

# How Innovative are Schools in Teaching and Learning? A Case Study in Beijing and Hong Kong

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**Abstract** Innovation in education is essential to meet the requirements for preparing the new generation for the more and more advanced society. This study examines the innovative teaching and learning strategies in school settings, the technologies in place, the pedagogical orientations, and the cultural environment as perceived by teachers and students in two case schools—one in Beijing and one in Hong Kong. The results indicate that although the two schools have quite some elements of innovative teaching and learning strategies implemented, in general, the schools were not perceived to be very innovative by students and teachers. Technologies, pedagogies, and cultural environment are drivers for educational innovations; especially, the school cultural environment characteristics play important roles in the changing process. Thus, nurturing an enabling and innovative school environment is critical to facilitate and promote educational innovations.

**Keywords** Innovation · Teaching and learning · Technology · Culture

## Introduction

Innovation in education has become a new concern in the new century. Researchers have argued that three interrelated enablers are crucial for change and innovation to take place in education: technologies, pedagogy, and culture (Ferrari et al. 2009). Technology is essential to equip the new generation for our more and more advanced society. New pedagogies are required to take into account what it

means to be educated in the new times, considering the possible change in the way young people and children learn and understand. A cultural shift is absolutely necessary to recognize new values, norms, and ways of doing things. These three enablers are indispensable elements for the change and innovation process. Without one of them, innovation will be less likely to flourish. However, even with all of them positively in place, it is not sure that innovation is taking place, as the main actors still need to actively get engaged in the innovative process. Teachers and students are the key actors in the process of educational change and innovation. Therefore, understanding their views, perceptions, and practices is important to implement change and innovation in schools.

This research aims to study innovative teaching and learning in school settings, the technologies in place, the pedagogical orientations, and the cultural environment, as perceived by teachers and students.

## Innovative Teaching and Learning Strategies in Schools

Innovation is the implementation or the intentional introduction and application of a novelty which aims to improve a particular situation (OECD 2005; West and Richards 1999). Innovative teaching can refer to the implementation of novel methods and pedagogies of curricula and contents. Innovative teaching and learning often has to be matched with a support mechanism (e.g., policies and tools) that help the educational actors to pursue newer and innovative paths. Numerous studies have elaborated on innovative pedagogies, such as student-centered approach, self-regulated learning, active learning, collaborative learning, and technology-enhanced learning (Chase et al. 2002; Chung and Chow 2004; Gao et al. 2009). Three drivers or conditions are important to understand and consider when

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analyzing the situation of innovative teaching and learning in schools.

### *Technology*

The role of information and communication technology (ICT) for innovation in education has become an important one over the last two decades. The rapid development of technology has brought about an upsurge of technological tools which young people are appropriating in their everyday lives. Technological applications have also shifted the ways of teaching and learning in educational settings (Prensky 2005). In recent years of educational research, substantial attention has been paid to the integration of ICT in education. Research shows that ICT use in education can be beneficial for student learning, collaboration, and knowledge building (Dennen 2000; Gilbert and Dabbagh 2005; Sorensen and Takle 2002). Technological skills have become important not only for school education but also for lifelong learning (Ala-Mutka et al. 2008). The use of technological platforms requires new approaches for education. Technologies as tools of interaction can enhance knowledge creation, meaning-making, and the provision of new connections. Other researchers have also argued that technology is endowed with an immense potential to innovate education (Brown and Warschauer 2006; Christensen et al. 2008; Judge and O'Bannon 2007). Interactive technologies such as discussion forums, mailing lists, chat facilities, and wikis can help learners to communicate and collaborate with others. Reeves and Hedberg (2003) presented a pragmatic rationale for evaluation as a systematic process during the design and use of interactive learning systems.

However, in the changing process, teachers need to modify their teaching methods to accommodate the changed interaction and behavior patterns that technology can possibly bring for teachers and students. The effective use of new technologies also requires innovative teaching skills. Experiences have shown that providing access to technology does not yield expected results in pedagogical change (Bottino 2003). The quality of the interaction between collaborative learners has an impact on the learning outcome (Staarman et al. 2005). While innovation in educational practice is certainly more than the simple application of digital technologies, the power of technology acts as a stimulant for innovation in education settings.

