

Clarence Ng  
Brendan Bartlett *Editors*

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# Improving Reading and Reading Engagement in the 21st Century

International Research and Innovation

 Springer

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# Preface

Reading matters! It is a pervasive feature of quality living, a learned feature of personal and social development that has extended the nature, scope, and effectiveness of day-to-day life from what readers have been able to do as agents in the earliest forms of the communicative arts to their interfaces with twenty-first-century digital literacy.

Our purpose in this book is to open up to researchers, teachers, and others associated with effective instruction what has been happening in different parts of the world to help improve reading. In each of the chapters that follow is an account of research-based attempts to better understand and act on the compelling need to advance and improve reading. This work then is a basis for seeing what it is that improving readers do as they improve—what innovations have been involved, what critical issues for promoting students’ engagement and reading improvement in the twenty-first century were identified, what research evidence and theoretical models underpinned these issues as critical and innovations as successful, and where further research has been signaled.

Connections between research and practice are better and more enduring when they build on objectives, exploration, and discovery that are shared and valued in both domains. In education, such commonality is important around ensuring that issues critical to the instructional interface are anticipated, recognized, and accommodated through innovative pedagogy, policy, and resources. For example, researchers, educators, and communities want to know what changes, if any, are to be made in relation to twenty-first-century media, technology, and learning if students’ reading improvement is to be achieved sustainably. Further, we would like to know more about the characteristics of reading engagement and what evidence is at hand that these are closely connected to how well students read not only in the texts and images of their literate lives, but also in the cognition and metacognition they build about reading, improving, and themselves as readers and improvers. We would also like to pursue what we have learned about negative effects on children’s and young people’s enjoyment of reading that have possible, if unintended, connection with community responses to systemic testing and reporting of national reading performances through comparative assessment such as the Program for

International Student Assessment (PISA) or Progress in International Reading Literacy Study (PIRLS).

Demonstrable and trustworthy accounts of alliances of research and classroom innovation that will help progress areas of interest such as those mentioned above are pertinent to strengthening research–practice connections—and to improving how we go about improving reading in the twenty-first century. Authors of the 15 chapters in this book have attempted to provide accounts of where, how, and with what effect such strengthening has begun to happen.

Brisbane, Australia

Clarence Ng  
Brendan Bartlett

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**Part I**  
**Context**

# Improving Reading and Reading Engagement: An International Focus

Clarence Ng and Brendan Bartlett

**Abstract** Globally, school leaders, teachers, families and communities are working to better engage children and young people in reading, with the objective of improving literacy achievement and therefore enabling a superior quality of life that typically accompanies a literate and well-read society. In some nations, this work is confronted by particular challenges, where conflict, extensive poverty and low levels of participation in schooling have impeded growth, development and the effectiveness of effort and achievement in their schooling sectors. However, even societies which are characterised by greater stability, wealth and educational opportunity are being tested by the need to enhance technology, media and communication preparedness for *all* students regardless of their backgrounds. Such preparedness is critical for various forms of functioning and productive participation in the twenty-first century world where adaptations of old literacies and skilfulness are inevitable. International testing results on reading (e.g. Programme for International Student Assessment [PISA]) have provided an empirical foundation for considering many of the critical issues involved in the objectives of improvement and adaptation, as school leaders, teachers, families and communities go about their work, engaging our children and young people productively and appropriately in the face of such challenges. These testing results, however, can also be a threat leading educators to a narrow vision of reading education driven solely by performance data.

**Keywords** Reading achievement • Reading engagement • International comparison • New literacies • Reading motivation • Reading instruction • Teacher support

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## 1 Introduction

Developing students' abilities to read is one of the most important and enduring functions of education. From automating word–sound connections to understanding an author's position and being critical of controversial reading materials, it takes great care and time to produce capable readers. Engagement is, expectedly, an important enabler supporting this lengthy learning process. Recognising the importance of reading engagement, the Organisation for Economic Co-operation and Development (OECD) has revised its definition of reading literacy to explicitly include the notion of engagement (OECD, 2016). How to improve reading engagement and draw out its important benefits is a timely question that is attracting considerable international attention.

## 2 International Focus

In 1996, the New London Group (1996) published their seminal paper on multi-literacies explicating how new technologies and globalised changes influence literacy learning and teaching. Based on the notion of multiliteracies, they proposed a future-oriented pedagogy utilising semiotic, communication, sociocultural and technological resources to prepare students for a social future situated within a globalised world. The premise of this paper is that the world has changed and that literacy education needs to respond accordingly. Their work has attracted international attention to literacy education and to the influences of technological, economic and sociocultural changes on literacy learning. A decade later, Cope and Kalantzis (2009), members of the New London Group, revisited the pedagogy of multiliteracies and affirmed that their 'original position stood the test of time' (p. 167) in the midst of tremendous technological changes since the publication of their work in 1996. Nearly another decade has passed since Cope and Kalantzis' revisitation statement. Reflecting on the changes in the past two decades, an undeniable observation is that technological, economic and sociocultural changes have far-reaching effects on all forms of literacy activities in and out of school.

In the midst of these changes, a significant turn of development has been prompted by international testing and comparison that could not have been foreseen by the New London Group. This initiative is a reform rhetoric focusing on human capital development to meet the needs of knowledge economies during the twenty-first century (Ng & Renshaw, 2009). International testing and comparison, epitomised in the Programme for International Student Assessment (PISA), have formed a major globalised process to gauge systemic effectiveness and to locate areas needing attention in relation to improving literacy, numeracy and science development. PISA was started in 2000, and it remains focused on assessing 15-year-old young adults' knowledge and skills in relation to reading, mathematics and science. The Progress in International Reading Literacy Study (PIRLS) was started in 2001 (though The International Association for the Evaluation of Educational Achievement [IEA]

started assessing and comparing reading literacy as early as 1960) and was designed to inform educational policy and practice by providing an international perspective on learning and teaching of reading literacy with its focus on Year 4 students. Both PISA and PIRLS have involved many countries. For example, the scale of PISA doubled from 32 participating countries in 2000 to 72 in its 2015 assessment round. A notable trend was the increase in the number of non-OECD member countries. These increased from four in 2000 to 38 in 2015. PISA's influence will continue to grow with new initiatives that target low- and middle-income countries (PISA for Development) and offer school-based performance estimates (PISA for School).

One might wonder why reading has been singled out as an international focus for comparison. Measurability aside, reading is critical for academic achievement. It is also pivotal for achievement in work, civic and social engagement and personal well-being. PISA seeks to assess how well schools have prepared 15-year-old young people to meet the challenges of knowledge economies. Its future-oriented assessment goes beyond testing what these young people know of school curriculum to include measuring the extent to which they can apply their knowledge and skills in real-life situations. In this context of international testing regimes, reading has been taken as a critical indicator of educational effectiveness.

Political concerns and responses to international testing come together in two important questions. First, how well does a nation fare when compared with well-performing countries? Extensive media coverage has drawn our attention to countries like Finland that have maintained their high levels of performance in all rounds of PISA assessment. In stark contrast, PISA shocks were reported in countries where students' performances were not meeting national expectations (e.g. Japan 2006; See Sato, 2009) or were shown to have significantly declined across iterations of the PISA assessment (e.g. Australia). In 2013, the then Prime Minister of Australia, Julia Gillard, listed ranking among the top five PISA countries as a goal for 2025 (Australian Education Act, 2013). In Japan, successive waves of education reforms have been designed to respond to Japanese students' declining performance in international testing (Sato, 2009).

The second important question related to international testing is to what extent it is possible to learn from well-performing nations? For example, in the five rounds of PISA assessment to date, Finland has persistently performed well. "Learning from Finland" has become one of the dominant features associated with PISA testings (Sahlberg, 2011). More recently, sustained interest has grown in performance excellence enjoyed by Asian countries and whether we can learn from these performing countries (e.g. Jensen, 2012; Ravitch & Cortese, 2009; Sellar & Lingard, 2013).

International testing and comparison signify the dominance of performance data as the basis for policy formulations and decision-making in education (Lingard, 2011). They also signify how international events and global processes find their way into local contexts by crossing national boundaries and by defining what counts as reading and reading engagement through large-scale assessment. Nevertheless, policy-borrowing in response to improving results in reading-performance based, international testing is problematic. "Learning from Finland" (Sahlberg, 2011) or "Looking East" (Sellar & Lingard, 2013) is deceptively simple, and to a great extent

this policy response is limited by lack of accurate understanding of referent systems and failure to take local complexities into account. In addition, PISA has limited its definition to ‘understanding, using, reflecting on and engaging with written texts, in order to achieve one’s goals, develop one’s knowledge and potential, and participate in society’ (OECD, 2016, p. 49). While OECD has acknowledged changes in reading literacy, its current conceptualisation fails to consider new forms of texts and literacies that are considered important by the New London Group and other literacy scholars for this new century. The extent to which PISA enables us to achieve literacy education reforms, such as those proposed by the New London Group, is questionable due to its narrow vision of media. Similarly, OECD’s conceptualisation of reading engagement continues to be based on students’ responses to items about reading practices and attitudes to reading and has failed to consider a host of different forms of engagement that relate to students’ autonomy, goal orientations, and more importantly, to culturally based operations. In this sense, PISA data and results may drive policy makers and educators away from culture and context underpinning students’ performance.

Losing sight of complex contextual and ecological influences on reading, alluded to by the New London Group in their pervasive elaboration of directions for literacy education, may result in a form of literacy education that does not yet connect with students and their everyday literacy practices. The deliberate pluralisation of the term, “multiliteracies”, begs us to focus on diversity, multiple influences and contextual representations and formulations of literacy learning and teaching. It is important to understand how reading and reading engagement are being supported, or remaining unsupported, within local contexts and the various changes and conditions co-occurring within them. Alexander (2000), in a seminal comparative study of pedagogy in five nations, reminded us that there is a ‘web of inherited ideas and values, habits and customs, institutions and world views’ (p. 5) that need to be considered in order to make meaningful comparisons. Clearly, it is insufficient to formulate policy and practices based on performance scores in narrowly banded conceptualisations of media in which people read. There is certainly a need to carefully rethink the vision of reading intended to be conveyed by PISA and the form of reading education that it advocates. Therefore, we need to attend to the question of what counts as reading beyond that which is assessed in PISA as well as our other significant testing regimes. Also, we need to know what forms of reading engagement are conducive to the vision of reading that we see fit for the twenty-first century.

### **3 International Symposium on Reading and Reading Engagement**

In 2015, we conducted an International Symposium on Reading and Reading Engagement where invited experts from different parts of the world shared their research work and insights in a 2-day conference in Brisbane, convened by the



authors of this chapter and organised by the Learning Sciences Institute Australia, Australian Catholic University. The theme was, “What data-driven and evidence-based accounts underpin what we know about reading and reading engagement?”. Addressing this theme, the symposium featured national reports and discussions led by reading experts from top-performing countries in the PISA assessment (Day 1), and theory-guided and research-informed discussion provided by leading researchers in selected fields of studies central to promoting reading and reading engagement (Day 2). Invited presenters focused their presentations and subsequent discussions on current reforms for promoting the nexus between learning and reading, innovation and effective classroom practices, and critical issues in reading education in both national and international contexts.

This international convocation was opened with a keynote address delivered by Professor Barry McGraw who recounted his work as the Director of Education at OECD, responsible for leading the PISA studies. Following this, reading and assessment experts from well-performing countries reflected on past achievement and shared ideas to bring reading education to new levels of excellence. The sharing focused on both strengths and weaknesses in relation to how top-performing countries manage to strengthen levels of reading achievement that were already high, and, on issues and problems critical within their local contexts of reading. Expert speakers were drawn from Finland, Ireland, Australia, Japan, Hong Kong, South Korea and Singapore.

Day 2 of the symposium featured invited presentations from international researchers working in three selected areas critical for advancing reading research in the twenty-first century context: new literacies, motivation and engagement, and intervention studies. These selected researchers shared their theoretical and research-informed perspectives for improving reading instruction and addressing critical issues in promoting reading and reading engagement. The discussion centred around three key questions: What have proven to be the critical issues in improving reading achievement and promoting students’ engagement? What new theoretical/research models are guiding reading research for advancing reading engagement and achievement? What are the relevant platforms and/or reforms for promoting learning and teaching of reading in these performing countries and beyond?

This interdisciplinary symposium drew on the expertise of educational researchers, educators and policymakers to engage in a productive dialogue and exchange of innovative ways for improving reading achievement and promoting reading engagement. Such an internationally concentrated effort was intended to promote educational reform likely to better prepare students for challenges and demands in knowledge economies where reading proficiency is fundamental to future success and competitiveness in educational, economic and political areas.

## 4 Continuing the Dialogue

This book continues the scholarly dialogue we started at the 2015 International Symposium on Reading and Reading Engagement. Building on our discussion during the symposium, contributors who were also invited speakers (except Yamazumi) at the symposium focused on three critical questions in this international volume: How do technologies influence reading? What motivates and empowers students to read? How can reading be supported?

New technologies beget new practices in literacy instruction and new learning. It is impossible to ignore tremendous influences derived from technological changes (New London Group 1996). Within this context, consideration of the motivation and empowerment questions alone cannot rely only on “achievement”. Further, the support question is open to examination of whether, and, if so, how, students are equipped with strategies that are both productive and relevant to reading engagement in the twenty-first century. This of course brings our attention to how well teachers are prepared to support students with their reading and what kind of interventions are required to help any who have left behind in their own literacy development. Consistent with this framing, research work on new literacies, critical reading, reading strategies, motivation and engagement, teaching and intervention designs are important. In Chap. 2, Ng and Graham reflected on research conducted in these diverse areas for promoting reading. They argued that the twenty-first century provides a mega-context for considering research in these areas and there is a need to examine the question of promoting and improving reading using a multiperspective approach that brings attention to possibilities of cross-field research. Below, we discuss these important questions and describe the contributions these invited authors in this book have made.

## 5 How Do Technologies Influence Reading?

In the new century, everyone embraces mobile technologies. Personal digital devices have flooded the market. Whether it is in the airport or in a local supermarket, we can witness the enormous impact exerted on us by technologies and digital devices and the impact these have had on how we engage in text, communicate with others and conduct literacy-related tasks. Our children and young people are spending significantly more time on the Internet and using digital devices, which begs the question of how technologies influence reading and reading engagement.

There are multiple entry points to the discussion of the relationship between technologies and their impact on reading and reading engagement. One of the important considerations is what skills students require in order to read effectively online. Leu, Kinzer, Coiro, Castek, & Henry, (2013) argue that the rapid development of new technologies has made literacy deictic. Assisting students in

developing the skills and strategies required to use new technologies to read and write confidently and effectively is therefore a significant educational focus in the twenty-first century. Coiro (Chap. 3), who collaborated with Leu and his team, discussed this concern from the new literacies perspective of online research and comprehension. Building on the work by Leu and colleagues, Coiro outlined three lines of research central to students' development for online reading. These are using Internet for personal inquiry, promoting online reading comprehension and critical reading of online materials, especially those related to controversial issues. Based on her research, she argues for the need to redesign classroom pedagogies to foster a culture of inquiry, to provide strategy instruction, and to promote appropriate feedback and supports.

Aligning with Coiro, Bråten's research (e.g. Bråten, Ferguson, Strømsø, & Anmarkrud, 2014) has concentrated on critical reading of multiple texts on the Internet. While the Internet has facilitated learning through improved access of information, children and young people are being challenged by reading materials that are designed to convey messages that are biased, extreme or outright deceiving. Reading effectively online necessitates critical evaluation of materials (Rouet, Ros, Goumi, Macedo-Rouet & Dinet, 2011), assessment of trustworthiness of the source and integration of multiple, and even incompatible, views and perspectives (Bråten, Strømsø, & Salmerón, 2011). In Chap. 4, Braten and Brassch argue that developing students' source evaluation skills is an important part of the critical reading process. Developing students' abilities to judge the creditability of sources involves careful examination of accessible information in relation to authoring, intended message, and textual characteristics. In concluding the chapter, these authors discuss the need to attend to how personal factors such as cognition, beliefs, attitudes and motivations, individually and interactively, affect source evaluation and judgment of credibility. They also draw our attention to the role of textual characteristics, such as the presence of conflicting views, may affect students' source evaluation. A more complex process is revealed when personal and textual factors are considered simultaneously in the research design.

Another textual characteristic that may pose a challenge online is multimodality. Words, sounds and images are mixed together in webpages, gaming and other social media platforms to convey meaning and intended message. Combining text and images communicates messages that either mode can achieve separately (Gee, 2003). Children and young people not only need to develop inquiry skills and critical reading assessing credibility, a fundamental skill is the ability to understand image-language relations and make sense of semiotic meanings associated with different modal resources (Luke, 2003). Unsworth (2008) argues that image and language can be related in a concurrent and complementary manner. In Chap. 5, Unsworth draws our attention to an inconsistency between curriculum and assessment in relation to image–language relation. Using the Australian national curriculum as an example, Unsworth discussed the significance of acquiring multimodal understanding and how it forms an important part of critical skills for reading comprehension. Despite the importance of a multimodal literacy curriculum, assessment remains monomodal. Unsworth illustrates

this misalignment in a detailed analysis of testing items in The National Assessment Program—Literacy and Numeracy (NAPLAN) tests, Australia’s national test of numeracy and literacy skills.

Misalignment of practices is not confined to the school context. In a broader context, there is a clear gap between everyday literacy practices and those being valued in school and classroom. While our children and young people are increasingly engaged in out-of-school literacy practices that are multiple, multi-modal and digital, many teachers are still holding onto literacy instruction that is print based and monomodal (Luke, 2012). Burnett (Chap. 6), in a review of studies on everyday literacy practices, urged us to learn from these out-of-school practices. In doing so, she draws our attention to different “entanglements” that literacy researchers and educators need to consider when formulating pedagogy. In presenting these entanglements, Burnett challenges simple conceptualisations of literacy as discrete skills and alerts us to a broad conceptualisation, taking into account complexities and influences derived from cultural, relational, sensory, material and affective dimensions. In short, literacy in the twenty-first century is not just characterised by multiplicity but also by complexities. Burnett concluded her discussion with a list of instructional considerations that focus teachers on the multiple and complex nature of literacy learning.

