Of course, the shifting role is a gradual process with its inevitable hesitations, ambiguities, and potential conflicts. This view is not strange, and expecting smooth and easy transitions is naive.

In European countries, with all their variations and exceptions (Kuiper & Nieveen, 2012), on average, schools and teachers have more de-central freedom than traditional China. The European landscape shows more diffuse approaches of distributed leadership on curriculum. In recent years, however, we see in various countries the tendencies toward more coordination of curriculum-wide renewal. International competition and networking, which exert deliberate efforts to learn from approaches elsewhere, contribute to this trend. Thus, several countries from the East and the West that come from different directions are searching for new balances in the division of roles in curriculum decision making and enactment.

COMMON CHALLENGES AND PROSPECTS

As I have written elsewhere (van den Akker 2010), curriculum reforms worldwide have a dubious reputation, which is more sobering than real and lasting success stories. Large-scale curriculum reform has a tendency to fail (Cuban, 1992; Fullan, 2007). Hargreaves and Fink (2006, p. 6) have put this fate succinctly, "Change in education is easy to propose, hard to implement, and extraordinary difficult to sustain." Moreover, curriculum changes belong to the most difficult category.

The common characteristics among curriculum reform efforts are the persistent discrepancies between intentions, realities, and outcomes. The same is true for the differences in perceptions and actions across the various levels of the curriculum (from supra to nano). Besides, the alignment or even harmony between the many components of the curriculum (cf. the spider's web) is hard to realize.

Another related but remarkable phenomenon is the inadequate interaction among policymaking, theory and research, and practice. Building more and better bridges between these zones is an important prerequisite for successful implementation at scale and sustainable curriculum improvement (van den Akker, 2010).

Moreover, the learned international lessons point to the conclusion that "quick fixes" or "silver bullets" are not available. Curriculum improvement is never a single event, as it is a long-term process with several levels and participants. Vision, inspiration, and political will are definitely needed, but inevitably, curriculum improvement requires hard work with "blood, sweat, and tears."

The most profound lesson is that one cannot expect serious curriculum change without teacher (and school) development. Teacher professional learning and development is a key condition. Teacher learning is most effective when connected to lessons and embedded in own practice. Teachers have active and investigative roles, and learn and develop together. An important (but often neglected) precondition is that teachers should have sufficient time and working space for such activities.

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Another shared lesson is that top-down nor bottom-up approaches alone are successful in bringing about lasting curriculum change for teachers and schools. A composite strategy is more effective in combining three levels and angles, namely, steering from the top, building from bottom-up, and support and pressure from the sides.

I hope that (more) international exchanges of experiences and professional cooperation contribute to the capacity of countries for more successful results in curriculum reform or improvement efforts. In that respect, the fortunate experiences between China and Europe (through CIDREE and SLO in particular) have been stimulating and promising. The professional contacts have been most intensive with the NCCT. The academic contacts with Northwest University (Gansu), East China Normal University (Shanghai), and the Hong Kong Institute of Education have been very rewarding. The continuation and broadening of such interaction are desirable.

Real professional cooperation in research and development is more important for joint learning and capacity building than the superficial, politics-, and media-driven interest in country rankings, based upon international assessment outcomes. The quality of education cannot be solely measured (let alone improved) based on achievement scores. What counts in curriculum improvement is best explained with multiple criteria:

- Relevance: Are pupils learning towards aims that reflect a balanced mixture of the interests of 3xS (subject, society, student) with an open eye to the future?
- Consistency: Are the various components of the curriculum in harmony?
- Practicality: Is the curriculum doable for teachers in real school contexts?
- Effectiveness: Does the implemented curriculum result in the intended outcomes?
- Scalability: Is it possible to realize those curriculum changes successfully at larger scale?
- Sustainability: Are these changes lasting and continuing over longer periods?

International exchange and cooperation on the curriculum domain benefit from attention to more sophisticated quality criteria. When the spirit of interaction is characterized by mutual respect, curiosity, and open mindedness, the chances for valuable joint professional development are met.

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