### *Pedagogical Orientations*

If technology plays a facilitating role for innovative teaching and learning, the pedagogical beliefs or perspectives of educational actors play a fundamental role. If

technologies are used as a reproduction of old, traditional teaching formats, it is by no means innovative teaching. For teachers to be innovative require a shift of pedagogy, moving toward student-centeredness, and cooperative learning as a means to foster student independent learning and other transversal skills, such as learning to learn skills and creativity (Williamson and Payton 2009). Teacher belief systems influence teaching practices, including the use of technology in teaching and learning (Bain and McNaught 2006). Teachers must be reflective and analytical about their views on teaching and learning (Cannon and Newble 2000). Newer pedagogical beliefs also require a shift of teacher roles where the teacher is more of a coach, facilitator, and supporter and empower the learners to take ownership of their learning processes (Craft 2005; Jeffrey 2005; Runco 2003). This points toward a learner-centered pedagogy, where personalization and individualization of learning has a growing role, and construction of meanings and active engagements in tasks are central (Cachia et al. 2007; Craft 2005). The role of the teacher is fundamental to bring about new pedagogies and to stimulate change (Ala-Mutka et al. 2008). Researchers state that in a constructivist learning environment, the teacher is no longer perceived as the sole authority of learning, but rather, as the person to facilitate learning, guiding and supporting learners' own construction of knowledge (Mayer 2004; Neo and Neo 2009). However, in reality, many teachers still prefer to present themselves as authority before students, especially in the Asian contexts (Wei et al. 2009). Teaching is culturally relevant and sensitive (Bawagan 2010).

### *Cultural Environment*

An enabling environment is necessary to foster innovation. Cultural environment affects people's attitude toward the ways of teachings and learning. In studying the cultural environment, both the general cultural values and the specific organizational cultural features of a school play important roles in shaping the ways and manners people deal with change and innovation (Chan et al. 2007; Vatrappu and Suthers 2007).

With regard to general cultural values, most studies use the framework of Hofstede (1986, 2001) covering the dimensions of power distance, individualism, masculinity, and uncertainty avoidance. This framework has been widely applied across countries and cultures to operationalize the cultural values (e.g., Lee and Peterson 2000; Marcus 2000). Nevertheless, other studies have also attempted to examine cultural values from other or additional dimensions, such as openness to change and diversity (Devos et al. 2007), collaboration and competition (Zhu et al. 2010).

Just as culture is critical to understanding the dynamics behind any thriving community and organization, the daily realities and deep structure of school life hold the key to educational success. Reforms that strive for educational excellence are likely to fail unless they are meaningfully linked to the school's unique culture. School organizational culture consists of the philosophies, ideologies, concepts, ceremonies, rituals, values, and norms shared by members of the organization that help shape their behaviors (Rousseau 1990). The norms include task support norms, task innovation norms, social relationship norms, etc. (Connor and Lake 1988; Schein 1985). A strong organization culture is especially characterized by the dynamism, coherence, and articulation of its various components (Maslowski 2006). Previous studies identified that there is a dynamic interaction between teacher receptivity to change and school culture, and the school culture is a key contributing factor to the implementation of innovations in schools (Amabile et al. 1996; Zhu 2012). Collaboration, discussion among peers, and establishing networks or learning communities are acknowledged as important factors in cultivating innovation in education (King and Newmann 2001; Patterson 2003). In other words, school cultural features matter for the adoption of educational innovations in schools.

## Research Questions

The objective of this research is to undertake qualitative research methods to understand the characteristics of teaching and learning in schools, the adopted technologies, the applied pedagogies, the general cultural environment and specific school cultural features, and their possible association with the adoption of innovative teaching and learning strategies. The research aims to address the following research questions:

1. What are the school cultural environment characteristics as reflected by the teachers and students of the case schools?
2. To what extent innovative teaching and learning strategies are implemented regarding collaborative learning, student-centered learning, and technology-supported learning?

## Method

### The Research Context

One secondary school in Beijing and one secondary school in Hong Kong China were selected for case studies. The study took place in a school in Beijing and a school in

Hong Kong during the 2009–2010 school-year. The school is located in the center of Beijing. It is one of the experimental schools under the administration of Beijing Municipal Education Commission. It has launched its digital online learning space for students and teachers for 5 years. All classrooms are equipped with computer, projector, DVD/video player, internet, etc. The facilities of this school are very new. In addition, there are three computer rooms and several laboratory rooms for science subjects and activity rooms for specific courses such as music, drawing, and calligraphy. The digital online learning space is provided and supported by a local provider in Beijing. Both students and teachers have access to the online learning space. Teachers can create and upload learning content.