The combined work of Coiro, Braten, Unsworth and Burnett points to important ways that technologies influence reading and other literacy engagement, and to specific skills students need to enhance their reading comprehension, such as competence in establishing and integrating credibility-of-source evaluations, using the Internet, recognising and using extra-text sources such as images being principled in finding and using fluent rather than entangled processes. Such skills are needed for a broad conceptualisation of literacy to accommodate both in-school and out-of-school practices developing through a new literacies perspective.

## **6 What Motivates and Empowers Students to Read?**

Motivating and empowering students to read is a significant issue. A wealth of research has confirmed the importance of reading motivation to reading (e.g., Taboada, Tonks, Wigfield, & Guthrie, 2009; Wang & Guthrie, 2004; Wigfield & Guthrie, 1997). While developing critical skills is important, students need to be motivated to use these skills (Anmarkrud & Bråten, 2009; Ng, Bartlett, Chester & Kerland, 2013; see also Chap. 8). Motivation to read in the digital age is challenged by multiplicity and complexity of literacy (Burnett, Chap. 6). For example, we need to question the extent to which students are drawn to images and sounds rather than words when reading multimodal texts. In addition, students can read for different purposes to achieve different personal and social goals. While reading for achievement is important for school work, students may hold other motivations for reading in and out of school. This suggests that students’ motivation, just like text on the Internet, is also multifaceted in nature.

While it is important to understand the diversity in students' motivations, an alternative perspective is to look for motivation to fuel and sustain reading engagement in the new century. In this regard, the Finnish Government was drawn to the power of reading for enjoyment and funded a large-scale reading program, named the Lukuinto (Joy of Reading), which Ukkola and Korkeamäki described in Chap. 7. The Joy of Reading program aims to increase students' desire to read by drawing on community resources to support students' reading enjoyment and interest. A range of texts, including print-based and digital texts, was involved, and this aligns with an emphasis on multiliteracies and new literacies in the Finnish core curriculum. Ukkola and Korkeamäki investigated the effects of this reading program on students' literacy attitudes and activities in and out of school. Though the effects of this program are emergent in nature, findings as reported in their chapter point to students' keen interest in reading, which is especially evident during silent reading sessions, when materials are self-selected, often based on recommendations from peers. This program of research was ongoing at the time of writing. Interested readers may contact these authors for subsequent results.

Similar to the Finnish students, Chinese students in Hong Kong and other Chinese societies have done spectacularly well in PISA and other international tests of reading (see Chap. 13). Lau reminded us that such high performance is underpinned by high levels of motivation. In Chap. 8, Lau described her research program that has explored the relationship between Chinese students' use of strategies and reading motivation and the extent to which reading instruction forms an important context supporting the development of motivation and self-regulation in reading. Based on self-regulation theories, Lau developed an instructional model, the TASE framework, which focuses instructional reform on design of task, instrumental support, autonomy structure and use of mastery-focused evaluation practices. This student-centred instructional model is rather different from the traditional text-based pedagogy that builds on teacher's careful instruction on prescribed texts and students' recitation of text. Most teachers showed positive attitudes towards this new instructional approach. Pronounced instructional changes were found in teachers' task design and the provision of support while changes in the degree of student autonomy and evaluation practices were relatively less obvious. This pattern of finding was consistent with students' responses to a survey assessing their perceptions of teachers' instructional practices.

In this context of reforming instructional practices, much attention (e.g. Schacter & Jo, 2005) has been drawn to the underachievement of students coming from disadvantaged backgrounds including those originated from migrant, minority and poor families. It is important to create an instructional environment where all students can flourish and feel supported in their reading pursuits. The question pertains to how to motivate these types of students to read, and, in what ways reading can be made meaningful for them. Blackberry and Ng (Chap. 9) have engaged us in these questions through their description of the reading journey of an Indigenous girl in Australia. They followed this student for 3 years. Their study with this student started out with her as a non-reader who mingled with friends who were also non-readers. Nevertheless, this indigenous girl became increasingly motivated to

read due to steadfast support from a teacher who had focused on her abilities and offered her chances to improve her reading confidence. An interesting observation from this longitudinal case study was that this student embarked on this successful journey of reading when she decided to move away from her non-reader peers.

From a sociocultural perspective, reading motivation is situated not just within an individual's capabilities but also permeates through values and norms that govern interactions among readers within a learning community. Nolen (2007) reported findings derived from a longitudinal study that showed how students' reading behaviours were constrained within a specific classroom context. Nevertheless, classroom learning communities can also be facilitative. In Chap. 10, Yamazumi described a case study of a Japanese school and explained how motivation and engagement for reading was supported through an enabling culture that guides instruction and classroom interaction. In Japanese schools today, efforts to improve teaching and to promote reading involve educators designing and implementing unit-based instruction that will engage children in coherent and purposeful reading activities for problem solving. Yamazumi analysed promising activity-based reading instruction in a Japanese municipal elementary school where instructional culture supports children's active participation in reading for deep understanding.

While it is important to develop a reading culture to empower reading, it is also important to equip students with reading strategies to read with confidence. Understanding how authors structure a text is a key to improving comprehension of what they write. A wealth of research has confirmed the benefits of learning text structure and structure strategies in improving reading and recall (e.g. Meyer, Wijekumar, Middlemiss, Higley, Lei, Meier, & Spielvogel, 2010). Bartlett (Chap. 11) discussed his sustained interest in researching and teaching top-level structuring, a procedural strategy that has its genesis in one's working knowledge of how ideas interrelate in a communication, such as a piece of text, and that underpins several topical twenty-first century higher-order learning skills. Knowing text structure and using that knowledge will result in improved reading comprehension and better recall. When educators have this knowledge and observe its effect, then teaching others to be better readers and strategic communicators takes a significant turn. Its focus on improving reading is designed to help students understand more about their language, and how it is activated when they are reading, and to provide in-action learning about themselves as improving readers.

The chapters in this section draw our attention to the importance of reading motivation and strategies to promote successful reading. The focus, however, is not whether students have developed these motivational and cognitive capabilities. More importantly, these chapters have highlighted the importance of instructional support in promoting students' reading motivation, self-regulation and reading strategies. Such supports can be derived from direct interaction with teachers (Black and Ng Chap. 9), from a conducive classroom culture (Yamazumi, Chap. 10), and from supportive from out-of-school communities (Ukkola & Korkeamäki, Chap. 7).

## 7 How Can Teachers Support Reading?

Previous sections have alluded to the importance of teachers and teaching on improving students' reading and reading engagement. Undoubtedly, teachers play an important role in promoting motivation to read, empowering students and integrating new technologies into classroom practices. A particular challenge for teachers is to promote reading for students who are at risk of disengagement and demotivation (Ng, Bartlett, Chester, & Kersland, 2013). Such students often come from backgrounds of disadvantage. In relation to this, teachers' understanding of disadvantage and of how different forms of disadvantage may impact on learning to read in the twenty-first century is important. However, few teachers themselves come from disadvantaged backgrounds and, in the absence of such personal experience, there is a need to build most teachers' understanding of educational disadvantage, how it is likely to impact negatively on students' learning, and in particular, their ability to learn how to read, and how to recognise and respond to any indications of such effect. This knowledge and action features certainly form an important part of teachers' professional capital (Hargreaves & Fullan, 2012).

Pre-service teachers require assistance in developing professional capital that will guide their recognition, decisions and action in responding to the special needs of these students. Ellis et al. (Chap. 12) provided insights about how this might be done through their work in the Strathclyde Literacy Clinic. In this clinic, pre-service teachers work as a team to assist children from poor families to read. The pre-service teachers make real-time teaching responses to support the children's reading process without following any pre-packaged programme. However, they collect data regarding students' changing cognitive knowledge and skills, identities as readers, and social capital, which form an evidence-driven basis for their ongoing work with the students. This innovative training programme not only benefits disadvantaged students, but also contributes significantly to develop future literacy teachers' professional orientation and work with disadvantaged students.

Promoting disadvantaged students' reading and reading engagement needs to address simultaneously a host of complex factors. Improving teachers' understanding of these students is undoubtedly an important step. Another significant means is to build collaboration and partnership between teachers and other stakeholders. Kennedy (Chap. 13) described the "Writing to Read" project that builds on collaboration between teachers, university researchers and community in a united manner to narrow disadvantaged students' literacy gaps. In the context of Ireland's early achievement of national literacy targets, this research work is of particular interest to countries which share the concern for closing literacy gaps. Kennedy described phase one of a longitudinal collaborative university, school and community intervention in eight disadvantaged schools in Dublin, designed to address underachievement in literacy and to build children's motivation, engagement, agency and academic resilience. She also presented a case study of an exemplary school that had improved literacy outcomes for children at all grade levels.

Accelerating dissemination of effective interventions and practices is indispensable to system-wide improvement in reading achievement (e.g. Lai, Wilson, McNaughton, & Hsiao, 2014). Lai et al. (2014) used a learning school model to promote effective reading practices for diverse students in New Zealand. Mak (Chap. 14) offered another strategy to achieve system-wide dissemination that focuses on teachers learning from each other. Mak discussed the critical role of effective intervention and innovative practices in supporting Hong Kong's excellent record in international testing of reading. To ensure sustainability of effective interventions and practices, Mak designed a teacher-teaching-teacher model to progress dissemination of effective reading practices and resources derived from research projects funded by the Hong Kong government. Using this bottom-up approach, teachers in Hong Kong initiated, collaborated in, and contributed to, the development and dissemination of effective reading interventions and practices.

Continuous efforts are required for new intervention designs given that a large number of children fail to develop literacy skills enabling them to participate productively in academic, social and economic pursuits. This means a return to the drawing board to explore new ways to design effective intervention in promoting reading. In this regard, Graham (e.g. Graham & Herbert, 2011) explored connections between writing and reading. In Chap. 15, Graham and Harris recounted their efforts in examining how writing and writing instruction can be a useful means of enhancing reading. They also discussed the possibility of using reading to improve writing. While they have conducted meta-analytical studies (e.g. Graham & Herbert, 2011) on the impact of writing on reading, they argue that there is a need to widen the search to verify whether reading also improves writing. Their research suggests that reading and writing can be mixed to form an integrated intervention that will promote literacy skills. It also challenges existing classroom practices where reading and writing are considered as two separate processes and skills without capitalising on the connections between them.

## 8 Concluding Comments

The dialogue of the International Symposium on Reading and Reading Engagement began new conversations to focus changes and developments in a globalised, digitalised and connected context of reading and how literacy learning and practices are being affected. There is no doubt that reading will continue to be seen in the international research spotlight. Given the current trend driven by international testing and comparison, literacy education reform will continue to be driven by policy and assessment practices that focus on performance data (Lingard, 2011). Unsurprisingly, there are voices that advocate a focus on discrete reading skills such as the teaching of phonics. If taken as an exclusive instructional focus, such an approach may pose a major threat to literacy instruction and assessment around the world in two different ways. One is that the curriculum and teaching of literacy will be narrowed to measurable items. Second, students who are falling behind will have



limited opportunity to learn advanced literacy skills and strategies that allow them to function as engaged, productive and competitive members locally and internationally. The chapters in this book speak collectively against this reductionistic approach to literacy instruction centring on discrete skills. They highlight the importance of situating reading and reading engagement in dynamic influences derived from embedded contexts in and out of school, locally and globally.

The world has changed and is rapidly changing. Everyday literacy practices follow suit. To what extent literacy education in school meets students' needs in the twenty-first century is an important and ongoing question. PISA ranking and scores are one indicator of reading achievement—but only one. More effort is required to see how students are prepared for literacy-rich economies. In particular, there is a need to look closely into the learning and teaching of literacy for disadvantaged students, many of whom have not achieved well in literacy and other subject areas. As educators, our effectiveness is centred on the extent to which the form of education we propose, develop, and implement assists students at risk of falling behind to develop into productive and contributory members of a globalised world. The plight of disadvantaged students remains a concern for educators. The literacy needs of these at-risk students and the design of new ways to re-engage them in reading should constitute a legitimate and urgent international focus.

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# Engaging Readers in the Twenty-First Century: What We Know and Need to Know More

Clarence Ng and Steve Graham

*If our research efforts become too narrow in focus, then there is a good chance that our proposals for instructional development will follow suit.*

(Winograd & Johnston, 1987, p. 227)

**Abstract** What does it mean to be a successful reader in the twenty-first century? To answer this important question, this chapter discusses the twenty-first century as a new context for reading research and for the development of effective reading instruction. This chapter begins with a description of the twenty-first-century reading context and the challenges that have arisen as a result of new technological and sociocultural developments. Following that, the chapter reviews current trends in research on reading in three related fields, reading motivation, new literacies, and reading strategies, which were critical for developing integrative models to inform reading research. The chapter concludes with a discussion on the need for cross-fertilisation among these fields to develop reformative reading practices that promote reading engagement and improvement. Teachers' significant role in advancing this reformative agenda is highlighted. Special research attention is required for supporting reading and reading engagement for students who come from various disadvantaged backgrounds.

**Keywords** New literacies • Reading motivation • Reading engagement • Strategy instruction • Disadvantaged students

Unprecedented attention has been drawn to the questions of how students' engagement in reading can be supported and in what ways their reading abilities and achievement can be improved. In the past several decades, reading researchers have examined how students' reading achievement and engagement can be supported by nurturing cognitive enablers including reading self-efficacy, personal

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interest, and use of cognitive and regulatory strategies (e.g. Lau & Chan, 2007; Smith, Smith, Gilmore, & Jameson, 2012). While remaining important, the research on reading cognitive enablers has increasingly needed to take into consideration of an important contextual consideration—what does it mean to be a successful reader in the twenty-first century, where new technologies are revolutionising access to information, modes of learning, and ways of connecting with people locally and internationally?

To shed light on this important question, this chapter examines the way in which developments in the twenty-first century are creating new contexts for reading research. The chapter reviews current trends in research on reading from three different fields including reading motivation, new literacies, and reading strategies. While these fields are each driven by their own research agenda, the unprecedented demand for improving reading and reading achievement warrants a critical review aimed at exploring creative ways to promote cross-fertilisation. Such creative efforts would allow for the development of integrative models to inform reading research and develop new instructional practices for promoting reading engagement and achievement. This chapter begins with description of the twenty-first-century reading context before moving to the challenges that have arisen as a result of the new developments and how these relate to the need for reading education reform and change. Following this, major trends in the studies of reading in the three related fields identified above are examined. The chapter concludes with a discussion on the need for cross-fertilisation among these fields to develop reformative reading practices that promote engagement in higher-order thinking within technologically-rich environments. The discussion covers important research questions: How can a motivational perspective contribute to the new literacies research agenda and to the development of new reading strategy interventions? How can reading strategy intervention contribute to the development of critical reading skills when using both digital and traditional print-based materials? Does reading in a technology-rich environment demand a new set of reading strategies and an adjustment to reader attitude? The chapter concludes with a discussion of teachers' roles in promoting reading in the twenty-first-century setting.

## 1 The Reader, Text, and Context

Reading is both social and individual in nature. The social nature of reading is reflective of the manner in which reading develops within specific cultural and historic contexts (Smagorinsky, 2001). Cultural models, values, norms, roles, and identities are significant factors that come into play when children read and make meaning. Additionally, collaboration and interaction are important social processes that are often involved in reading (Lee, 2001).

Reading is individual because it requires the deployment of strategies, skills, and knowledge to make sense of the materials that one is reading (Verhoeven, Reitsma, & Siegel, 2011). Engaging in reading also involves cognitive skills and strategies

and their effective implementation requires careful monitoring and control (Paris, Lipson, & Wixson, 1983; Paris & Paris 2001). This is not to say that these strategies, skills, and knowledge do not originate from social learning or do not involve scaffolding or assistance in their development and deployment. Rather, we align with sociocultural researchers (Lee, 2001; Smagorinsky, 2001) who acknowledge the importance of interaction and collaboration in the reading process. The important distinction here is that during this process, each individual needs to make an effort to deploy and control these strategies in order to make sense of their reading.

We further believe that texts, and their meanings, must be interpreted within a specific context as these two are related, mutually dependent, and closely aligned with each other (Lee, 2001). A text without a context will convey vague or inaccurate meanings. In addition, the reader needs to be present and bring forth their own goals, values, and personal understanding in order to make sense of the text together with its interwoven context. In this sense, readers not only need to decode texts using appropriate cognitive skills and strategies, but, more significantly, they need to encode and derive meanings of what they read in relevant contexts. In short, aligning with Ruddell and Unrau (2013), our understanding of reading development involves the following three components: the reader, text, and context (including the teacher). In this chapter, we argue that the reading context in the twenty-first century has significantly changed due to massive globalised processes that pose great challenges to readers, hence demanding the development of new capabilities to read and make sense of texts in multimodal forms in both online and offline settings. Expectedly, teachers can no longer rely on pedagogical models that are inconsistent with new modes of reading in the twenty-first-century context.

## 2 Twenty-First Century as a New Context for Reading

Reading practices and research on reading are situated within specific sociohistoric contexts, influenced by an array of factors derived from sociocultural, economic, political, and technological dimensions (Lee, 2001; New London Group, 1996; Smagorinsky, 2001). While studies have focused on the influences of local contexts (e.g. Lee, 2001), relatively limited attention has been devoted to the role of wider contexts and trends that have influenced reading and reading engagement at the global level (cf. Daniels, 2016). The twenty-first century is a new mega-context for considering reading because it brings with it new modes of reading, which beget new reading practices, especially in out-of-school settings. For example, using Instagram, a photograph-sharing application for mobile devices, young people share photographs and posts with friends and followers through the Internet. The driving force behind this new context of reading is largely driven by globalised processes such as marketisation, movement of people, and the advent of new technologies. Early researchers such as Wittrock (1989) foretold the impact of the new century on the demand for higher-order skills in literacy. More recently,

Alexander (2012) discussed the importance of goal orientation as part of their conception of reading competence in the twenty-first century. Rueda (2013) highlighted the importance of twenty-first-century skills, new literacies, and considerations related to instruction, teachers' roles, and students' motivations.

In the twenty-first century, reading is no longer confined to printed materials. Children and young people learn to read and engage in reading in contrastingly different ways from previous generations, though a similar set of reading skills and strategies are still being utilised. Children and young people, often referred to as digital natives, conduct Google searches, use Wikipedia, scan online news, and seek information from online chat groups, while the previous generations would go to the library, buy newspapers, and speak to librarians (Palfrey & Gasser, 2008). While print-based reading is still a major form of text, children and young people are increasingly engaged in digital forms of reading using computers and mobile devices. Children are growing up in a digital world surrounded by screen-based digital devices, including tablets, mobile phones, and laptop computers. They have abundant opportunities to read when engaged in socialising, gaming, and information-searching activities using the Internet. A dominant characteristic of reading using digital devices is that texts are multimodal. Sounds, images, videos, and words are purposefully combined to effectively communicate with readers. Most children and young people seem to have adjusted well to using digital devices to communicate with each other, resulting in the production of new linguistic forms of communication, such as the use of emojis combined with words, abbreviated textual forms, and combined sounds and images. These practices are generally different from the literacy practices children experience in school.

The new modes of reading are also characterised by flexible access made possible by improved Internet connection and an upsurge of mobile devices. This means that children are able to access all types of text including social media 24/7 and allowing them the opportunity to read materials and messages shared by friends, and friends of friends, in various networks of online communities at any time. It is also clear that youngsters spend a significant amount of time on applying these new modes of reading. Recent reports indicate that children and young people in Britain (Ofcom, 2015), Australia (ACMA, 2016), and the USA (Lenhart, 2015) have increasingly spent more time on the Internet, predominantly for social and entertainment purposes, and increasingly for study, work, and other important literacy-related undertakings.

### 3 Major Challenges

There are challenging issues that come with these changes in reading practices, where children are now combining online and print-based materials. A large amount of texts is made available to children through both online and print-based media. Political thoughts, religious beliefs, and cultural norms quickly spread across the globe through the use of new technologies as well as the older ones. While children still get these materials in printed forms, most log onto the Internet

to seek such information. As a textual environment, the Internet is unstructured, ill-defined, populated with images, sounds, and videos, and connected via hyperlinks that can quickly disorient readers and users, let alone the Internet materials that are intentionally designed to deceive. Navigating through hypertexts is a cognitively demanding task. Reading in this context involves multiple texts and is virtually unbounded as all texts are connected through hyperlinks. This poses multiple problems. For instance, research demonstrates that children have difficulties reading multiple texts from multiple online sources (Bråten, Strømsø, & Samuelstuen, 2008). Effective reading in the digital age further requires critical readers who are able to search, evaluate, and form interpretations of the material they read online or encounter digitally. These processes assume the development and use of inquisitive skills as well as the ability to read critically, which are important skills given that information can be accessed on the Internet at an unprecedented rate and the verification of authenticity requires careful scrutiny. Even though online searches using Google and other search engines can result in millions of returns, users tend to focus on a limited range of popular sources (Griffith & Brophy, 2005). Children and young people rely on the Internet to provide answers to their search queries and tend to settle for the first few responses which are returned by their selected search engine. This is dangerous if children do not, or are unable to, critically assess the validity of information and reflect on arguments and counterarguments.

Another challenge for the teaching of reading in the twenty-first century is the increased cultural and linguistic diversity that students from different backgrounds bring into the classroom. Migration and people movement are occurring at an unprecedented rate, facilitated by increased mobility and ease of travel. Developed countries such as Britain, Australia, and the USA are target countries for migration. Coupled with international refugee movements, classrooms in developed countries are increasingly populated with students whose reading practices and orientations may not align with mainstream schooling expectations. Discontinuities between everyday literacy practices and schooling practices are a primary concern for literacy teachers who intend to develop a more inclusive and engaging literacy approach within their classroom contexts.

Complicating the picture further is the way in which learning in general, and reading in particular, is intricately embedded in social structures. Students' differential levels of engagement in digital literacies add another level of challenge to building a reading programme based on information and communications technologies (ICTs) and which are not accessible to all (Leu, Forzani, Rhoads, Maykel, Kennedy, & Timbrell, 2014). Special attention must be focused on the social divide in reading and reading engagement in the context of the twenty-first century. In particular, there is an urgent need to examine whether children from poor families have been sufficiently equipped to use, and benefit from, digital literacies, not just for personal communicative purposes but also for academic studies and other meaningful purposes. Leu et al. (2014) observed a gap in online reading performance between rich and poor American children, which was attributed to discrepant access to computing technologies and equipment. While additional funding to

finance equipment provision can fill the access gap, more importantly, poor children will need additional training and support for them to use digital devices in ways that they perceive personally beneficial.

Closely related to the issue of reading among disadvantaged students are the accountability regimes developed by many jurisdictions around the world to monitor, and reportedly improve, the reading performance of their students. Both national and international tests are now used to hold schools and teachers accountable for student performance. The challenge is that reading, the associated curriculum, and assessment procedures have not considered sociocultural nature of literacy learning and practices, but often hold onto what Street (1995) described as autonomous model of language, focusing on reading and writing as fixed skill sets. Juxtaposing this practice with our discussion of the twenty-first-century reading environment above directs our attention to some important considerations. First, there are two kinds of literacies, one that is included in the school curriculum and the one that is practised in both out-of-school and online settings. To the extent that students' out-of-school literacy practices play a limited role in literacy learning in school, their skills and knowledge developed in these out-of-school settings are not valued. This serves only to reinforce demarcation between school and out-of-school literacy practices, rendering loss of opportunities to build on students' refined language skills and experiences developed at home and online. Second, for students who fall behind, a focus on basic language skills is often used to hasten their language development, which unintentionally robs them of the opportunity to learn advanced literacy skills, such as evaluation and critical thinking, required for twenty-first-century reading and writing. Such an approach has had limited success (Luke, 2012) and there have been repeated warnings of associated problems, such as narrowing the curriculum and dumbing down content materials. Over the long term, students who are falling behind will be less likely to benefit from a curriculum that conveys low expectations and poses limited challenges for pushing students to read and write using advanced skills.

Integrating digital literacies into the reading curriculum is a challenge. Aggravating the pressure to change are various constraints faced by teachers, including their lack of training in using new technologies and neoliberal management practices in education, such as centralised curriculum control and test-based accountability. While it is important that teachers are given freedom and trust to explore and integrate digital literacies, there are tightened controls on the curriculum, assessment, and teaching. In Australia, for instance, the state-controlled school curriculum has given way to the implementation of a national curriculum, and additional constraints have taken hold due to national testing of students' progress in literacy and numeracy alongside reporting of aggregated school test results through the My School website. In the original design, the national test itself was designed to monitor progress and provide much-needed assistance to students who fall behind. However, its implementation has been problematic, resulting in negative impacts on teaching and learning including narrowing of curriculum and a focus on teaching to the test (Luke, 2012). Few teachers effectively utilise test results to promote reading or to assist students who are falling behind



(Ng, Wyatt-Smith, & Bartlett, 2016). In this, and other cases, it is critical to think of the new context for twenty-first-century reading as a challenge to both students and teachers alike.

Nevertheless, learning to read is more than getting a good test score and developing the skills required to complete literacy tests and examinations. The complexity of social, economic, and political issues that are reported in newspapers, on television, and through social media on a daily basis demands capable readers who are critical, participative, and reflective. There is no way that children can be shielded from issues such as violence, drugs, wars, and other sensitive problems in the social and political arenas. They read about these topics on the Internet; they share and distribute such topics through social media groups and other avenues made available to them through technology-enabled channels. In these contexts, reflection should focus on what reading is for and what important capabilities are required to develop readers to achieve these purposes.

The definition of what constitutes a successful reader requires reconsideration in light of these challenges related to reading and other related literacy activities within the new century. We believe that to be a successful reader in the twenty-first century, one needs to be motivated, strategic, and critical in their reading. This assertion is in line with Alexander's (2012) conception of reading competence required by twenty-first-century students and citizens. There is a need to focus on these capabilities in this century, not just for academic learning but also for empowering reading engagement for personal, social, and work purposes. A focus on reader capabilities is beneficial in several important ways. First, it draws our attention away from reading assessment and scores, as they do not necessarily signify the development of critical reader capabilities. It follows that the current international focus on testing of reading performance falls short of achieving the ultimate education goal of preparing children as capable readers in the twenty-first-century settings. Second, focusing on reader capabilities will aid the formulation of reading curriculum, addressing the development of personal abilities and reader attributes in the midst of our current and continuing information explosion and proliferation of literacy media. Strong alignment between curriculum, teaching, and assessment can be built using the notion of reader capabilities. Such a focus can lead to a coherent reading curriculum that prepares children to meet literacy demands in the twenty-first-century context. An important challenge for teaching reading is how to support the development of these critical reader capabilities. Aggravating this challenge is the presence of many disadvantaged students who are at risk of falling behind in their reading development and achievement. How to help disadvantaged students become engaged and capable readers in the twenty-first century has fast become an international issue. Clearly, the teaching of reading in the twenty-first century is challenging. Teachers are challenged by the curriculum and the teaching decisions that they have to make in terms of what to teach, how, and for whom. Contradictions abound, confusions and debates will continue.

Alexander's (2012) theoretical discussion of reading competence is an example of such work. She developed a taxonomy of reading competence based on an elaborated discussion of the definition of reading, including the changes that new technologies have brought to reading in the twenty-first century. In this chapter,

we take a different approach. We focus on challenges posed to reading and reading education in developed nations in the twenty-first century, and map this knowledge to relevant research literature to design significant research questions that need research attention in order to determine what still needs to be known to promote reading and reading engagement in the twenty-first century. In the sections that follow, we first review relevant research in order to construct an empirical foundation for addressing these challenges. Following this examination, we consider how the lines of research discussed can be cross-fertilised to explore new avenues to advance our understanding of these capabilities in twenty-first-century settings.

#### **4 What We Know: Studies on New Literacies, Reading Motivation, and Reading Strategies**

Responding to the challenges to reading in the twenty-first century, we think that three specific fields of reading research are especially relevant. These are new literacies, reading motivation, and reading strategies. Each field has made significant contribution to understanding and promoting reading. To our knowledge, there has been no previous attempt to connect new literacies studies to research on reading motivation and reading strategies. Nevertheless, given the challenges the new century poses for reading and readers, it is important to draw on related fields in order to develop new knowledge and new ways to promote reading in the twenty-first century. These related fields are pivotal to answering fundamental questions about what to teach in reading, how to learn to read effectively and strategically, and what teachers need to know about effective reading in the new century. These fields of reading research are the focal content of this international book. Our discussion in this chapter also serves as an introduction to research and scholarly discussion in different sections of the book.

Below, we provide a concise review of research in these areas with a view to highlight major trends and point out gaps in the literature in relation to efforts to promote reading and reading engagement in each field. Our review is not exhaustive. It is purposefully built to illustrate the importance of reading in the context of the twenty-first century and to point to areas of concerns for promoting reading and reading engagement.

#### **5 New Literacies Research**

New literacies research exists across multiple fields and is informed by disparate theoretical frameworks (Coiro, Knobel, Lankshear, & Leu, 2008), such as linguistic, sociocultural, critical, and psycholinguistic theories. Seminal studies have focused on multimodality (Kress, 2009), online reading and comprehension

(Leu, Zawilinski, Castek, Bannerjee, Housand, Liu, & O'Neil, 2007), literacy as social practice (Barton & Hamilton, 1998; Street, 1984), and multiliteracies (New London Group, 1996). In essence, different researchers will take different points of entry to study new literacies. For example, Leu et al. (2007) have investigated individual's learning of skills and strategies for online reading; Street (2003) focused on sociocultural influences on the use of literacy as everyday communication practices; Gee (2003) focused on discourses as new literacies; Kress (2009) discussed multimodal texts; still others, such as the New London Group (1996), draw our attention to the multiplicity of literacies. New literacies are, therefore, defined differently by different researchers, but their development is closely related to globalisation, including increased cultural and linguistic diversity, onset of new information and communication technologies, and increased complexity of text associated with multimodal representation. These changes are global, and collectively, they challenge long-held educational practices that treat reading and writing as mono-text in mono-modal form focusing exclusively on words.

While acknowledging that new literacies is a contested field, Leu et al. (2007) along with Leu, Kinzer, Coiro, Castek, and Henry (2013) highlighted four common features of new literacies, which include the influence of information and computing technologies, the important role of civic participation, the deictic nature of new technologies, and the involvement of texts that are "multimodal, multiple and multifaceted". As a research collective, new literacies researchers have drawn our attention to contexts where literacies are being used and practiced, and how these literacies are shaped and sustained by social and power relationships embedded in these contexts, both locally and globally. Equally important is how children and young people make sense of reading online and in what ways their online literacy engagement in different social media platforms can be supported. It should be noted that there are similarities shared by new and traditional forms of reading. Both require students to activate their background knowledge, use basic reading skills such as decoding, and deploy advanced skills to make interpretations and critical assessment. Recognising this shared foundation is critical to understand why and to what extent new literacies are indeed new (Afflerbach & Cho, 2009; Leu et al., 2007).

With the advent of mobile technologies, new forms of Internet-based social media, such as Facebook, Twitter, and Snapchat, have changed the ways that young people read and write, and the materials involved in reading and writing. These new media form a new social and technological context for literacy practices and enable multimodal communication, allowing young people to combine texts with images, videos, and audio files, participate in various forms of online discussions and virtual communities, build their own online identities, and most importantly, continuously interact with others using mobile devices.

In this new context, texts are commonly multimodal in nature. While written language remains an important semiotic resource, its use in both online and offline settings is increasingly merged with other modes of meaning making, including gestures, sounds, moving, and still images. In this sense, each mode in a specific

literacy event or practice conveys part of the message and each contributes to the meaning making process in different ways. The important question pertains to how people draw on different modal resources to communicate messages and make meaning. Recognising the affordance of each mode and how different modes are combined when making meaning is a current focus of new literacies research. Different modes represent a different set of semiotic resources. On the receiver's end, it is important to understand how the message is read. In other words, how meaning making happens when texts involve multiple semiotic modes. What counts as reading from a multimodal perspective is beyond written language, with all the modes in a literacy event needing to be included in the reading process in order to facilitate meaning making. A new area of research on multimodal semiotics has been developed to describe, explain, and analyse new forms of textual forms and structures, in particular, how words, images, sounds, and other new textual forms are combined to enhance meanings or modify word meanings (Cope & Kalantzis, 2000; Jewitt, 2008). New reading skills are required for reading across different modes, allowing readers to make sense of messages conveyed via the connection of different modes. For example, when reading online advertisements, young people need to understand the extent to which images are used to exaggerate product benefits. Critical reading skills are involved to compare information communicated through written descriptions and those conveyed by images. Often, an informed judgment will also involve reading a customers' review and being able to critically assess whether these reviews are fabricated.

Conceptualising online reading and comprehension as a self-directed problem-based process, Leu et al. (2013) argued that new strategies, attitudes, and social practice are critical in reading new literacies. They argued that new practices for effective reading online include identifying important reading question, isolating, evaluating, synthesising, and communicating information. A growing base of research supports the claim that these new practices require new strategies that are different from reading print-based materials (e.g. Afflerbach & Cho, 2009; Cho & Afflerbach, 2015; Coiro & Dobler, 2007; Leu et al., 2013). For example, Mckennna et al. (2012) provided survey evidence suggesting that recreational digital literacies are rather different from academic print-based and recreational print-based literacies. This suggests that digital reading may involve an additional set of reading strategies. In relation to strategy use, Cho and Afflerbach (2015) showed that strategic processes are involved in realising and constructing potential texts for online reading. Coiro (2007) found that online reading involves evaluation of understanding, relevancy, accuracy, reliability, and bias. In Chapter "Image-Language Interaction in Text Comprehension: Reading Reality and National Reading Tests", Coiro summarised her research in this area focusing on strategies for promoting personal inquiry and critical reading.

Collaboration is a major social resource that facilitates reading and improves comprehension both online and offline. While much is known about positive effects of collaboration on reading offline (e.g. Palinscar & Brown, 1984), there is a growing set of research studies that indicates that similar benefits of collaboration can be found in online reading. For example, Coiro, Castek, and Guzniczak (2011)

found that collaboration in the process of online reading promotes deeper understanding and comprehension of information texts. Recognising the importance of collaboration, Hartman, Leu, and Zawilinski (2007) have redesigned the instructional strategy of reciprocal teaching for online reading. Collaboration is undoubtedly an important part of a participatory culture frequently seen in different Internet-based communities (Jenkins, 2006).

While new skills and strategies are still developing for online reading, research on literacy as a social practice reminds us that reading and writing are not just a set of skills, but involve what people do with these skills and resources and how they use them within localised contexts (Barton, 1994). This approach to reading focuses on the importance of literacy as part of communication and highlights the importance of purposes when reading. Literacy, including reading, writing, and communicating, is social. The focus goes beyond individuals' deployment of effective skills or use of multimodal resources. Rather, the important question is how literacy patterns, or use of these semiotic resources, are established, legitimised, and privileged among members of a specific group, either online or offline. In this sense, reading and other literacy activities are situated and contextualised within specific settings and with specific groups. In essence, what counts as accepted and legitimised literacy materials and semiotic resources varies, and their meanings and ways of reading and using them need to be determined within a specific social and institutional context. This suggests that there are multiple literacy practices associated with different social groups in different settings in our society. In other words, reading means different things to different people who gather and interact for a range of social purposes in school, church, hospital, and various online platforms. It follows that learning to read and write in the context of an online gaming group will be different from learning that occurs in our classroom, though a similar set of reading skills and strategies, including comprehension and making interpretations, will still be involved in the meaning making process across both settings.