The school in Hong Kong is a comprehensive private school with a Christian religious background with a history of over 100 years. Computers have been set up in classrooms for about 10 years, while the school started to use e-learning platform (Moodle) 5 years ago. In addition, there are several computer rooms in the school. The school upholds the traditional values and customs, such as all students should wear uniforms, students should stand up to greet the teacher in the classroom, girl's hair should be straight (no color or curly hair allowed). Students' activities, such as singing club, are regularly organized. The two case schools were chosen as they have similar e-learning facilities, but different background.

### Participants

During the research, interviews were conducted with teachers and students from the case schools. In the Beijing school, 15 teachers and 80 secondary students were involved in the interviews. In the Hong Kong school, 10 teachers and 70 secondary students were interviewed. The age of teachers varied from 26 to 55 years; and the students were between 15 and 18 years-old. All teachers were subject teachers (such as maths, physics, language, and computer science) for the secondary grades. All students were senior secondary students. The researcher also observed the classes and student school activities during 1 month at the two case schools.

### Interview

Qualitative methods were used for this research. Semi-structured interviews were conducted with teachers individually and with students in groups (5–6 students per group). The student focus groups were organized during their self-study hours in the computer rooms. Each interview lasted for about 45–60 min. The participants were informed about the objectives of the research and their

informed consent was obtained before the interviews. Agreement was also granted by the participants to audio-record the interviews. The main guiding interview questions are included in the Appendix.

### Coding and Analysis

The interview data were coded and analyzed with ATLAS.ti. The coding of the transcripts was conducted by two coders for all interviews. The inter-rater consistency was .87 for the first coding and the inconsistent ones were negotiated by the coders to reach a final agreement. Regarding the school cultural environment, six themes were identified: collaboration among school members (CL), leadership (LS), power distance/relationship between management and school members (PD), objectives (OJ), innovation (IV), and democratic atmosphere (DA). Statements reflecting these themes were coded accordingly and analyzed. For each theme, three rankings/codes were made, such as PD-H (power distance, high), PD-M (power distance, medium), and PD-L (power distance, low). For example, a statement “power distance is high between hierarchical levels” is coded as PD-H; a statement “our school has a typical top-down management; participation in decision making is not clear; it is difficult to submit bottom-up suggestions to the management” is coded as DA-L. With regard to innovative use of technologies and pedagogies in teaching and learning, three themes were identified: use of technology or ICT, use of student-centered learning strategies (SCL), and application of collaborative learning (CL). For each category, three codes were applied: H-high implementation level, M-medium implementation level, and L-low implementation level. Next to the common themes, additional codes can be added if other types of teaching and learning strategies were mentioned by the respondents.

## Results

### General Results About the Features of the Two Case Schools

In order to have a general view about the features of the two case schools, their use of technology and pedagogies for innovative teaching and learning, and perceived cultural environment characteristics were analyzed. With regard to students' and teachers' perceived school cultural features, the results show that for both case schools, about half of the respondents thought that the *power distance* within their schools was relatively high. More than 70 % of the respondents thought that the democratic atmosphere was low or relatively low. About one-third of the participants said that the collaborative culture was high, while about 40 % of the participants thought that the collaborative

culture was at a medium level. With regard to the goal orientations of the two schools, about two-thirds of the participants thought that their school had clear objectives. However, a large part of the participants thought that the innovation-orientation was low or relatively low. The leadership of the schools was perceived differently by the participants. Among the participants from the case school in Beijing, about one-third of them thought the leaders were supportive, while another over one-third of the participants thought that the leaders were not supportive. Among the participants from the case school in Hong Kong, more than half of the participants thought that the leaders were not supportive. Regarding the collaboration among school members, the opinions were also quite diverse, with around one-third of the participants said the collaboration was highly present, while a large proportion of them thought it was low or relatively low.

With regard to the implementation level of innovative teaching methods, about 75 % of the participants thought that their school implemented ICT to a high or medium level. In terms of student-centered learning, about 40 % of the respondents thought that it was at a medium level. They also reported that the implement level of collaborative learning was different for different courses. In general, the use of technology for collaboration, namely computer-supported collaborative learning, was low or relatively low.