This brings to the fore the question of inconsistencies between school and out-of-school literacy practices. Ethnographic studies have improved our understanding of social and cultural practices of reading and writing using a diverse range of digital modes and devices in everyday practices (Street, 2003). For example, Burnett (Chapter "Reading the Future: The Contribution of Literacy Studies to Debates on Reading and Reading Engagement for Primary-Aged Children") provides a critical account of these studies and explains the importance of bridging practices between school and out-of-school contexts. This is possible if we focus on similarities shared between the two forms of literacy practices. For example, reading in both settings requires activation of background knowledge, comprehension, and making interpretations. While much progress has been made in relation to the research of literacy practices in informal settings for various social and communicative purposes (e.g. Beavis, Nixon, & Atkinson, 2005; Sefton-Green & Soep, 2007), we still know very little about how these everyday practices can inform literacy teaching, including the teaching of reading and promotion of reading engagement, though reading in both contexts draws on common skills and knowledge. This issue becomes even more acute as children and young people

around the world increasingly spend more time on the Internet and consider such digital tools as being a vital part of their everyday lives. Children and young people who engage in these out-of-school literacy practices seem to have no issue in locating meaningful purposes for reading and writing, whether it is for personal interest, maintaining social information, or sharing information. Another important feature is the shared understanding and values that link people in an online community of practice. The development of literacy pedagogies in school has much to learn from these purpose-driven and socially oriented out-of-school literacy practices.

It is interesting that this concern about pedagogy remains an issue following the publication of the New London Group's 1996 seminal paper. In this paper, this group of international literacy researchers highlighted important principles for developing pedagogies that address changes brought about by new media on language learning and teaching. Two decades have passed since that seminal work, and the pedagogical concerns raised in this work have not yet been fully alleviated. Instead, it can be argued that they have been aggravated by the widespread proliferation of new technologies and mobile devices. Urgent attention is required to examine issues related to preparing teachers to teach reading and writing in the context of new literacies development. In addition, the progress of integrating technologies into the classroom as part of literacy pedagogy has been rather slow, even though developing such integrated practices has been a focus of reform (Cheung & Slavin, 2013; D'Agostino, Rodgers, Harmey, & Brownfield, 2015). Technology-based literacy pedagogies are still developing, and children and young people are constantly embracing new forms of these technologies throughout their everyday lives. Perhaps, a viable way forward is to allow students to play a leading role in the pedagogical development process to show how new technologies are being adopted in their daily literacy practices in different online communities of practices. Understanding how interaction, collaboration, and sharing occur and are governed in these communities may hold the key for developing pedagogical models for new literacies.

Many students, especially those coming from low SES families, migrant and minority backgrounds, need support to learn and use new literacies. Students coming from disadvantaged backgrounds may fall behind in the new literacies learning due to limited access of computing technologies (Leu et al., 2013). Leu's studies which reported the gap between rich and poor students' experiences in using computing technologies send an important message that access and mastery of new literacies constitute a new form of inequality in education. Disadvantaged students' learning of new literacies is not just an issue of access and provisions. More than this, it is about the disparities in home-school literacy practices. The extent to which schools favour literacy practices that disadvantaged children do not usually practise at home creates an issue for teaching these children to read in school.

Increasingly, successful learning in the twenty-first century involves the development of students' abilities to comprehend online materials, critically assess their validity and usefulness, and use them effectively for problem-solving. Effective learning with multiple literacies requires participating students to be active,

engaged, motivated, explorative, risky, playful, and purposeful. It also involves knowing the basics, incorporating cultural funds of knowledge (Moll, Amanti, Neff, & Gonzalez, 1992), and being a part of the social futures. New literacies research, thus far, has not given sufficient attention to these reader attributes and readers' use of knowledge. In particular, concerted efforts to understand the significant role of motivation and strategy development in using new literacies for promoting reading and reading outcomes have not yet fully crystallised.

## 6 Reading Motivation and Engagement

Motivation is critical for reading engagement, because reading itself is an effortful activity that typically involves deep memory processing, decision-making, preferences, choices, and commitment in the pursuit of meaning making (cf. Kintsch & van Dijk, 1978; Wigfield, Guthrie, Tonks, & Perencevich, 2004). Reading motivation plays an important role in the reading process. Reading motivation can increase time, effort, and amount of reading. Many studies have reported that reading motivation predicts reading achievement (e.g. Retelsdorf, Köller, & Möller, 2011) and better reading comprehension (e.g. Guthrie, Hoa, Wigfield, Tonks, Humenick, & Littles, 2007a, Guthrie, McRae, & Klaua, 2007b). Research (e.g. Anmarkrud & Bråten, 2009) has also shown that reading motivation accounts for unique variance in reading comprehension over and beyond the variance explained by other variables.

According to Guthrie and Wigfield (2000), reading motivation is students' "personal goals, values, and beliefs with regard to the topics, processes, and outcomes of reading" (p. 405). When translated to research, this generic definition gives rise to different conceptualisations and measurements of reading motivation. In a conceptual review, Conradi, Jang, and Mckenna (2014) summarised that reading motivation has been researched variously using terms such as self-efficacy, agency, goals, and interest. Despite the differences, past research has generally confirmed that these motivational variables predict reading achievement and reading engagement.

More specifically, students' reading self-efficacy has been studied extensively. This research has generally found that efficacious students persist longer in reading difficult texts, expend more effort when reading, read more in general, and read more effectively (e.g. Chapman & Tunmer, 1995; Schunk, 2003; Taboada, Tonks, Wigfield, & Guthrie, 2009). Students who have developed a keen interest in reading or who are intrinsically motivated to read for enjoyment and understanding are typically found to have more engaged patterns of reading behaviours, including a greater willingness to read challenging texts. In addition, students' intrinsic motivation for reading is positively related to reading performance (e.g. Baker & Wigfield, 1999; Taboada et al., 2009; Unrau & Schlackman, 2006) and contributes to the prediction of reading comprehension at various levels of schooling, even after controlling for other significant factors such as past reading achievement levels

(cf. Taboada et al., 2009). Further, Gottfried and colleagues (Gottfried, Fleming, & Gottfried, 2001; Wang & Guthrie, 2004) provided empirical evidence showing that students' intrinsic motivation in year seven related to later reading achievement levels in year eight and nine. More recently, reading researchers have begun to explore the significance of mastery orientations to reading performance from an achievement goal perspective. Emerging results demonstrate that students who employ mastery orientations monitor their reading process, use effective comprehension strategies, and achieve deep levels of understanding and valuing of both outcomes and processes for improving reading (Botsas & Padeliadu, 2003; Nolen, 2007).

Based on these diverse cognitive models, important questions for assessing reading motivation include, to what extent does one have and believe he/she has reading capability, thinks reading is important for a particular purpose, and wants to achieve outcomes related to that purpose? Aligning with these cognitive models, reading motivation has been consistently correlated with students' ratings of corresponding cognitive variables. A wealth of quantitative research has further established the multidimensional nature of reading motivation (Baker & Wigfield, 1999). For example, the Motivation for Reading Questionnaire (MRQ) contains a set of scales based on 11 dimensions of reading motivation (efficacy, challenge, curiosity, involvement, importance, recognition, grades, social, competition, compliance, and work avoidance) which can be collapsed into cognitive variables of competence beliefs, extrinsic reasons, and social purposes for reading adapted from major models of motivation (Klauda, 2009).

Conceptualising reading motivation as multidimensional is important, because students are motivated differently. For some, reading is always about enjoyment, whereas for others, reading is a chance to demonstrate their abilities. Profiling students' motivation for reading provides an important description of why students engage in reading. However, researchers vary in how they conceptualise and measure these different motivational dimensions (cf. Conradi et al., 2014).

Despite disagreements, three important characteristics are observable across studies that examine the multidimensionality of reading motivation. First, reading motivation include both affirming and undermining motivations, and often these contrasting motivations are related (Schaffner & Schiefele, 2007), suggesting that both forms of motivation are operating simultaneously among students. Second, social dimensions of reading, such as collaboration, have been increasingly observed in addition to the dominant cognitive dimensions. This suggests that there is a need to look beyond an individual mind frame and examine how reading is supported through social processes, such as promoting interaction and discussion in class. Third, the affective dimension of reading motivation has not been researched sufficiently. While research studies (e.g. Baker & Wigfield, 1999; see also Chapter "Engaging Students in the "Joy of Reading" Program in Finland") have investigated students' interest and enjoyment as part of intrinsic motivation for reading, we know relatively limited about how reading is affected by negative emotions including anxiety, fear, and boredom.



Given the significant impact of these motivational variables, it is important to create an instructional context that supports reading motivation. A major form of support is the use of texts that students can read successfully, willingly, and with interest. In this way, students' sense of self-efficacy, interest, and personal relevance can be enhanced. Allowing choice for reading, in relation to what and how to read, sends an important message to students that they are in control of their own reading. In addition, there is a need to consider whether reading materials are personally relevant, related to students' personal experiences, and accommodative of diversity and prior knowledge. From a social perspective, the extent to which students are given a chance to share, collaborate, and discuss their reading is an important instructional consideration for supporting reading and reading motivation. Focusing students on the importance of reading and communicating high expectations promote students' motivation to read. In short, a supportive reading context promotes reading motivation and sustains reading engagement, which can subsequently lead to increased reading and achievement.

Reading researchers have begun to develop influential reading intervention programmes for improving reading engagement and performance. For example, instructional interventions to promote mastery motivation (e.g. Miller & Meece, 1997) and reading interest (Wang & Guthrie, 2004) have been developed and tested. There are also comprehensive instruction programmes that draw on motivation and reading strategies. For example, Guthrie et al. (2007b) designed the Concept-Oriented Reading Instruction (CORI) programme to enhance students' reading motivation and provide instruction on reading strategies for comprehension in science and social studies. Empirical evidence supports that the CORI programme is effective in promoting reading motivation, engagement, and achievement (Guthrie & Klauda, 2014).

Accommodating individual differences in reading motivation derived from gender, age, and ethnicity needs to be part of a new wave of intervention design, given the significance of these individual factors (e.g. Baker & Wigfield, 1999; Chiu & McBride-Chang, 2006; Guthrie, Coddington, & Wigfield, 2009; Stanovich, Nathan, & Vala-Rossi, 1986). Additionally, more research attention is still required to examine how reading motivation can inform intervention design and how to explicitly assess the type of motivation that is most effective in promoting engagement and achievement. An example of this type of research is the Finnish Joy for Reading programme (Chapter "Engaging Students in the "Joy of Reading" Program in Finland") that specifically targets the development of reading for enjoyment utilising community-based approach drawing supports on reading from schools, libraries, and clubs in local communities.

While cognitive models have provided an empirical foundation for designing instructional interventions, the effort thus far to transact such knowledge into effective practice has not been consistently effective nor readily realised for students who are at risk of reading failure or who are from disadvantaged backgrounds. Klauda and Guthrie (2015) found that low-achieving students did not benefit from reading motivation as much as typically achieving students did. They argued that the connection between reading motivation and engagement cannot be assumed for

low-achieving or struggling students. Certainly, more studies are needed to help us elicit better outcomes, especially among those students from at-risk categories and different disadvantaged backgrounds. This is particularly important as mounting evidence demonstrates that disadvantaged students from high-poverty backgrounds often lack motivation to read. These children may hold avoidance motivation which reduces their time and effort for reading (Guthrie, Klauda, & Ho, 2013; see also Blackberry & Ng, Chapter “[“Reading was Like My Nightmare But Now it’s My Thing”: A Narrative of Growth and Change of an Australian Indigenous Student](#)”). It is therefore important to examine what motivates these disadvantaged students to read and explore innovative ways to reverse their motivation orientation from avoidance to approach. To do this, there is a need to look closely into not just whether students have developed cognitive enablers such as reading self-efficacy to read, but also to examine what sociocultural conditions and influences support the development of these capabilities. Blackberry and Ng (Chapter “[“Reading was Like My Nightmare But Now it’s My Thing”: A Narrative of Growth and Change of an Australian Indigenous Student](#)”) used a longitudinal case to show how supportive social conditions, including supports derived from the teacher and parent, could sustain reading engagement of an Indigenous student who had previously hidden her genuine interest in reading due to negative peer influences. From a Vygotskian perspective, reading motivation can be viewed as a form of higher mental functioning, with its genesis occurring in the social world. Having teachers, parents, and friends who are motivated to read can be an important social condition that forms an important part of a learning community for promoting reading and reading engagement (see Yamazumi, Chapter “[Engaging Children in Reading Activity Through Collaboration in a Japanese Elementary School: An Activity-Theoretical Case Study](#)”).

## 7 Reading Strategy Research and Critical Reading

To read well and achieve a high level of comprehension, whether it is print-based or online reading, it is critically important for readers to understand and deploy appropriate reading strategies. Paris et al. (1983) proposed the need to develop strategic readers by focusing on selecting appropriate cognitive strategies, monitor their use in light of achieving a specific reading goal, and make appropriate changes in strategic behaviour whenever necessary. Other researchers such as Pressley (1976), Weinstein and Mayer (1986), and Van Dijk and Kintsch (1983) laid the groundwork for investigating cognitive strategies in reading. Reading strategies such as connecting to prior knowledge, creating mental imagery, story maps, questioning, clarifying, summarising, making predictions, inferences, and interpretations (e.g. Pearson, Roehler, Dole, & Duffy, 1992) have been well-documented as effective strategies fluent readers use extensively during the process of reading. There have also been major efforts to combine these strategies into a coherent intervention programme. For example, Palinscar and Brown’s (1984) reciprocal

teaching programme explicitly teaches clarifying, summarising, questioning, and predicting strategies in a small group format to foster and monitor reading comprehension.

Subsequent research has included metacognition and self-regulation as part of students' repertoire of reading strategies. It is important that students know clearly when and how to implement specific reading strategies and exert control over them during the reading process (Paris et al., 1983; Paris & Paris, 2001). For example, in a recent study, Schünemann et al. (2013) combined the teaching of reciprocal teaching and self-regulation in an intervention setting to promote reading achievement among German students.

Another focal area of research on strategy instruction is text structure and structure strategy instruction. Meyer's prose analysis system (1975) has identified different major organisation patterns in expository texts, including description, sequence, compare/contrast, problem-solution, and causation. Understanding the structural properties of text and using this understanding to guide reading comprehension allows readers to guide and structure their understanding of text. Accumulated research evidence supports the contention that text structure instruction facilitates recall, locating main ideas, and writing effectively (e.g. Armbruster, Anderson, & Ostertag, 1987; Bartlett, 2010; Meyer & Poon, 2001; Meyer, Middlemiss, Theodorou, Brezinski, McDougall, & Bartlett, 2002; Williams et al., 2005; see also Chapter "The Potential for Better Outcomes of Looking at What Our Language Tells Us about What We Do When We Read for Memory and Meaning Outcomes" by Bartlett). Learning text structures promotes the development of reading efficacy (Meyer et al., 2002).

A notable trend that occurred in the research on reading strategies was moving from teaching a single strategy (e.g. Pressley, 1976; Singer & Donlan, 1982) to an intervention programme that focused on teaching a set of strategies (e.g. Palinscar & Brown, 1984), and subsequently, on metacognition that helped students use reading strategies effectively. Much improvement has been achieved in these subsequent lines of research focusing on strategy sets and metacognition. There has also been an attempt to link motivation with strategy use. Alexander, Graham, and Harris (1998) argued that reading strategies are not just a form of procedural knowledge, their effective use is purposeful, effortful and requires motivational drive. Different researchers have explored the connection between reading strategy instruction and various forms of motivation such as goal setting (Johnson & Graham, 1997), self-efficacy (Schunk & Rice, 1991), and attribution (Borkowski, Weyhing, & Carr, 1988).

An interesting feature of past studies on reading strategies was that most investigations were conducted using a single piece of mono-modal text in a bounded reading environment. Children were asked to read the text that either they had selected or that was assigned to them, whether in an experimental or classroom setting. This traditional textual environment is different from reading across an array of sites, modes, and sources on the Internet where multiple layers of texts are linked in complex ways. As a result, several key questions are critical for understanding students' reading strategies in a digital world. First, how do children read online texts? How can children read multiple texts drawn from different web pages

or websites? How do they stitch them together with other printed materials to make meaning? How can students be taught to read with a critical orientation to make informed judgements about views and ideas that may contradict each other across multiple websites and discussion forums? Finally, how do children read multimodal texts and construct meaning based on different semiotic modes?

In relation to online reading, researchers such as Leu et al. (2013), Coiro (2007), as well as Cho and Afflerbach (2015) have developed a critical empirical foundation for understanding reading strategies required for comprehending texts online. For example, Cho and Afflerbach (2015) have deduced from a case study a list of important reading strategies, including “explore and select”, “interconnect and learn”, “evaluate and critique”, and “monitor and adjust” that are essential for strategic and critical reading on the Internet.

From a critical media literacy perspective, Luke (2003) wrote about the importance of developing students’ “meta-knowledge of traditional and newly blended genres or representational conventions, cultural and symbolic codes, and linguistically coded and software-driven meanings” (p. 401). In the context of reading online, Lankshear and Knobel (2006) highlighted the importance of meta-knowledge of text veracity, which are critical skills for today’s adolescents who go directly to the Internet to seek information for various purposes. Focusing on text veracity, Braten and Braasch (Chapter “[Key Issues in Research on Students’ Critical Reading and Learning in the Twenty First Century Information Society](#)”) reviewed research in critical reading of source materials and explain the importance of the skills for evaluating source information critically as essential skills in the twenty-first century. They claim that

one viable path to improving students’ critical reading and learning is through developing their source evaluation skills, that is, their ability to judge the credibility or trustworthiness of sources by attending to available or accessible information about the source, such as who authored it or what kind of source it is.

Critical reading strategies are also essential to help children understand why a text on the Internet was created, legitimised, and distributed, and in what ways they may serve other personal and political purposes.

Another concern is what strategies are required for reading multimodal texts, while it can be expected that strategies such as clarifying, connecting with prior knowledge, questioning, summarising, and making inferences and interpretations should apply equally to both mono-modal and multimodal texts. Alvermann and Wilson (2011), using an example from a science lesson, showed that reading multimodal elements in science requires the application of strategies focusing students to make connections, set goals, and distinguish salient and less salient information. It is important to note that children need to be taught about the affordances and limitations associated with each type of semiotic resource.

Another important declarative knowledge about multimodality concerns the relationship between different types of modalities and how images are used to enhance or complement text-based messages. Unsworth (Chapter “[Image-Language Interaction in Text Comprehension: Reading Reality and National](#)”) reviewed research in critical reading of source materials and explain the importance of the skills for evaluating source information critically as essential skills in the twenty-first century. They claim that

Reading Tests”) examines the important links between language and image, and he argues that current assessment design does not given sufficient attention to assessing students’ understanding of image–language interaction. This brings to fore the question of the extent to which multimodality is integrated into school curriculum and classroom teaching.

Reading strategies are cognitive constructs. Their use, however, is always situational and contextual. In other words, the deployment of reading strategies depends on readers’ goals, interest, prior knowledge, and their perceptions of reading in a specific context. Knowledge about reading strategies is not confined to simply knowing a strategy and how to use it, but also includes using these strategies to achieve specific reading goals in a specific context. It is important to raise the question about how children read for different purposes and how different sets of reading strategies are applied in different reading settings. Children and young people, when reading postings and messages on Twitter, Facebook, and WhatsApp, may not always engage in critical reading if what they read is solely for personal enjoyment or other social purposes. It is hard to imagine that children will employ strategies such as comparison and evaluation in a systematic manner when engaging in this form of social reading on the Internet. However, it is possible, and likely in many instances, that children have automated these critical strategies and deploy them without any conscious effort. In either case, there is a need to examine the use of reading strategies for social and entertainment purposes. This kind of research can provide better understanding of children’s everyday reading practices and the extent to which such reading strategies are used in school.

Using a science lesson as an example, Alvermann (2004) argued that multimodal reading and print-centric reading share similar comprehension strategies that focus students on making connection and inferences, setting a purpose for reading, and distinguishing salient and less salient information. Undoubtedly, multimodal reading requires purposeful integration of semiotic resources. The extent to which children can do this effectively seems to rely on: (1) their understanding of the relationship between different types of semiotic modes and materials and (2) their abilities to manage and monitor the meaning making process effectively without being distracted by some of the modes.

In the case of struggling readers who predominantly come from disadvantaged backgrounds, there is a need to research the extent to which they can combine images, sounds, and texts to develop critical understanding of what they can read from different sources. Reading is contextual, and comprehension relies on situating the text in its relevant context. Strategy instruction, to date, has often ignored this important consideration. Given the importance of readers’ abilities to use these strategies across different contexts and reading media in the new century, there is a need to determine if strategies learnt in one context can be applied in another context and to what extent the strategies are modified and what factors are critical for supporting this transfer of understanding.

## **8 Engaging Readers in the Twenty-First Century: What We Need to Know More**

Each of the three fields just reviewed has its own predominant focus. New literacies research concentrates on the impact of new modes of reading enabled by digital devices and online settings. The research on reading motivation and strategy instruction focuses on how to motivate and provide support to enable students to read with interest, confidence, and strategic deployment of appropriate strategies. While significant in their own right, the challenge of developing twenty-first-century readers who are engaged, critical, and strategic in reading both print-based and Internet-based texts warrants a transdisciplinary approach to combine multiple theories and research traditions to develop new conceptual models and research methods to address a shared research problem. Infusing related fields of studies in creative ways enriches our understanding of the nature of reading in the new century and develops an empirical foundation to inform decision-making in relation to what to teach, learn, and assess in reading.

Cho (2013) provided an example of such transdisciplinary research. Cho combined research of intertextuality, reading strategies, and new literacies studies to develop a detailed account of how proficient adolescent readers use different strategies to engage in reading. More generally, the type of research conducted by Cho was foregrounded in a quote by Winograd and Johnston (1987) which appeared at the beginning of this chapter. The quote suggests that an expanded focus of research drawing from different fields of studies benefits subsequent efforts in developing instruction models addressing the shared concern of improving reading in the twenty-first century.

A challenging and demanding research programme can be developed when we draw from these three fields of research. From the perspective of new literacies practices, the question is related to what motivates a person to use a specific set of strategies for reading online and across a number of social media platforms. Empirical answers to this question can provide important insight from children's out-of-school literacy practices using social media and may provide useful pedagogical models for bridging in and out-of-school literacies.

Furthermore, we must ask how different types of motivation are present in various new literacies practices and the ways in which these motivations are linked with strategy use. It is erroneous to assume that all forms of motivation engage children in the same ways, if at all, to read using online resources and new media. In a similar vein, it is erroneous to assume that online resources and new media must be motivating and will drive children to use appropriate reading strategies effectively.

Reading online and contributing to social media communities may require motivation more than enjoyment. Currently, we do not have sufficient empirical knowledge about the factors that contribute to learners' participation in literacies as part of social practice. Lave and Wenger (1991) discussed the notion of legitimate peripheral participation. In this conceptualisation, motivation, in terms of changing

identity and levels of participation, energises individuals in the process of learning and becoming. It seems reasonable to assume that during the process of participation, individuals' sense of self-efficacy, mastery orientations, and personal interest is influenced, and ideally improved. Incorporating a motivation perspective on new literacies research should enable a better understanding of the role of motivation derived from individual perceptions and socially derived influences.

Special attention should be directed at examining children's motivation in using computing technologies and the Internet for reading and writing. The available research suggests that theorising students' motivation in different new media is required in order to understand better motivational properties in the context where these new literacies are applied. The multidimensional conception of motivation is important in these contexts, as reading in daily social practices involves a diversity of reasons and purposes beyond mastery and performance orientations, which are vitally important to reading in school. Expectedly, social motivation, such as maintaining social relations with friends, will be a main form of motivation that drives children and young people to engage in new literacies practices. Nevertheless, we know very little as to how social motivation can be utilised to promote engagement in reading using the Internet and other Internet-based devices in school. This occurs despite the fact that new literacies research was rooted in the conception of literacy as a social practice. Social factors such as relationships, interactions, and goals have not been sufficiently researched in terms of how they promote, develop, and consolidate social practices in new literacies. We consider this important, as language itself denotes social relationships and often the use of language, including word choice, forms, and grammatical structure, is dependent on the type of social relationship and roles assumed by the reader and communicator.

In addition to what motivates children to use new literacies, it is important to raise the question about the extent to which new literacies can motivate reading engagement and improve reading achievement. The likely answer to this question may depend on what we focus on and how new literacies are being used. For example, using an experimental design, we can test a hypothesis that focusing a Facebook community on sharing reading materials and writing about enjoyable reading can motivate their members to read more and write better. In contrast, young people who are members of a Facebook community that focuses on personal hobbies may devote less time to reading, especially reading in school. These examples show that there are opportunities for teachers to use new media to motivate students to read. Nevertheless, equal attention is needed to help young people guard against the potentially distracting influence that new media may have on their reading development.

There is an entrenched belief that computing technologies are inherently motivating to children, and it follows that they should be utilised for promoting reading motivation online. This hypothesis needs verification and is likely to be somewhat of a moving target. Using a new technology may initially be a motivating experience, but with familiarity and repeated use over time, this motivation declines accordingly. In terms of many of the new literacy tools, it is likely that children are motivated by moving images as well as rich colour and animation. Yet, the extent to

which these semiotic resources can sustain reading engagement and enhance meaning making capacity is unclear. The answer to questions such as these are likely to be extremely complicated and nuanced, especially if different types of children who differ by personal attributes, learning orientations, experiences, and knowledge are involved. The interaction effects of these personal variables, including gender, goals, and content knowledge, in the context of online reading remain unexplored. Bringing this discussion to the development of online reading as a social practice, it is important to consider the changing roles of these online reading elements in motivating readers, crafting certain reader identities, and contributing to sustaining a community of practice. For example, some children may just be motivated to read particular type of texts via the Internet. Moreover, we do not know if students' abilities to read critically on the Internet and for school will be undermined if they are exposed to a prolonged period of reading that is brief, multimodal, and involves topics that lack coherent relatedness.

In short, it can be concluded that there are mutual influences between motivation and new literacies practices. On the one hand, children who are motivated to seek out specific reading materials online are driven by their own interest and motivation. On the other hand, online materials and their inherent multimodal characteristics can be an important source of motivation to sustain reading engagement. Future research is needed to explore these mutual influences.

Connecting reading motivation to strategy instruction is also important. Being strategic involves more than the acquisition of a specific set of reading strategies. Paris et al. (1983), in their seminal work on reading strategies, highlighted the importance of goals, tasks, and individual processes for strategy implementation. In the context of reading in the twenty-first century, knowing why one uses specific strategies is important. First, children read for different reasons and goals. Interest, enjoyment, mastery, and achievement are common goals for reading and support the multidimensional nature of reading and reading motivation. In addition, children may want to read to please others, fill in time, or seek information. The list of possible reasons is substantial. An important consideration is that different goals may set off different patterns of engagement that calls for different set of strategies. For example, if a child reads solely online materials related to their personal hobbies, they are likely to persist, try different websites, use different search engines, and scan frequently for materials that address this interest. In contrast, when a child's goal is to complete an assignment which they do not find interesting, they may simply ask their friends to share websites that can help them to complete the task. Alternatively, they may be satisfied with whatever the search engine brings forth for them on the first displayed page. Thus far, research on motivation and strategy use in reading has not adequately taken into consideration students' goals and how these goals influence their use of strategies. It follows that students' deployment of comprehension strategies can be a function of their personal interest on a topic.

In addition, there is a need to better understand the motivation–strategy link from a process perspective. The reciprocal relationship between motivation and strategy use on reading is still elusive. Does the successful deployment of strategies promote



motivation to read? Is such a link mediated by factors such as comprehension level or related achievement scores or a higher sense of self-efficacy?

It is also important to note that capable readers often do not use strategies in a rigid way. They alter their reading strategies depending on the nature of the reading tasks, text genre, their interest, prior knowledge, goals, and other additional resources such as reading with others in a group. Capable readers further alter their strategies when reading for different subject areas. Future research is needed to better understand students' flexible use of reading strategies in different online and offline settings. Linking this to students' motivation, task characteristics, and the extent to which interaction and collaboration are present during the reading process should promote a better understanding of the complexity of motivated and strategic reading using new literacies.

Promoting students' motivated, strategic, and critical engagement during Internet-based reading is important. Directing current research attention deliberately on Internet-based literacy is a value judgement that needs appropriate policy endorsement. This requires more careful planning than that which is currently summoned for designing online assessment of reading performance (OECD, 2016). To advance this line of thinking and policy formulations, there is a need for research evidence supporting the significant role of new literacies in actualising what Tierney, Bond, and Bresler (2006) touted the "genre power" of texts, both printed and online, in terms of cognitive and social possibilities where learners' motivation and strategic skills should form part of the desirable outcomes. Accumulating evidence (e.g. Hagood, 2008) has shown how engagement in specific texts and new media may have an impact beyond just language skills to identity formation and community membership. A related research direction is the effect of collaboration. For example, to what extent, does having a peer read alongside or act collaboratively during a search promote reading performance and deeper engagement? Will the presence of a peer be a source of distraction during online reading?

In a range of natural settings, whether it is at home using a laptop computer or in front of a McDonalds' tablet menu, we have observed dyads work together to achieve the task at hand. It seems that collaboration in everyday literacy practices is an accepted practice. It requires researchers' creative design to incorporate collaboration in developing instructional practices to promote reading online (Leu et al., 2014).

## **9 Concluding Remarks: The Role of Teachers and Intervention**

Ending our discussion, we draw the reader's attention to the important role that teachers play in promoting reading motivation, strategy development, and integrating online reading into their literacy programmes. While much attention has been given to the importance of teachers and teacher intervention, two important areas need additional attention. First, most of the teachers who come to teach do not

have first-hand experience in understanding how disadvantage and poverty may impact literacy development. It is important that teachers understand the constraints that arise from poverty and other forms of disadvantage. In the UK, Ellis (Chapter “[Generating Data, Generating Knowledge: Professional Identity and the Strathclyde Literacy Clinic](#)”) leads this type of work through a literacy clinic where pre-service teachers are provided opportunities to work directly with students from disadvantaged backgrounds. Ellis discusses how such interactions benefit pre-service teachers and their development. Another related concern is how to narrow the achievement gap. Much of the effort to date has focused on basic skills training. To the extent that disadvantaged students are provided limited opportunities to learn advanced literacy skills, basic skills training may unintentionally reinforce students’ deficiency. Innovative designs are required to address the achievement gap (Chapter “[Transforming Literacy Outcomes in High-Poverty Schools: An Evidence-Based Approach](#)”) and to ensure effective dissemination of evidence-based practices (Chapter “[A University-School Partnership Teacher-Teaching-Teacher Intervention Model to Promote Reading in Hong Kong: Issues and Challenges](#)”). In this context, equal attention should be directed at considering the impact of political pressure on teachers to promote stronger reading performance. Political pressures placed on reading, acknowledged three decades ago by Winograd and Johnston (1987), still prevail in today’s reading class. Teachers still struggle with instructional time issues, the use of prescribed curriculum, and attention to high-stakes test outcomes. In fact, it can be said that pressures have intensified as reading performances are used to monitor educational development and to compare educational effectiveness at the systemic level.

The new context of the twenty-first century indeed poses challenges to reading and reading education. To develop capable readers is never an easy task. Autonomous models are incomplete, and new initiatives and understandings are required. In this regard, both basic and applied research is required. Graham and Harris’s work on the reading–writing connection (Chapter “[Reading and Writing Connections: How Writing Can Build Better Readers \(and Vice Versa\)](#)”) points to the possibility of developing new intervention and strategies, connecting reading and writing in purposeful ways to promote literacy development. We expect that more intervention designs will take this integrative perspective, capitalising on benefits of the reading–writing connection.

In conclusion, we extend our discussion to students from various disadvantaged backgrounds who are over-represented in the group of students failing to meet national benchmarks in literacy development across many developed countries. The current practices in Australia and other Western democracies rely on test scores to locate these students and provide them with basic training in essential literacy skills. Such practices ostensibly meet students’ needs, but overly focus on basic skills, thereby actually contradicting the complexity of reading and writing in the twenty-first century. Such an approach fails to take into account constraints and affordances surrounding the literacy development of these students. There is certainly a need to understand “*what* people do with literacy” (Barton & Hamilton, 2000, p. 7) at school, outside school as well as online. Just as importantly, we need

to know more about *why* and *how* people read and write in specific ways, highlighting the importance dynamic and social approach to reading that goes beyond the text or the media itself. We hope the discussion in this chapter sparks cross-field interest in developing new models of literacy engagement that captures how children's motivation, strategies, and interactions come into play across both print-based and online reading settings.

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**Part II**  
**New Literacies and Critical Reading**

# Advancing Reading Engagement and Achievement through Personal Digital Inquiry, Critical Literacy, and Skilful Argumentation

Julie Coiro

**Abstract** This chapter outlines three interconnected lines of work conducted in the USA to advance reading engagement and achievement from a new literacies perspective of online research and comprehension. These areas focus on developmentally appropriate practices for supporting educators and learners as they use the Internet for personal inquiry, active citizenship, and the exploration of controversial issues from multiple perspectives. Emerging work in all three areas can help re-envision reading instruction to better address continuing gaps in achievement and motivation among diverse learners and the cultural shift that new technologies and online inquiry have brought to our conceptions of teaching and learning in a digital age.

**Keywords** Personal digital inquiry · Critical literacy · Critical evaluation · Motivation · Argumentation · New literacies · Digital literacy · Online inquiry · Reading engagement

## 1 Contextualising Reading Instruction in a Knowledge Society

‘Knowledge societies process information and knowledge in ways that maximise learning, stimulate ingenuity and invention, and develop the capacity to initiative and cope with change’ (Hargreaves, 2003, p. 3). In today’s knowledge society, we run the risk of losing students, emotionally and even physically, unless we move beyond an industrial model of universal schooling towards a new era focused on

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lifelong learning and individual choice (Collins & Halverson, 2009). Optimistically, the National Research Council (2012) suggests, if we engage learners with rigorous academic content while expecting them to understand why, when, and how to apply knowledge in order to answer questions and solve problems, these efforts ‘could lessen the achievement gap... and...lead to positive adult outcomes for more young people, independent of any increases in their years of schooling’ (p. 190). In fact, a recent study found high school students who engaged in these ‘deeper learning’ opportunities demonstrated higher levels of interpersonal and intrapersonal skills and were more likely to graduate on time (American Institutes for Research, 2014). These successes, in turn, can lead to better outcomes in every aspect of life, including academic, career, civic, and health (Center for Public Education, 2009).

Focused attention to promoting academic outcomes connected to reading, writing, and literacy is particularly crucial in a knowledge society that requires learners to be more critical (Flanagin & Metzger, 2010), innovative (Wagner, 2012), and globally conscious (Friedman, 2007). Yet, in 2004, eight million US adolescents were considered illiterate (Biancarosa & Snow, 2004). And while overall scores in US reading achievement have increased slightly in the last decade, 31% of fourth graders and 24% of eighth graders in 2015 still cannot read at basic levels (National Center for Educational Statistics, [NCES], 2015) and only 35% of all U.S. eighth graders read at proficient (31%) or advanced (4%) levels. In addition, more than twice the numbers of white, economically advantaged students perform above the basic level as their economically disadvantaged peers (NCES, 2015). Further, the percentage of white students at or above proficiency levels dropped two points from 2013 to 2015, as did the percentage of students whose parents had some education or had graduate from college.

Perhaps even more worrisome are recent trends in student engagement. Results from the annual Gallup Poll of almost 1 million US students (see Brenemann, 2016) showed that only 50% of students reported being engaged (involved in and enthusiastic about school) and 21% of students were fully disengaged. According to the survey, engagement declines in every grade, beginning in grades five to six before bottoming out in grade 11. From 2012, engagement levels at each grade had decreased across the board, and active disengagement had risen in that time from 16 to 21% of respondents.

Having the skills, strategies, and dispositional mindsets to engage with, comprehend, and use information will play a central role in our students’ success in a digital information age. Without the ability to understand and use information technologies, our students will be unable to compete with students in other countries currently being prepared for life and work in a global information economy (Friedman, 2005). The rest of this chapter outlines three interconnected lines of work conducted in the USA to advance reading engagement and achievement from a new literacies perspective of online research and comprehension.