### Specific Features About the Case School in Beijing

In order to gain more insights about the perceived school characteristics, the specific scripts from the interviews were further analyzed and some example statements will be presented below. The statements quoted below were either from individual teacher interviews or from student group interviews. Regarding the school cultural environment, the Beijing case school featured a relatively high power distance, medium or low level of democratic atmosphere, relatively low innovation-orientation, and medium level collaboration. For example, one teacher said the following:

“Power distance is high between hierarchical levels. The principals have a high authority, it is difficult to question.... Our school is not very open to new things or changes. ... Our school has a typical top-down management... It is not easy for staff to give suggestions to the top management; we have to follow a lot of administrative rules.... Collaboration among staff is limited, or there is a lack of deep collaboration.” (a female language teacher)

The following was mentioned by two teachers:

“Our school is not very open; it is difficult to put forth different or new ideas; the administrative

system is quite rigid... we use mostly traditional ways of teaching, such as standardized syllabus and textbooks, course outline and content; teachers need to teach in great details according to the requirements of the curriculum, there is little flexibility for teachers to change....sometimes we can give some suggestion... but some changes are not based on the views and needs of the actual situation; when a change is coming from the top, it is not so easy for us... collaboration atmosphere is not strong...there are competitions..."(a male maths teacher)

"It is not always easy to implement collaborative learning, group work, discussions, etc.... I don't think our school is very open for innovation, as our school stress more on regulation and administration, not open for innovation and change. There are strict rules and regulations on teaching time, location, format and what to teach; technologies and multimedia resources have been used, but the general principles of teaching and learning have not changed a lot....On the other hand, we have some teachers who are very creative or innovative, using multimedia technologies...it also depends on the teachers...." (a male physics teacher)

With regard to the use of technologies and pedagogies for innovative teaching and learning, the following features were reflected by teachers and students: good provision, medium level of implementation of ICT, and relatively low implementation level of student-centered learning and collaborative learning. A group of students said the following regarding their ideas about teaching and learning:

"The computer, Internet and multimedia facilities of our school are quite good...Our school has invested a lot in computer and internet provision. We have well-equipped computer rooms....There are a lot of digital learning sources available at our online learning platform; our school has developed a rich source of multimedia learning objects and have been uploaded to the online learning platform...however, very few teachers use these digital learning... some teachers use PPT in the classroom, but they don't like to use digital learning platforms...we had some collaborative learning tasks, however, some collaborative activities are not efficient; some students don't do much....For some courses, this is better, such as our English course. It is very interactive....we liked it a lot....Some teachers are more flexible and think about students' needs; but some teachers mostly just read or present what they have prepared for the lesson, and do not respond to the feedback of students." (a group of students of 5th grade of secondary school)

Some teachers explained the reasons for the relatively low implementation level of teaching innovations:

"I find that it is difficult to implement new concepts in teaching...Students have different motivation, different needs; they have limited time after the class for collaborative activities; they have a lot of homework and exercises to do in order to get good scores in exams. It is sometimes difficult to design suitable tasks for collaboration....The stringent examination system plays an important role in how teachers teach. New educational curriculum reforms have been conducted for several years focusing on new content, new format of teaching and learning, the use of new media and technology, etc. However, the examination system still plays a major role affecting the effectiveness of the curriculum reform..." (a female teacher)

"In some schools, the burden (e.g. homework) of students from the school have been reduced, however, they often have to learn more after school hours in order to be competitive in exams or are sent by parents to after-school training activities for skills or talents development; the source reason is the selective examination system....The new curriculum reform has certainly brought changes to our school; however, the environment or the educational system seems to force us to decide how to teach, what to teach, etc...." (an English teacher)

#### Specific Features About the Case School in Hong Kong

The following features of the case school in Hong Kong were depicted based on the interviews with the students and teachers. With regard to the school cultural environment, the following characteristics can be summarized: high power distance, relatively low level of democratic atmosphere, medium level collaboration, and relatively low innovation-orientation.

"In general, the traditional values are stressed in our school. However, among the students, this is less obvious than before, and students prefer to have more freedom and fair treatment, instead of listening to elders....Students today prefer to have more individualized, more distinct personal characteristics.... Collaboration and competition both exist...Many students are cooperative and willing to help others; some are not; some students are very quiet in class". (a history teachers)

"Openness to new things is in general low... Some teachers are not open for different views and new things... Teachers need to listen to their director or other superior persons; giving suggestions to school management are allowed but do not seem to be encouraged."(a business teacher)

“The power distance between most teachers and students is big; only with some teachers, we feel it is closer....There are strict rules in our school; students need to talk to teachers in a formal and respected way....Students are used to listen to teachers. ...Our school is a traditional and strict school; there are strict rules in this school....students are expected to show respect to teachers, to be polite, cannot offend the teachers. The traditional values are stressed here. Good students are expected to have good exam results, listen to teachers, be attentive in classes, be disciplined, and abide by school rules.” (a group of students, 15-16 olds)

“Some teachers are very stern and strict; for example, when we made mistakes in our homework, students are sometimes punished to write the same texts for hundreds of times.... Discussions in the class are limited; often there is a lack of teamwork....some other teachers are better, easier to communicate...” (a group of students, 15-16 olds)

Regarding the innovative use of technologies and pedagogies for teaching and learning, the following features were reported by teachers and students: medium level of implementation of ICT, and relatively low implementation level of student-centered learning, and collaborative learning.