## **2 Advancing Reading Engagement and Achievement from a New Literacies Perspective of Online Research and Comprehension**

### ***2.1 Understanding a New Literacies Perspective of Online Research and Comprehension***

Research in online reading comprehension is informed by theoretical work in new literacies (Coiro, Knobel, Lankshear, & Leu, 2008). Broadly conceived, a new literacies perspective argues that the nature of literacy and learning is rapidly changing and transforming as new technologies emerge. While there are many perspectives associated with the term *new literacies* (e.g. Cope & Kalantzis, 2000; Gee, 2003; Hull & Schultz, 2002; Kress, 2000; Lankshear & Knobel, 2003, 2006; New London Group, 1996; Street, 1998), the most recent theoretical review of this work (Coiro et al., 2008) concludes that most share a set of common assumptions: (1) new skills, strategies, dispositions, and social practices are required by new technologies for information and communication; (2) new literacies are central to full participation in a global community; (3) new literacies regularly change as their defining technologies change; and (4) new literacies are multifaceted and benefit from multiple points of view. Results from investigations (e.g. Buckley-Marudas, 2016; Colwell, Hunt-Barron, & Reinking, 2013; Dwyer, 2012; Kingsley & Tancock, 2014; Larson, 2009; O'Brien, Beach, & Scharber, 2007) framed in a new literacies perspective have challenged existing classroom practices in literacy education.

Within this broader context of new literacies theory and research, a new literacies perspective of online research and comprehension (Leu, Kinzer, Coiro, Castek, & Henry, 2013) frames online reading comprehension as a self-directed process of constructing texts and knowledge while engaged in at least five sets of important online practices. These include reading to define important questions; reading to locate relevant information; reading to critically evaluate information for accuracy, reliability, and stance; reading to synthesise information across multiple sources; and reading and writing to communicate their findings to others. Research points to evidence suggesting these practices require new literacy skills and strategies over and above those required when reading and learning from printed books (see Afferbach & Cho, 2009; Cho & Afferbach, 2015; Coiro, 2011; Coiro & Dobler, 2007; Hartman, Morsink, & Zheng, 2010; Zhang & Duke, 2008).

Thus, there is growing understanding about the nature of students' difficulties associated with online research. In addition, comprehension and pedagogical solutions for helping students to overcome these challenges have begun to emerge (e.g. Castek, Coiro, Henry, Leu, & Hartman, 2015; Dwyer, 2012; Kingsley & Tancock, 2013). In this chapter, I have outlined three interconnected lines of work conducted in the USA to advance reading engagement and achievement from a new literacies perspective of online research and comprehension. These areas focus on

developmentally appropriate practices for supporting both educators and learners as they use the Internet for personal inquiry, active citizenship, and the exploration of controversial issues from multiple perspectives.

## ***2.2 Engaging Students in Personal Inquiry and Online Research***

This first area of work focuses on supporting educators as they consider ways of implementing inquiry-based learning experiences in K-12 classrooms. Developed collaboratively with my colleagues Jill Castek and David Quinn, this relatively new thread of work in new literacies seeks to conceptualise what teaching and learning looks like as part of interest-driven digital inquiry practices in an age of accountability (see Coiro, Castek, & Quinn, 2016). Up to this point, our efforts have been twofold. First, we have woven together a set of theoretically informed principles to create a Personal Digital Inquiry (PDI) Framework and pointed to research suggesting that literacy instruction, within this framework, can actively involve students in deep, authentic, and personally relevant learning experiences while also fostering academic achievement, reflection, and civic engagement. Second, we have aligned several existing exemplars of classroom practices in elementary and middle school settings to the PDI framework in order to provide tangible evidence of how teachers can strategically balance meaningful ways of using technology for a range of literacy learning purposes. In turn, we believe these classroom exemplars help anchor the PDI framework in current theory and research while serving as a springboard to inspire practical ideas for implementation in other classrooms.

### **2.2.1 A Framework for Personal Digital Inquiry**

The essence of our framework for PDI is built on a set of problem-solving practices during which students (1) inquire; (2) collaborate and discuss; (3) participate and create; and (4) reflect. While connected to familiar literacy practices supported by theory and research, the PDI framework also integrates classic and contemporary principles of inquiry-based learning (Bruce & Bishop, 2008; Dewey 1997/1938) with elements of cognitive apprenticeship (Collins, Brown, & Holum, 1991), connected learning (see [dmlhub.net/](http://dmlhub.net/)) and design thinking (see [www.designthinkingforeducators.com/](http://www.designthinkingforeducators.com/)).

At the core of a PDI framework is inquiry. Bruce & Bishop (2008) define inquiry as ‘learning that starts with lived experience ... where people actively shape their own learning as they work on real problems within their own communities’ (p. 704). We, too, believe that learners grow and change with opportunities to identify problems in their community, generate personal wonderings and engage in collaborative dialogue around these problems, and apply their new knowledge by

acting out solutions in ways that transform thinking. Offering learners space to generate their own wonderings about these problems helps them connect their own interests to real-life issues in ways that can lead to real change (Alberta Learning, 2004; Hobbs & Moore, 2013). In turn, opportunities for purposeful, self-directed inquiry become personally fulfilling learning experiences (Pink, 2009).

The other components of our framework call attention to several interconnected practices that enable students to merge the Internet's networking and knowledge building resources with the problems they seek to solve. A focus on collaboration and discussion is prompted by research that suggests today's learners prefer and expect opportunities to collaboratively construct meaning and support each other's thinking in ways that lead to action (Schofield & Honore, 2010). Consequently, previously recommended instructional practices such as collaborative reasoning (Wu, Anderson, Nguyen-Jahiel, & Miller, 2013), reciprocal teaching (Palincsar & Brown, 1984), and concept-oriented reading instruction (Guthrie, Wigfield, & Perencevich, 2004) should now be expanded to encompass the complexities of learning how to satisfy one's personal wonderings while working with peers in complex digital spaces. Online inquiry, for example, involves searching for and consolidating ideas across a large and diverse set of digital texts and selecting from an endlessly growing set of digital tools to access, compare, and organise solutions around potentially controversial ideas. Our PDI framework seeks to help teachers envision ways to foster collaboration and discussion that leads to knowledge acquisition, knowledge building, knowledge expression, and knowledge reflection.

Inquiry ideally leads to student action, through both creation and participation, which Casey (2013) argues is the ultimate goal of learning. When students investigate personally meaningful problems within their community, they often want to make positive changes or build awareness by creating a digital product (Hobbs, 2011; Jenkins, 2008). Through participation, individuals assert their autonomy and ownership of learning; in turn, their inquiry becomes more personal and engaging (Pink, 2009; Zhao, 2012). Ultimately, creation and participation are essential for knowledge construction and identity development as inquiry shifts from learning about to learning-to-be (Brown, 2005; Dewey, 1997/1938). Furthermore, opportunities to explicitly connect home, school, and community in meaningful ways can help build social networks and stronger bonds between academic content and student interests (Ito et al., 2013).

The final element in our PDI framework involves reflection, which can also be viewed as the beginning of inquiry. While inquiry is associated with the search for a comprehensive answer, ideally inquiry should also lead to a student's next burning question (Thomas & Brown, 2011). Reflecting on action enables students to reframe problems, identify gaps in their knowledge, and decide what additional inquiries may be necessary (Casey & Bruce, 2011). Reflection also challenges students to deeply consider the social and ethical impacts of their creations and ideas (Hobbs, 2010). Providing time and space for reflection as part of PDI is critical for students as they meta-cognitively consider content learned, examine the processes used to apply this knowledge to solve an authentic problem, and mull over the choices they made to improve the process for future action (IDEO, 2012).

### 2.2.2 Designing Pedagogical Practices to Support Digital Inquiry

One way to carefully consider the role that technology can play in PDI is to conceptualise instructional decisions along two dimensions that highlight the integral relationship between pedagogy and technology use. A first dimension of the PDI Framework situates classroom inquiry experiences within one of four gradually less restrictive levels of support that teachers can use to encourage inquiry-based learning while also accomplishing curricular or participatory learning outcomes. These varied levels of support seek to transition learners through phases of modelled inquiry, structured inquiry, guided inquiry, and, ultimately, open inquiry, as defined below (adapted from Alberta Learning 2004):

- *Modelled inquiry* is where learners observe models of how the leader makes decisions. This might be the sole purpose of an inquiry experience or the leader might model specific practices while explaining to students what is expected of them in less supported phases of inquiry.
- *Structured inquiry* is where learners make some choices, but the overall guidelines and structure are still primarily shaped by the leader. Structure often varies according to student age, abilities, and interests.
- *Guided inquiry* is where learners begin to make more choices in the inquiry process and the direction of projects may begin to look quite different from one learner to the next. Leaders provide specific prompts and support when needed to facilitate deeper learning and reflection in the context of students' self-directed inquiries.
- *Open inquiry* is where learners make all of the decisions and the focus is based primarily on their interests, wonderings, and goals. There is little to no guidance from the leader.

In many ways, this gradual release of responsibility mirrors phases of balanced literacy instruction that guide learners through modelled, shared, guided, and independent reading experiences matched to their individual needs. Inherent in our PDI framework is the understanding that learners grow and move through these levels at different speeds. Similar to literacy instruction, instruction around inquiry is differentiated to meet the changing needs of all students. Notably, students engaged in inquiry-based learning become more creative, more positive, and more independent in ways that prepare them for problem-solving and lifelong learning (Kühn, 1995). Thus, these four levels of inquiry provide tangible approaches for how one might structure classroom digital inquiry experiences for a variety of learners.

### 2.2.3 Varying Purposeful Technology Use to Support Digital Inquiry

A second dimension of the PDI Framework guides teachers in how to choose meaningful uses of technology for different teaching and learning purposes. When

making these decisions, Harris and Hofer (2009) recommend an activity types approach whereby digital applications are not selected until learning goals and activity types are finalised. Activity types capture what teachers and students do when engaged in a particular learning-related activity. Informed by Harris and Hofer’s approach, at least four activity types are worth considering as part of digital inquiry. These include activities that provide students with opportunities for knowledge acquisition, knowledge building, knowledge expression, and/or knowledge reflection, as defined in the left column of Table 1. For each type of activity, Harris and Hofer stress the value of combining individual activities and corresponding uses of technology into more complex projects and learning units.

To simplify ways of thinking about how technology might be used to deepen knowledge as part of inquiry, we adapted Hammond and Manfra’s (2009) three-part pedagogical model of giving, prompting, and making. From their perspective, teachers use technology according to their instructional needs. Notably, Hammond and Manfra acknowledge how these three pedagogical structures coincide with Harris and Hofer’s (2009) activity type structures to suggest pedagogical stances for eliciting knowledge building and knowledge expression. Thus, the PDI framework helps envision how four curricular-related purposes of technology use can be paired with four knowledge-based learning outcomes and woven into one or more phases of digital inquiry practices. Ultimately, choices in inquiry-based learning can

**Table 1** Connecting knowledge-based learning outcomes and curricular-related purposes of technology use in personal digital inquiry experiences

Knowledge-based learning outcome	Curricular-related purposes of technology use
Knowledge Acquisition—Students acquire information as a first step towards knowledge building	Teachers Giving: Teachers use technology to give information through direct instruction or via digital resources such as text and video. Typically, students are passive participants who acquire knowledge of key content
Knowledge Building—Students build content and process knowledge	Teachers Prompting: Teachers use digital tools, prompting questions, and a carefully selected set of materials to prompt active engagement with content. The goal is to guide and support students towards actively building their knowledge
Knowledge Expression—Students develop and express their understanding of content or a given topic	Students Making: Students use digital tools and technologies to make or create new content as a means of expressing convergent knowledge (their similar understanding of content) and/or divergent knowledge (their unique interpretation of content). Often, one student’s knowledge product becomes part of new content for other students.
Knowledge Reflection – Students privately and publicly discuss what they bring to the content and what ideas they constructed as they interact with content	Students Reflecting: Students use digital tools and networked technologies to examine content learned and reflect on choices made during inquiry in order to improve the process for future action



progress from teachers using technology for giving information and prompting knowledge building towards students actively using technology to make and reflect on new content.

### 2.2.4 A Personal Digital Inquiry Planning Guide

Many teachers are discovering the power of PDI in elementary and middle school settings. In our article (Coiro et al., 2016), we map out several lessons of how teachers from kindergarten to sixth grade are engaging students around the core components of a PDI framework. Informed by these lessons, teachers can use the planning guide in Table 2 to design inquiry-based digital learning experiences that best meet their needs. To use the guide, one would first list key curricular and/or participatory learning outcomes in the left column of the organiser and then use elements in the middle column to arrange initial learning opportunities into one or more phases of digital inquiry. After considering important outcomes and respective learning opportunities, specific tools and technologies can be listed in the right column to provide students differentiated opportunities to access information, build knowledge, and ultimately make and reflect on their inquiry processes and digital products. In this way, teachers can begin to build their own curriculum-based models of how personal inquiry, online research, and digital tools can connect and engage young learners in ways that matter.

### 2.2.5 Promising Practices Around Personal Digital Inquiry

Our next steps in this area of work involve collecting evidence focused on the extent to which classroom ecologies grounded in principles of PDI foster engagement, literacy learning, and student agency. To that end, we have begun actively engaging educators, librarians, and media professionals from around the world in a series of collaborative and interdisciplinary professional development opportunities anchored in the principles of PDI (see Hobbs & Coiro, 2016). As part of the Summer Institute in Digital Literacy at the University of Rhode Island (which has now expanded into the Graduate Certificate in Digital Literacy), educators learn from and with each other, using inquiry, collaborative dialogue, reflection, and participatory action to design transformative learning experiences with digital media and technology.

**Table 2** Planning guide for designing digital inquiry experiences aligned to relevant learning outcomes and purposeful uses of technology

Learning outcomes	Inquiry practices	Purpose of technology use for teaching and/or learning
Curricular outcomes: Participatory outcomes:	Inquire: Collaborate and discuss: Participate and create: Reflect:	Giving: Prompting: Making: Reflecting:

During the institute, participants are introduced to key theories of digital literacy in the context of this inquiry-learning paradigm, with time to experiment with and explore a wide range of digital texts, tools, and technologies. They collaborate with a partner to create a project-based inquiry unit that enables them to demonstrate their digital skills in the context of an authentic and situated learning. By using the #digiURI hashtag via social media, they also become part of an online community of learners. All participants take part in sharing their knowledge to demonstrate that everyone has something to share and learn from everyone when it comes to the use, analysis, and creation of digital media texts, tools, and technologies (see more at <https://goo.gl/61wpO2>).

At the institute, participants deepen their understanding of digital literacy while developing practical skills in accessing, analysing, and creating with digital media. In addition, they leave the institute equipped with the PDI planning framework and many examples of PDI projects across disciplines and grade levels to guide and inspire their work back in the classroom. Most importantly, many participants experienced a dramatic shift in their confidence with digital tools and technologies that also extended to confidence in (a) collaborating with colleagues and peers on curriculum activities, (b) implementing digital literacy projects with students, (c) exploring and using new digital texts, tools, and technology independently, and (d) offering formal or informal staff development programs to educators (Hobbs, Coiro, Friesem, & Viens, 2015).

Next, we plan to follow our summer institute participants (and others) into their teaching contexts to explore the impact of their own understanding of the PDI process on the learners with whom they work. In addition, to validate and enrich our PDI framework, we have begun to analyse content in published studies involving teachers who embrace new literacies and inquiry-based learning approaches (e.g. Buckley-Marudas, 2016; Kingsley & Tapscott, 2014; O'Brien et al., 2007). This work will help us explore the extent to which components of our PDI planning guide align with research-based recommendations of how to structure engaging and productive literacy learning opportunities in digital contexts.

### ***2.3 Expanding Online Inquiry with Critical Literacy Practices***

A second area of promising work in new literacies focuses on how to support and encourage students to take a more active and critical role in their own learning while interacting with a wide range of texts, images, and digital sources. These efforts have evolved over the past ten years while working closely with members of The New Literacies Research Team at the University of Connecticut, including myself, Donald Leu, Jill Castek, Elena Forzani, and Cheryl Maykel, in two large research initiatives funded by the Institute of Education Sciences (see Leu, Kulikowich, Sedransk, & Coiro, 2009; Leu & Reinking, 2005). More recently, my thinking has also been enriched by collaborations with Renee Hobbs, from the

University of Rhode Island, and two international colleagues: Carita Kiili from the University of Jyväskylä in Finland, and Carla Coscarelli, from the Universidade Federal de Minas Gerais in Brazil.


Much of this work has been grounded in the idea that new online texts, activities, and social contexts demand a broader understanding of how reading comprehension is defined and enacted (Coiro, 2003). In particular, the ability to read and evaluate the quality of online information presents challenges that are different from traditional print sources. The content of online information is even more diverse and commercially biased, and novel techniques are required to assess information credibility (Center for Media Literacy, 2005; Flanagin & Metzger, 2010). For instance, promotional efforts and related advertising may be more difficult to differentiate on the Internet than in print and other mass media forms (Fabos, 2008). Others cite the lack of uniform standards and cues regarding document type in online text environments as necessitating a renewed interest in how students critically evaluate online information (see Britt & Gabrys, 2001; Rouet, Ros, Goumi, Macedo-Rouet, & Dinet, 2011). Moreover, students may know about strategies for evaluating online sources, but they may not put this knowledge into action, even when asked to do so (Hogan & Vernhagen, 2012). Insights gained from typical assessments that ask students to list critical appraisal criteria or provide self-reports, as indicators of their skills do not give sufficient evidence of students' actual performance and/or growth over time. As Hogan and Vernhagen (2012) explain, 'more direct measures of critical appraisal skill and knowledge need to be developed to assess the outcomes of information literacies instruction' (p. 10).

In this context, and prompted by the absence of reliable and valid assessments of how readers judge the quality of online information, The New Literacies Research Team developed a range of Online Research and Comprehension Assessments (ORCAs) in a variety of formats and used them to estimate the online reading comprehension abilities of a diverse population of over 1700 seventh graders in language arts and science classrooms (see Castek & Coiro, 2015; Leu, Forzani, Rhoads, Maykel, Kennedy, & Timbrell, 2015; Leu, Kulikowich, Sedransk, & Coiro, 2009). More details and video examples of these scenario-based assessments are available at <http://www.orca.uconn.edu/professional-development/show-me/show-me-overview/>


Although the scope of this work extends far beyond the ideas in this chapter, a key set of skills and strategies measured by the ORCAs included students' ability to read and evaluate the level of accuracy, reliability, and bias of online information as part of an information problem-solving scenario. More specifically, after searching and summarising relevant information from four websites into a digital notepad, students were sent back to one of the websites and asked four questions, via a chat box (see Fig. 1), about the quality of information at that particular website. The four questions were designed to measure students' ability to determine the author of the given website, the author's level of expertise, the author's point of view, and the overall reliability of the website. Findings from this work are summarised next, followed by four instructional recommendations for how to better support adolescents in thinking critically about information they encounter online.