“In general, in our school, teaching is more traditionally oriented...Lecturing is the dominant teaching format of most teachers. Students are used to the traditional teacher lecturing....Exams are mostly written exams based on factual knowledge from books....We don't have many student activities in some courses, students are very quiet; often students take notes while teacher lecturing....Many teachers stress the knowledge in books; memorization is considered important....but I try to do it differently, so students can learn from real situations, in groups....” (a language teacher)

“A majority of teachers mainly teach in a traditional way; they present the content and students take notes; only some teachers organize student group activities for learning. ICT and online learning platform is being used; but about 60% of the teachers only use the e-learning platform for uploading documents and giving assignments to students, etc. The interactive function and online collaborative learning is less exploited.... Some teachers use the online learning platform; they created some nice examples... but sometimes the online content and the assignments are just the same as paper assignments; the teachers just moved the same content online, and students just need to print out the completed work and submit in paper. Often students complete assignments or

homework individually. Online discussions in the e-learning platform are rarely used.....” (a group of students, 15-16 olds)

## Discussion

This study examined the use of innovative teaching and learning strategies taking technology, pedagogies, and perceived school cultural environment as the main drivers of innovations in two case schools, one in Beijing and one in Hong Kong.

The results indicate that although the two schools have quite some elements of innovative teaching and learning strategies implemented, the schools were not perceived to be very innovative by students and teachers. The Beijing school seemed to have good infrastructure and facilities for teaching and learning. The innovative teaching and learning strategies were implemented to a certain extent, such as the use of ICT, student-centered learning and collaborative learning. However, the use of CSCL was implemented to a lesser extent. In the Beijing case school, actually many efforts have been made for its innovation in education, including the innovation in school facilities, ICT provision, updating of textbooks, development of new digital learning materials, organization of student learning activities, etc. It can be said that this school is one of the advanced schools in Beijing. Compared to these advanced features of this school, the perceived innovativeness of the school by teachers and students was not high. This might be related to the rather hierarchical management structure. Although the teachers and students got access to quite advanced facilities and technologies, they felt that the cultural and school environment was less innovative and open. Power distance was relatively high. Corresponding to this, the implement of CSCL was much lower than its implementation of ICT as a general digital resource and presentation tool.

The Hong Kong case school seemed to be more traditional compared to the Beijing case school. There seemed to have a dissonance between students and teachers and the school requirements. The school and most teachers followed traditional values which focus on respect and clear rules and rituals, while the students actually preferred a freer style and individual differences. The traditional values were less shared by the young students. The school culture and its teaching and learning strategies were considered to be not innovative by most respondents. Contrary to its dynamic economic, financial, and trade position in the world, some schools in Hong Kong seem to have kept its traditional path. The traditional mainstream education system in Hong Kong has often been described as “spoon-fed” (Sweeting 1990). Its rigid examination system and a



heavy emphasis on the ranking systems have played an important role in this. As stated by Bray and Koo (2005), Hong Kong schools and educators are facing lot of challenges and uncertainties due to the rapid changes of its educational policies and drastic educational reforms. More innovations are still expected to take place and be enlarged in the new changing era.

This research provided a rather deep analysis of two case schools regarding their innovativeness in teaching and learning and its cultural and organizational environment. The empirical evidence from this study can help us to have better insights of the real situation of schools in these contexts. The research also complements the existing studies which focused only on the adoption/acceptance of technology at schools and extends the findings to other educational innovation aspects. In addition, this study examined the importance of school cultural characteristics that are related to innovations in a deep manner. The findings indicate that there is an association between the cultural characteristics of schools and their innovativeness in teaching and learning. The results demonstrate that schools should pay attention not only to the innovation of the “hardware” of the school but also the “software” of the school, such as its school culture (Albirini 2006; Chai et al. 2009).