**Fig. 1** Chat window with four critical evaluation items (prefaced with beaker icon) and student responses (prefaced with basketball icon)


**Chat**
✕




HEY. This is Jordan. You have completed 75% of the activity. Very nice!!!




Can you tell us who is the author or creator of this website, *Energy Drinks Are Popular But Are They Healthy?*




To go to the website [click here](#)




Tim Maxey




Is Tim Maxey an expert on energy drinks or heart health? How do you know?




He is a head strength and conditioning coordinator. I know this because it says this under his name.




What is the author's point of view? How does the author's point of view affect the words and images that are used at this site?




The author feels that energy drinks are bad for you. The words on the sight are all about how energy drinks could be bad for you and that there is little evidence that they are good for you.



Is the information at this website reliable? How do you know?



This information might not be reliable because it is a blog, not a fact website.



Thank you for your help. Please minimize this chat window now by clicking on the blue bar at the top. If you need the information later, you can click on it and open it up.

### 2.3.1 Challenges Online Readers Face When Judging the Quality of Online Information

Participants in the ORCA study ( $n = 773$ ) were from classrooms in a stratified random sample involving schools in 42 different districts from two states in the USA (see Forzani & Burlingame, 2012). They represented a diverse range of ethnic and socio-economic backgrounds and achievement levels of state reading comprehension assessments. Overall, findings indicated that 17% of students struggled to identify the website author's name; 69% struggled to determine if the author was an expert and provide an acceptable reason why; 80% had difficulty stating the author's point of view and how it affects words and images at the site; and 75% were unable to clearly articulate their judgements about the overall reliability of a website.

Follow-up qualitative analysis (see Coiro, Coscarelli, Maykel & Forzani, 2015) suggested middle school students are more concerned with content relevance than with credibility and they rarely attend to source features such as author, venue, or publication type to evaluate reliability and author's perspective. Moreover, analyses indicated that when younger adolescents do refer to source features in their explanations, their judgements are often vague, superficial, and lack reasoned justification. Others have observed similar shortcomings among middle school students (Barzilai & Zohar, 2012; Coiro, 2007) as well as among high school and college students (Goldman, Braasch, Wiley, Graesser, & Brodowinska, 2012; Killi, Laurinen, & Marttunen, 2008; Walraven, Brand-Gruwel, & Boshuizen, 2009; Zhang & Duke, 2008) asked to judge the quality of online information.

### 2.3.2 Particular Areas of Difficulty

Students in the ORCA study (Coiro et al., 2015) appeared to be especially challenged in at least three areas related to thinking critically about information they read online.

*Judging an author's level of expertise in relation to a specific topic or area of work.* When students were asked to determine whether or not an author of a website is an expert in the area in which he/she is writing, and explain how they know, 31% of their responses included both a clear decision about author expertise and relevant comments about an author's occupation, level of education, affiliation, knowledge, and/or number of years working in that field. However, more than half (51%) of the responses did not reflect any particular criteria for evaluating author expertise. Instead, incorrect responses reflected students using strategies more useful for judging the quality of information rather than author expertise (e.g. 'No, because it is just her blog'; 'She gives a lot of inside info and statistics'). Other incorrect responses appeared to equate topical relevance or completeness with expertise (e.g. 'He knows everything about asthma'). Many other responses to this question were vague or irrelevant (e.g. 'The author knows what he is talking about'; 'It says there was research in Massachusetts'), suggesting students may benefit from guidelines in

how to reason about and more explicitly articulate their thinking about an author's level of expertise.

*Understanding consequences of an author's affiliation and point of view.* Many students in our sample (43%) were able to identify the author's point of view, but most (80%) had difficulty when asked to use details about words or images on the website to discuss the author's point of view. Correct responses (20%) included an accurate interpretation of the author's point of view as well as a clear description of how it affected the words and/or images used (e.g. 'He is against energy drinks. He communicates this through some negative word choices and a slightly scary picture of a whistle'). More often, however, responses did not make any specific connections to word or pictures that would help infer point of view (e.g. 'The author's point of view is that he is against video games because of eye strain. It affects it by proving his point'). Some students (9%) confused an author's point of view about an issue with the narrative point of view with which an author might write a story (e.g. 'third person'), and others (4%) included comments that more accurately reflected an author's purpose as opposed to his/her point of view (e.g. 'She wants to teach people how to be heart healthy'). These types of responses suggest students may not clearly understand the differences between details used to determine the author's main points and those used to determine an author's point of view. This is an important first step towards being able to critically reflect on how authors profile and position their audiences and make conscious decisions about whether, when, and how information is shared or represented to those audiences.

*Providing reasoned evidence to support judgements about information quality.* When asked 'Is the information at this website reliable and how do you know?' only 25% of responses included *both* a clear decision about a website's reliability and a correct and sufficient explanation of their reasoning. Acceptable reasons typically considered level and type of author expertise, amount of scientific evidence, and/or some aspect of source corroboration. More often, however, students' judgements about website reliability were informed by inaccurate or generalised assumptions of Internet sources, regardless of the site's content (48%). For instance, the response 'You can't tell because anyone can put anything on the internet', suggests it is never wise to trust information you find on the Internet. Another student wrote, 'No, the website says .com which means anyone can write it', suggesting that acknowledging the type of website is sufficient for making judgements. A third student explained, 'No it's not, because there is no organisation stating that it is reliable'. This response suggests some students expected to be told explicitly about the reliability of information at a website; moreover, it appears that if told that it was reliable, they would automatically believe any author's claim to be true.

Other students in our study (10%) used naïve- or surface-level criteria to justify reliability judgements (e.g. topical relevance, textual features, presence of copyright date, and the domain name) and 10% of students based their judgements about information reliability solely on their own experience or the author's personal experience, rather than referring to one or more pieces of source-based or text-based evidence from the website. These findings suggest students would likely benefit

from learning how to combine several appropriate indicators into a reasoned justification for their judgements about the quality of information they find online.

### 2.3.3 Strategies for Supporting Close and Critical Reading of Online Texts

In addition to learning more about how to assess online reading skills, classroom interventions from an earlier project funded by the Institute of Education Sciences (Leu & Reinking, 2005) also provided opportunities to explore the potentiality of specific lessons designed to support students as they evaluate online sources. A collection of these lessons and others developed since then can be found at The ORCA Project website at <http://goo.gl/AS4Qpt>. At least four important insights about critical literacy instruction have emerged from work on this earlier intervention project, Teaching Internet Comprehension to Adolescents [TICA] (2005–2008), and more recent findings from data collected in the ORCA Project (2009–2015).

*Talk with students about multiple dimensions of critical evaluation.* A first important step in building critical reading skills is making time for students to clearly define, discuss, and compare terms including relevance, accuracy, bias/perspective, and reliability. They should notice that evaluating relevance and accuracy involves considering the quality of the content itself. In contrast, judgements about perspective and reliability require an examination of details about the author and his or her agenda in relation to a specific affiliation. Understanding these differences provides a concrete way to remember that any judgement should be informed by a critical examination of both relevant claims and an author's level of expertise to make those claims (see more at <http://goo.gl/mgxTGt>).

*Encourage students to use multiple and versatile indicators of reliability when judging the quality of information.* Skilled evaluators of online information spontaneously combine several different types of evaluation strategies during online inquiry. The most versatile evaluators weave together judgements about information relevancy and credibility as they search for and read within and across websites (see more at Kiili, Laurinen, & Marttunen, 2008). More attention should be focused on instruction that helps students understand how to reason across multiple indicators and apply more cognitively demanding strategies, such as comparing texts at the inter-textual level or judging the quality of an author's argumentation.

*Model strategies and mindsets for dealing with conflicting information.* Think-aloud strategy instruction can make explicit reading and thinking strategies that are useful when reading across informational websites and a networked set of primary and secondary sources written from multiple points of view. In particular, adolescents can benefit from guided conversations about how to verify and refute online information, how to detect bias and stance, and how to weigh the usefulness (and reliability) of new ideas against previous beliefs (see more in Castek, Coiro, Guzniczak, & Bradshaw, 2012). Increasing students' levels of metacognitive awareness about how to negotiate multiple perspectives can foster a deeper understanding of disparate online texts (Coiro, 2011). In addition, explicit

instruction can help students of any age apply problem-solving mindsets to how they approach, navigate, monitor their understanding of, and respond to information they encounter online (Coiro & Putman, 2014).

*Actively engage students in participatory literacy activities that give them voice and agency in their own learning.* Absent from most work around online critical evaluation skills (including my own) are discussions about how readers move from being critical consumers of online information to critical producers of digital texts. Working with my colleague Renee Hobbs (see Hobbs, 2011; Hobbs & Moore, 2013) has illuminated the power of using student expression through digital composition as a means of moving readers towards actively voicing their opinions about texts and thinking critically beyond the text. In turn, these digital composition experiences can help learners to establish their identity as active citizens by creating tangible and motivating opportunities to make a difference in their community or world (see also Kupiainen, 2013; Lenski, 2008). Further, critical literacy assignments with digital tools can help make digital literacies and rigorous national standards more relevant to students (Avila & Moore, 2012). Moving forward, Freebody & Luke's (1990) Four Resources Model can be a useful framework for helping teachers integrate foundational and digital literacy instructional practices designed to develop not only skilled code breakers and text participants, but also proficient users and critics of print and digital texts (see more in Honan, 2003; Santoro, 2004; Serafini, 2012).

## ***2.4 Engaging Students in Skilled Argumentation***

A third area of promising work in new literacies of online research and comprehension involves investigating the potentiality of a newly developed set of digital scaffolding tools designed to support secondary students' online exploration of controversial issues and their writing of an argumentation essay (Coiro & Kiili, in process). On the Internet, answers to most open-ended problems are rarely found from a single source. Students encounter diverse sources with different purposes and quality of information (Kuiper et al., 2005). To effectively integrate and reconcile competing points of view while making sense of controversial issues, learners require skills in organising, evaluating, comparing, and contrasting information drawn from multiple sources (Britt & Rouet, 2012). Thus, the ability to recall and summarise single texts is not enough. To truly understand complicated issues in society, students need to move beyond their own perspective and form a representation that reflects multiple perspectives (Barzalai & Zohar, 2012). Unfortunately, recent research has shown that many students engage with online sources in a superficial and uncritical manner (see Walraven et al., 2009) and fail to see the connections within and across different types of sources (Barzalai & Zohar, 2012). These students in particular may benefit from digital scaffolds that support them through these complex cognitive processes.



### 2.4.1 Design Features of the Online Inquiry Tool

The design of the Online Inquiry Tool (Kiili, Coiro, & Hämäläinen, 2016) is grounded in principles associated with theories of online research and comprehension, argumentation for learning, representational guidance, and cognitive load. First, elements within the interface are designed to guide students as they engage with the challenging online research and comprehension practices associated with questioning, locating, evaluating, synthesising, and communicating learned information to others. Second, the tool's design assumes the critical role that argumentation plays in students' deep-level understanding of content and learning (Kruger, 1993; Nusbaum, 2008). Argumentation is particularly important when students explore open-ended questions with many alternative solutions and views of different stakeholders (Marttunen & Laurinen, 2006).

Third, Suthers' (2003) theory of representational guidance suggests representational tools can provide elements that help learners construct, examine, and manipulate external representations of knowledge. Graphical representational tools may also help learners frame their conception of the task, make more explicit their relations between arguments (Suthers, 2001), and monitor their progress in the task (Veerman, Andriessen, & Kanselaar, 2002). With this in mind, the Online Inquiry Tool was designed to support students as they read, analyse, evaluate, and synthesise argumentative digital sources while engaged in online inquiry around controversial issues.

Fourth, the interface of our digital scaffolding tool (see Fig. 2) has been kept as simple as possible in order to minimise any extraneous cognitive load (Van Merriënboer & Kirschner, 2007). This is because online reading itself already imposes a heavy cognitive load on learners. Online readers are expected to negotiate and organise multiple complex cognitive processes (Brand-Gruwell et al., 2005). In addition, many features of online hypertext structures have been found to increase cognitive load demands (DeStefano & LeFevre, 2007). Consequently, the Online Inquiry Tool was specifically designed to optimise germane load, or the effort associated with processing new schema to construct a cohesive synthesis (Chipperfield, 2006). That is, the online synthesis process is sequenced so that students can concentrate on creating a synthesis of one perspective at a time using a limited set of source documents. Then, when students compose their final, concluding synthesis across multiple perspectives, the tool enables them to take advantage of efforts to synthesise previous information on a smaller scale without having to hold in their memory the set of documents they encountered at each different point in their research.

Because source evaluation is a crucial part of generating a synthesis of multiple documents (Britt & Rouet, 2012; Wiley et al., 2009), traffic lights next to each source box prompt students to judge the trustworthiness of their sources. First, students select the most fitting traffic light—green indicates the source appears to be reliable, yellow warrants some degree of caution, and red suggests the information/source may not be reliable. Then students are asked to justify their evaluations in a pop-up box that appears after choosing the appropriate traffic light.

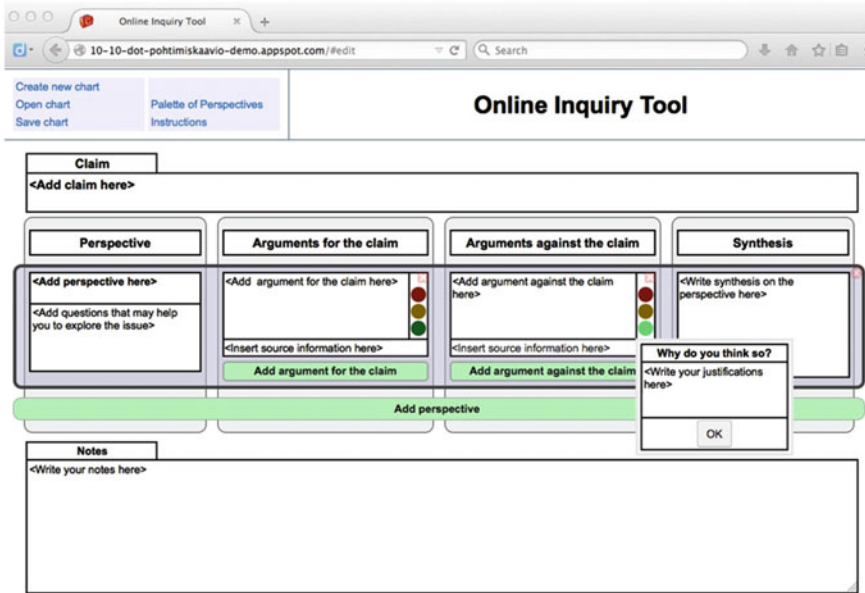


Fig. 2 Screenshot of Online Inquiry Tool interface

Once the justification box is closed, the traffic light remains lit up as a quick visual reminder of their previous credibility evaluations to better inform their selection of arguments to include in their final synthesis of each perspective. In essence, our digital Online Inquiry Tool provides readers with a carefully sequenced but flexible set of opportunities to monitor and control their cognitive steps towards deeper knowledge construction for the purposes of constructing an argumentation essay.

### 2.4.2 Results of a Pilot Study

In a pilot study (Coiro, Kiili, Hämäläinen, Cedillo, Naylor, O’Connell, & Quinn, 2015), we found the Online Inquiry Tool’s relatively open-ended framework could be used in different disciplines, for multiple purposes, and for building either individual or collaborative understanding. Teachers in the study (n = 6) designed tasks that invited students in grades nine to 11 (n = 175) to explore controversial issues related to disciplines including history, language arts, science, and sociology. Students used the Internet to explore issues such as, ‘Should minors be allowed to play violent video games?’; ‘Should the genetic engineering of plants and animals be allowed?’; ‘Who killed Romeo and Juliet?’; and ‘Was the decision to drop the atomic bombs on the cities of Hiroshima and Nagasaki necessary to end the war with Japan?’

We also sought to get more information about how typical students in grades nine to 12 from these five diverse classrooms read online texts and write about topics that include conflicting information. In this early pilot study (Coiro et al, 2015), no instruction was given and students had little previous practice with dealing with conflicting claims around controversial issues (as reported by six teachers). Data collected from 175 student-created, argument graphs and their subsequent argumentation essays suggested that regardless of content area or level of typical academic performance, many students struggled with many aspects of these types of tasks. For example, students struggled to clarify perspectives, navigate complex disciplinary texts to locate relevant evidence, and decide what claims or counterclaims their evidence supported. Students also had difficulty generating the linguistic structures to weigh conflicting evidence, synthesise their opinions, and evaluate the quality of claims they encountered in online sources.

With respect to the quality of content in the argument graphs constructed in the Online Inquiry Tool interface (with no instructional intervention), students varied greatly in their ability to use reasonable arguments to support or refute the main claim. For the most part, students were able to locate ideas from the text that were topically relevant. However, less often were students able to craft these ideas as reasonable arguments that supported or refuted the main claim and the corresponding perspective.

Across the tasks, students also varied greatly in their ability to write argumentation essays. Data trends suggested students, on average, scored more points for (a) using information from multiple online sources in their essay; (b) representing two or more perspectives on the issue; and (c) providing relevant reasons for supporting or refuting claims. Essay scores also showed that students, on average, scored fewer points for (a) including a balance of arguments and counterarguments in their essay related to the main claim and (b) integrating ideas from multiple sources rather than listing information from each source separately.