The findings of this study suggest that educators and school leaders should not only make policies and strategies targeting for the innovation of technology and teaching content, efforts, and policies but also be made to improve the school culture and involve more bottom-up initiatives. In such a way, school members can be more actively involved in the changing processes and bring more innovations at the mass level. School culture can be shaped and changed (Burke 2002; Harris 2002). In the long run, it is essential for the schools to improve their organizational culture, such as leadership, collaborative relationship, and demographic atmosphere, to better nurture a school environment that can facilitate and promote educational innovations (Patterson 2003). The capacity for innovation does not just apply to the strategies of one teacher or one learner; it is rather a characteristic of the learning community as a whole, where both teachers and students are learners together, engaged in the changing processes together with the school leaders (Sharan et al. 1999).

### Limitations and Conclusions

The study focused on the perceptions of teachers and students, who are the major players at schools. However, the school leaders were not interviewed, who might have different views than the teachers and students. Researchers (e.g., Childs-Bowen et al. 2000) have argued that the principal plays a key role to build systems within the

school that can sustain leadership to insure innovative practices to endure. Therefore, the perspectives of principals and their roles should be studied in future studies. Second, as the findings were derived from two case schools, application of the results to other schools should be cautious. Schools can differ a lot with regard to their specific organizational culture and practices. Clearly, more research is needed in this area to understand better about innovative teaching and learning in schools. Third, the field work at the case schools was relatively short, which may be limited to catch the full picture of their school culture and teaching and learning practices. Reeves and Hedberg (2003) argue that even though the qualitative methods and mixed methodologies as opposed to quantitative methods are being increasingly employed in educational ICT studies, the quality of such studies still need to be improved.

As a conclusion, this study examined teachers’ and students’ views about the features of the use of technology and pedagogies for innovative teaching and learning in two schools. The results show that advanced technologies and some innovative teaching and learning methods have been applied; however, the innovativeness of the schools were perceived to be not high. This is largely associated with the school cultural environment. If the mainstream structure is hierarchical and the bottom-up involvement is low, the implementation of actual innovations would be limited. The present study contributes to the existing literature that the role of school culture cannot be ignored before certain fundamental innovations can occur. In addition, it is crucial for the policy makers to be fully aware that infrastructure and provision alone cannot bring any substantial change. It is the soft power, such as leadership, collaborative, and democratic environment, which is more powerful in bringing changes. Therefore, developing a supportive, enabling, and innovative school culture with various forms of cooperation and active engagement of school members should be emphasized in the school development process to build innovative schools and bring about innovative and effective teaching and learning practices (Slegers et al. 2000).

### Appendix

Main guiding questions for the interviews:

- (1) What are the main teaching and learning methods in your classes?
  - Do teachers stimulate active participation of students in the class?
  - Do teachers organize group work?
  - Do students actively participate in learning activities in the class?

- Do students work collaboratively?
  - Are technologies such as ICT, e-learning platform and online communicative technology used in teaching and learning? In which ways they are used?
- (2) How do you think of the general cultural environment of your school?
- Is it open to different views?
  - How is the distance between teachers and students?
  - What is more common: collaboration or competition among colleagues or students?...
- (3) How do you think of your school organizational cultural environment?
- Are the school leaders supportive of innovative teaching methods?
  - Does the school encourage new ideas and try-outs in teaching?
  - Are students and teachers allowed to give suggestions to school leaders?...
- (4) What do you think are the main changes related to teaching and learning in your school in recent years? What factors do you think are related to the change or no-change in teaching and learning in your school?

## References

- Ala-Mutka, K., Bacigalupo, M., Kluzer, S., Pascu, C., Punie, Y., & Redecker, C. (2008). Learning2.0: The Impact of Web2.0 Innovation on Education and Training in Europe: Report on a validation and policy options workshop organised by IPTS. Seville, 29–30 October 2008. Last retrieved May 2, 2010, from <http://ftp.jrc.es/EURdoc/JRC50704.pdf>.
- Albirini, A. (2006). Cultural perceptions: The missing element in the implementation of ICT in developing countries. *International Journal of Education and Development using ICT*, 2(1). Retrieved May 6, 2010, from <http://ijedict.dec.uwi.edu/viewarticle.php?id=146>.
- Amabile, T., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. *Academy of Management Journal*, 39(5), 1154–1184.
- Bain, J. D., & McNaught, C. (2006). How academics use technology in teaching and learning: Understanding the relationship between beliefs and practice. *Journal of Computer Assisted Learning*, 22(2), 99–113.
- Bawagan, A. B. (2010). Towards a culturally-relevant pedagogy: Importance of culturally-sensitive teaching materials and methodology. *The Asia-Pacific Education Researcher*, 19(2), 185–197.
- Bottino, R. M. (2003). ICT, national policies, and impact on schools and teachers' development. Paper presented at the ICT and the Teacher of the Future.
- Bray, M., & Koo, R. (2005). *Education and Society in Hong Kong and Macao: Comparative perspectives on continuity and change*. Hong Kong: Springer Press.
- Brown, D., & Warschauer, M. (2006). From the university to the elementary classroom: Students' experiences in learning to integrate technology in instruction. *Journal of Technology and Teacher Education*, 14(3), 599–621.
- Burke, W. W. (2002). *Organization change: Theory and practice*. Thousand Oaks, CA: Sage.
- Cachia, R., Compano, R., & Da Costa, O. (2007). Grasping the potential of online social networks for foresight. *Technological Forecasting and Social Change*, 74(8), 1179–1203.
- Cannon, R., & Newble, D. (2000). *A handbook for teachers in universities and colleges. A guide to improving teaching methods* (4th ed.). London: Kogan Page.
- Chai, C. S., Hong, H. Y., & Teo, T. (2009). Singaporean and Taiwanese pre-service teachers' beliefs and their attitude towards ICT: A comparative study. *The Asia-Pacific Education Researcher*, 18(1), 117–128.
- Chan, K. W., Tan, J., & Khoo, A. (2007). Pre-service teachers' conceptions about teaching and learning: A closer look at Singapore cultural context. *Asia-Pacific Journal of Teacher Education*, 35(2), 181–195.
- Chase, A.-M., Peterson, B., Dawes, I., & Ellul, R. (2002). The future learner, Keynote paper in the Second Online Conference of the Technology Colleges Trust, 13–26 October and 24 November–7 December, Retrieved May 27, 2003, from <http://www.cybertext.net.au/tct2002/keynote/chase.htm>.
- Childs-Bowen, D., Moller, G., & Scrivner, J. (2000) Principals: Leaders of leaders. *NASSP Bulletin*, May, 27–34.
- Christensen, C., Johnson, C. W., & Horn, M. B. (2008). *Disrupting class: How disruptive innovation will change the way the world learns*. New York: Mc Graw Hill.
- Chung, J. C. C., & Chow, S. M. K. (2004). Promoting student learning through a student-centered problem-based learning subject curriculum. *Innovation in Education & Teaching International*, 41(2), 157–168.
- Connor, P. E., & Lake, L. K. (1988). *Managing organizational change*. New York: Praeger.
- Craft, A. (2005). *Creativity in schools: Tensions and dilemmas*. London: Routledge.
- Dennen, V. P. (2000). Task structuring for online problem-based learning: A case study. *Educational Technology & Society*, 3(3), 330–336.
- Devos, G., Buelens, M., & Bouckennooghe, D. (2007). The contribution of content, context, and process in understanding openness to organizational change: Two experimental simulation studies. *Journal of Social Psychology*, 6, 607–629.
- Ferrari, A., Cachia, R., & Punie, Y. (2009). *Innovation and Creativity in Education and Training in the EU Member States: Fostering Creative Learning and Supporting Innovative Teaching*. Report of the European Commission, Joint Research Centre, Institute for Prospective Technological Studies. Retrieved January 6, 2011, from [http://ftp.jrc.es/EURdoc/JRC52374\\_TN.pdf](http://ftp.jrc.es/EURdoc/JRC52374_TN.pdf).
- Gao, P., Choy, D., Wong, A. F. L., & Wu, J. (2009). Developing a better understanding of technology based pedagogy. *Australasian Journal of Educational Technology*, 25(5), 714–730.
- Gilbert, P. K., & Dabbagh, N. (2005). How to structure online discussions for meaningful discourse: A case study. *British Journal of Educational Technology*, 36, 5–18.
- Harris, A. (2002). *School improvement: What's in it for schools?* New York: Routledge Falmer.
- Hofstede, G. (1986). Cultural differences in teaching and learning. *International Journal of Intercultural Relations*, 10(3), 301–320.
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations* (2nd ed.). Thousand Oaks, CA: SAGE Publications.
- Jeffrey, B. (2005). *Creative Learning and Students' Perspectives Research Project* (CLASP). Retrieved August 5, 2010, from <http://clasp.open.ac.uk/>.



- Judge, S., & O'Bannon, B. (2007). Integrating technology into field-based experiences: A model that fosters change. *Computers in Human Behavior*, 23(1), 286–302.
- King, M. B., & Newmann, F. M. (2001). Building school capacity through professional development: Conceptual and empirical considerations. *The International Journal of Educational Management*, 15(2), 86–93.
- Lee, S. M., & Peterson, S. J. (2000). Culture, entrepreneurial orientation, and global competitiveness. *Journal of World Business*, 35(4), 401–416.
- Marcus, A. (2000). International and intercultural user-interface design. In C. Stephanidis (Ed.), *User interfaces for all*. New York: Lawrence Erlbaum.
- Maslowski, R. (2006). A review of inventories for diagnosing school culture. *Journal of Educational Administration*, 44(1), 6–35.
- Mayer, R. (2004). Should there be a three-strikes rule against pure discovery learning? *The case for guided methods of instruction*, *American Psychologist*, 59(1), 14–19.
- Neo, M., & Neo, T. K. (2009). Engaging students in multimedia-mediated constructivist learning—students' perceptions. *Educational Technology & Society*, 12(2), 254–266.
- OECD. (2005). *Oslo manual: The measurement of scientific and technological activities, Guidelines for collecting and interpreting innovation data* (3rd ed.). Paris: OECD.
- Patterson, W. (2003). Breaking out of our boxes. *Phi Delta Kappan*, April, 569–574.
- Prensky, M. (2005). “Engage Me or Enrage Me”: What today's learners demand. *Educause Review*, 40, 60–65.
- Reeves, T. C., & Hedberg, J. G. (2003). *Interactive learning systems evaluation*. Englewood Cliffs, NJ: Educational Technology Publications.
- Rousseau, D. M. (1990). Assessing organizational culture: The case for multiple methods. In B. Schneider (Ed.), *Organizational climate and culture* (pp. 153–192). San Francisco: Jossey-Bass.
- Runco, M. A. (2003). Education for creative potential. *Scandinavian Journal of Educational Research*, 47(3), 317–324.
- Schein, E. H. (1985). How culture forms, develops, and changes. In R. H. Kilman, M. J. Saxton, & R. Serpa (Eds.), *Gaining control of the corporate culture* (pp. 17–43). San Francisco: Jossey-Bass.
- Sharan, S., Shachar, H., & Levine, T. (1999). *The innovative school. Organization and Instruction*. Westport, Connecticut and London: Bergin and Garvey. ISBN 0-89789-630-0.
- Slegers, P., van den Berg, R., & Geijsel, F. (2000). Building innovative schools: The need for new approaches. *Teaching and Teacher Education*, 16, 801–808.
- Sorensen, E. K., & Takle, E. S. (2002). Collaborative knowledge building in Web-based learning: Assessing the quality of dialogue. *The International Journal on E-Learning*, 1(1), 28–32.
- Staarman, J., Krol, K., & van der Meijden, H. (2005). Peer interaction in three collaborative learning environments. *Journal of Classroom Interaction*, 40(1), 29–39.
- Sweeting, A. (1990). *Education in Hong Kong, pre-1841 to 1941*. Hong Kong: HK University Press.
- Vatrapu, R., & Suthers, D. (2007). Culture and computers: A review of the concept of culture and implications for intercultural collaborative online learning. In T. Ishida, S. R. Fussell, & P. T. J. M. Vossen (Eds.), *Intercultural collaboration I: Lecture Notes in Computer Science* (pp. 260–275). Berlin: Springer.
- Wei, M., den Brok, P., & Zhou, Y. (2009). Teacher interpersonal behaviour and student achievement in English as a Foreign Language classrooms in China. *Learning Environments Research*, 12, 157–174.
- West, M. A., & Richards, T. (1999). Innovation. In M. A. Runco & S. R. Pritzker (Eds.), *Encyclopedia of creativity* (pp. 45–56). San Diego, CA: Academic.
- Williamson, B., & Payton, S. (2009). Curriculum and teaching innovation. Last retrieved May, 2010, from [http://www.futurelab.org.uk/resources/documents/handbooks/curriculum\\_and\\_teaching\\_innovation2.pdf](http://www.futurelab.org.uk/resources/documents/handbooks/curriculum_and_teaching_innovation2.pdf).
- Zhu, C. (2012). Do cultural and school factors matter for the implementation of CSCL in schools? *British Journal of Educational Technology*. doi:10.1111/j.1467-8535.2012.01333.x.
- Zhu, C., Valcke, M., & Schellens, T. (2010). A cross-cultural study of teacher perspectives on teacher roles and adoption of online collaborative learning in higher education. *European Journal of Teacher Education*, 33(2), 147–165.