These findings suggest students may have found it slightly easier to include multiple and relevant ideas in their essays (resembling elements of persuasion) compared to writing in ways that consider and cohesively integrate these relevant ideas with appropriate counterarguments (resembling elements of argumentation or deliberation—see, for example, Murray, Xu, & Woolf, 2012). This would make sense since most secondary school students in the USA are used to writing persuasive essays (designed to take a stand and persuade readers that one position is better than another), but far fewer students are accustomed to writing argumentation essays that put forth a more balanced set of reasons and counter-reasons that incorporate differing perspectives on the argument. This finding also aligns with language arts teachers' comments that indicate they teach students how to analyse literary texts and write essays, but they rarely ask students to consider counterarguments in their writing.

Despite the challenges readers faced when completing online argumentation tasks, survey responses indicated students acknowledged that (a) synthesising arguments and counterarguments is difficult, and (b) an early version of the Online Inquiry Tool had the potential to help them organise their ideas, focus on one

perspective at a time, and regulate what evidence they still needed to collect in order to write their argumentation essay.

Additionally, because this early work invited teachers to create their own tasks, there was also great variability in each task's structure, differences in the readability and familiarity of texts and topics, differences in how students were being graded for the quality of their work, and differences in the typical academic performance among students in each class that likely impacted the quality of student work in the argument graphs and their final essays. Findings in our pilot study helped to identify each of these elements as important areas to consider and/or control for when designing future studies involving online argumentation tasks.

Data from a more controlled study testing the efficacy of the Online Inquiry Tool (with and without collaborative partner work) to support adolescents' critical online reading practices and argumentation writing skills after one day of instruction are being analysed as this chapter goes to print; findings from Coiro & Kiili (in process) will be reported in July 2016 at the annual meeting of the International Literacy Association.

### **3 Promoting Promising Practices for the Teaching and Learning of Reading in a Knowledge Society**

As I look to the future of both research and practice in the area of online research and comprehension, insights gained from the work outlined in this chapter suggest at least four areas have the potential to address continuing gaps in achievement and motivation among diverse learners.

#### ***3.1 Foster a Classroom Culture of Inquiry***

As Dewey (1997/1938) proposed almost a century ago, when curriculum is built around learner instincts to talk, investigate, construct meaning, and express new discoveries with others, meaningful and transformative learning happens quite naturally. Yet, teaching students to ask questions instead of answering them is no simple feat. These natural instincts and curiosities are likely to emerge only in settings where teachers and students have a mutual respect for each other and the personal wonderings that drive each of us to learn more. Further, experience has convinced me that fostering a culture of inquiry has little to do with using technology; it has much more to do with creating a safe space for learners to speculate about the possibilities, without fear of being laughed at for asking the question or judged if they do not find an answer.

In fact, Bowker (2010) posits that 'the most basic requirement for a successful question-centred pedagogy is the rediscovery of enjoyment, meaning, and value in

questioning’ (p. 130). Helping students to frame learning goals in big ideas and essential questions is one thing. However, repeatedly making space for students to build on these ideas with their *own* questions more explicitly positions each learner as an active contributor in the learning community (Wiggins, 2013). Authentic learning experiences and instructional practices framed within the model of PD introduced in this chapter can help teachers to design learning spaces within which this cycle of curiosity, knowledge building, personal action, and reflection can flourish.

### ***3.2 Provide Explicit but Flexible Learning Supports***

In upper elementary school classrooms, instructional practices involving challenging tasks, problem-based inquiry, explicit strategy instruction, collaboration and discussion, peer-to-peer scaffolding, and gradual independence from the teacher can lead to the acquisition of online reading comprehension (see Castek, 2008; Dwyer, 2012; Kingsley & Tancock, 2014). Similarly, in middle school settings, an instructional model known as Internet Reciprocal Teaching (IRT) significantly increased seventh graders’ ability to read and comprehend information online, compared to students in control classrooms (Leu & Reinking, 2010). During IRT, teachers actively facilitate interactive group work and strategy discussions as students in a one-to-one laptop setting engage with authentic curriculum-based challenges (see Leu et al., 2008). As students gradually gain proficiency in online reading skills, they are invited to develop their own lines of inquiry and collaboratively work with others using the Internet to solve the important problems they have defined.

However, the success of IRT is challenged by difficulties in clarifying the teacher’s role in student-directed inquiry, students’ comfort level in solving problems without teacher support, and finding comfortable ways to balance focus on both inquiry processes and final products (see Colwell, Hunt-Barron & Reinking, 2013). The proposed PDI planning guide may help teachers experiment with combining different pedagogies and digital tools along a continuum of teacher-guided to student-directed online inquiry to discover what works best for them in different contexts.

### ***3.3 Value the Contributions of Learner-Centred, Formative Assessments***

When describing their theory of new learning, Kalantzis and Cope (2012) posit: ‘What if all assessment was *formative* (always looking forward, contributing to immediate learning), and *retrospective* assessment was no more than a perspective

on *all the work* students have done?’ In the past decade, I have come to a similar conclusion. Formative assessments in the digital realm now include authentic scenarios that are integrated with varying degrees of supported instruction to capture qualitative changes in students’ performance along a learning progression (Bennett, 2015). In this way, innovative principles of assessment can be designed into tests to model good teaching and learning practice while providing formative mechanisms for serving the needs of individual learners alongside summative data to address institutional needs.

Further, Tierney (2000) argues for a shift towards more learner-centred assessment practices that afford students opportunities to engage with teachers in meaningful partnerships involving genuine decision-making. To effectively inform teacher decision-making, innovative formative assessment practices for online literacy should: (1) make visible information about students’ online reading and writing processes and products; (2) inform interpretations of students’ literacy and language development in both individual and group contexts; and (3) include opportunities for students and teachers to engage in productive literacy conversations about their progress while making contributions to the classroom community (see more in Coiro & Castek, 2010). Screen capture software (e.g. Jing, Camtasia, or Screencast-O-Matic) easily captures individual and collaborative partner actions, dialogue, and thinking processes to provide a rich set of data from which to draw insights and design instructional supports. Moreover, data from multiple assessment formats in technology-rich learning environments can be triangulated to demonstrate learning outcomes that map onto state standards of academic achievement (Sherry, Jesse & Billig, 2002). Finally, using curriculum-based themes for informal classroom assessments promotes a level of engagement, opportunities for content-area learning, and investment not often observed during large-scale assessments.

### ***3.4 Create Flexible Supports for Professional Development***

The time has come to develop innovative solutions that support teachers in their efforts to learn and practice new literacy ideas in their classrooms—even when the language and structures for understanding these ideas continue to rapidly change from one year to the next. Short single sessions for large groups of educators outside of the actual classroom are no longer deemed effective supports for today’s teachers. Instead, professional development needs to be long term and systematic, situated in authentic and meaningful social contexts, and aligned with teachers’ own professional development goals (Putnam & Borko, 2000).

Sustained professional development around literacy and technology integration should, first, expose teachers to examples of concrete classroom applications and real practices and, second, offer scaffolded opportunities to collaboratively redesign these practices to fit their unique classroom needs (Garet, Porter, Desimone, Birman, & Yoon, 2001). An analysis of nine studies across six different countries suggests that much can be learned by exploring the benefits of engaging teachers in

collaborative curriculum design opportunities, especially when they are focused specifically on how to integrate online reading instruction to meet the diverse and changing needs of teachers and the students with whom they work (Voogt et al., 2011). As described earlier in the chapter, efforts are underway (see Hobbs & Coiro, 2016) to carry out these types of professional development opportunities and pair them with empirical research that characterises the impact of these experiences on learners in educational, library, and media-making contexts.

## 4 Conclusion

Overall, this chapter provides three sets of theoretically informed, evidence-based practices for how to integrate rich, inquiry-based learning opportunities and individual choice into reading instruction in ways that foster academic achievement and reading engagement. It is my intent that these ideas add to the body of work in new literacies and serve as a springboard for educators and policymakers to consider as they explore new ways to improve reading instruction in the future.

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# Key Issues in Research on Students' Critical Reading and Learning in the 21st Century Information Society

Ivar Bråten and Jason L.G. Braasch

**Abstract** In the twenty-first-century information society, student readers can draw on a wealth of resources available through a variety of print and digital technologies when seeking well-grounded answers to crucial socio-scientific issues. However, this requires that students integrate information from source materials expressing diverse and even contradictory viewpoints, with the credibility of those sources often a key issue. In this chapter, we argue that one path to improving students' critical reading and learning is through developing their source evaluation skills, that is, their ability to judge the credibility or trustworthiness of sources by attending to available or accessible information about the source, such as who authored it or what kind of source it is. After discussing pertinent theoretical frameworks, we review several related strands of research concerning students' source evaluation skills and suggest directions for future research on how individual and textual factors, separately and in concert, may contribute to students' source evaluation practices, on how judgments of source credibility are related to judgments of content relevance, and on how effective and efficient instruction targeting source evaluation skills can be designed and evaluated.

**Keywords** Critical reading and learning · Source evaluation · Multiple texts · Socio-scientific issues

## 1 Introduction

The twenty-first-century information society is unprecedented in its demands on students to understand and learn from sources that express conflicting views on controversial issues (Alexander & the Disciplined Reading and Learning Research

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Laboratory, 2012; Goldman et al., 2011; Rouet, 2006). For example, consider students trying to answer the question of whether nuclear power plants are a safe and efficient way to produce electricity, or whether they represent a serious threat to people as well as the environment. These students can draw on a wealth of informational resources available through a variety of print and digital outlets. However, their attempts to provide well-founded answers require that they synthesize or integrate information from source materials expressing diverse and even contradictory viewpoints. Moreover, the credibility of those sources is often a key issue, which makes students' evaluation of sources an essential part of their critical reading and learning skills, not least when encountering competing knowledge claims about controversial socio-scientific issues, such as the one illustrated above (Britt, Richter, & Rouet, 2014; Bromme & Goldman, 2014; Tabak, 2016).

Of note is that this focus on the importance of critical source evaluation in students' reading and learning brings together perspectives that have largely been isolated in theory and research, that is, theory and research on how consumers of information evaluate the trustworthiness of the sources they encounter on the one hand, and theory and research on learning from textual information on the other (Richter & Rapp, 2014). Thus, when social psychologists in the field of persuasion investigate how recipients of persuasive messages evaluate the trustworthiness of information based on source features (e.g., author credentials or publisher), they rarely take into account how such evaluation is related to the learning of textual information, and when educational and cognitive psychologists investigate learning from text, they rarely study whether or how readers evaluate the trustworthiness of incoming information. Recent developments, especially in research on understanding and learning from multiple conflicting texts, suggest that source evaluation and learning from text may be more closely interwoven than traditionally assumed, however (Britt et al., 2014; Kendeou, 2014).

Although critical reading and learning skills are currently considered essential in democratic societies around the world, researchers, educators, and policy makers in many countries are concerned that they are not adequately developed through schooling, not even at the level of secondary education. Therefore, it is vital to identify factors that affect how such skills develop, and to design instructional interventions to foster them. A main assumption in this chapter is that one viable path to improving students' critical reading and learning is through developing their source evaluation skills, that is, their ability to judge the credibility or trustworthiness of sources by attending to available or accessible information about the source, such as who authored it or what kind of source it is (e.g., an encyclopedia article or a blog posting) (Bråten, Stadler, & Salmerón, in press; Bråten, Strømsø, & Britt, 2009). In the following, we will therefore discuss theoretical and empirical advances in this area by focusing on aspects of students' source evaluation during reading to learn about controversial issues and how this may vary with individual and textual factors, on how source evaluation skills may be promoted through systematic instruction, and on the potential effects of such instruction on students' learning outcomes. By targeting reading to learn about controversial socio-scientific issues, such as the production of genetically modified food or the safety of nuclear

power plants, the chapter also addresses important aspects of science literacy, with science education researchers (Linn & Eylon, 2006; Norris, Phillips, & Korpan, 2003; Phillips & Norris, 1999; Yang & Tsai, 2010) highlighting the challenges for students to critically evaluate and learn from popular media reports of science, especially when they deal with ill-structured problems in the form of controversial socio-scientific issues.

## 2 Theoretical Frameworks

Researchers interested in reading and learning contend that the twenty-first-century information society offers new opportunities, but also new potential pitfalls for students (Alexander & the Disciplined Reading and Learning Research Laboratory, 2012; Brand-Gruwel & Stadtler, 2011; Britt & Gabrys, 2002; Leu, Kinzer, Coiro, Castek, & Henry, 2013). On the one hand, rapid, almost instantaneous access to a wide range of up-to-date information, particularly when retrieving texts via Internet search engines, can potentially broaden and deepen comprehension. On the other hand, such access requires additional competencies, especially in terms of a realization that texts are socially constructed artifacts, written by a particular author, for a particular publication venue, at a particular point in time, and so forth (Britt, Rouet, & Braasch, 2013). In addition, learning often requires that students put forth the effort to integrate content information distributed across multiple texts (Afflerbach & Cho, 2009; Bråten & Strømsø, 2012; Cho, 2014; Goldman, Braasch, Wiley, Graesser, & Brodowinska, 2012).

For example, reading to learn about controversial issues such as whether artificial sweeteners or cell phones may pose any health risks requires that students allocate processing efforts toward integrating higher-quality information reported by reliable sources (Bråten, Braasch, Strømsø, & Ferguson, 2015; Goldman et al., 2012; Wiley et al., 2009), which seems particularly important when they read to better inform themselves to be able to make important behavioral decisions (e.g., Should I reduce my intake of artificial sweeteners? Should I restrict my daily cell phone usage?). The documents model framework of Britt, Rouet, and colleagues (Britt et al., 2013; Britt, Perfetti, Sandak, & Rouet, 1999; Perfetti, Rouet & Britt, 1999; Rouet, 2006) is a theoretical account of learning situations involving conflicting messages, behooving students to attend to and incorporate information about the source of the message into their mental representations of the issue. In essence, the documents model framework explains how good readers and learners deal with multiple textual sources presenting different or conflicting views on the same issue by constructing integrated mental representations of the issue and, at the same time, keeping track of the sources associated with the different pieces of information. According to the documents model framework, it is crucial to attend to, evaluate, and at times remember the sources of different pieces of information because the tagging of information about the sources themselves (e.g., the author or the publisher) to different perspectives on the issue allows readers to consider the



trustworthiness of the information in light of the features of the sources. The perceived trustworthiness of information may, in turn, influence the weight and position that the information is assigned in learners' overall representations of the issue. Subordinating or devaluing information from incompetent, discredited, or strongly biased sources, and, at the same time, giving prominence to information from more trustworthy sources will likely result in more appropriate, higher-quality mental representations of the issue (Bråten, Britt, Strømsø, & Rouet, 2011). It is thus a main assumption of the documents model framework that effective learning about a controversial issue requires a consideration of available source feature information in addition to a consideration of the connections one could make among the semantic content information offered within multiple documents.

Recently, Stadler and Bromme (2014) proposed the content-source integration model to further explicate the cognitive processes and resources that learners draw on when encountering conflicting information about a particular issue. Like the documents model framework, this model assumes that one way to restore a coherent representation of the issue after a conflict has been detected is to attribute the conflicting views to different sources. If learners, in addition, want to actually resolve the detected conflict, however, they may also need to evaluate the trustworthiness of the different sources, asking themselves "whom to believe" regarding the issue at hand. In particular, this approach becomes pertinent and even necessary when learners are not able to evaluate the validity of conflicting information directly, for example, by judging the truth value of explanations and arguments set forth in light of prior knowledge, which is more often than not the case when students read about complex socio-scientific issues of which they have only limited prior knowledge (Bromme & Goldman, 2014).

Other recent elaborations of the documents model framework (Britt et al., 2013; Strømsø & Bråten, 2014; Strømsø, Bråten, Britt, & Ferguson, 2013) emphasize the need to pay attention to sources cited or embedded within texts in addition to the sources of separate texts (i.e., the main sources), suggesting that good learners may link content information to source information presented within a text (e.g., a cited author) and embed this source information within the source of the text itself (e.g., attribute particular content information to a particular author cited by a particular publication). The importance of contextualizing embedded sources and their messages within main sources may also be illustrated by situations where people read to inform themselves about controversial issues such as whether artificial sweeteners may pose any health risks in order to make behavioral decisions. In such a situation, noting and remembering whether a message by a nutritionist stating that all thoughts of health risks could be discarded is included in a document published by a large brewery or in a document published by the National Food Safety Authority may help consumers evaluate the trustworthiness of the embedded source and the message it conveys.

Thus, although explanations, arguments, and conclusions presented by various sources may certainly conflict due to the tentative status of what is known, discrepancies may also arise because sources attempt to persuade learners toward their positions. As another example, consider a cell phone industry representative urging

learners to disregard all research suggesting cell phone–brain tumor relationships, potentially to guard against decreases in sales. Such situations involving attempts to sway learners toward particular points of view highlight the relevance of frameworks based on social psychology research on persuasion. For example, research guided by the elaboration likelihood model (ELM) (Petty & Briñol, 2012; Petty & Wegener, 1999) has shown that information about the source (e.g., the author) of a message may inform evaluative judgments of an issue and that deeper-level elaboration of source information will likely increase its contribution to those judgments. While the ELM emphasizes that source information can affect judgments of issues whether elaboration is high or low, research within the heuristic-systematic model of Chen and Chaiken (1999) focuses on how judgments are based on heuristic processing of source information, that is, low-effort activation and application of rules stored in memory (e.g., “expert statements can be trusted”). Such rules may be cued by salient and easily processed source features, and their use may lead to judgments congruent or incongruent with judgments formed on the basis of more analytic and comprehensive processing of the actual content of the message. In brief, social psychology models on persuasion may complement the theoretical grounding of empirical work on source evaluation in students' critical reading and learning, emphasizing that processing of source information at different levels of depth plays an important role in judging the trustworthiness of persuasive texts. As noted above, such judgment is also important when learning about complex and controversial socio-scientific issues.

### 3 Empirical Work

#### 3.1 *Students' Source Evaluation*

Many studies show that students, even at secondary and post-secondary levels, do not attend to source features (i.e., author, type of publication, venue, and place and date of creation) in order to evaluate for trustworthiness when they are reading multiple texts to learn about controversial issues (Brem, Russels, & Weems, 2001; Britt & Aglinskias, 2002; Kiili, Laurinen, & Marttunen, 2008; Maggioni & Fox, 2009; Nokes, Dole, & Hacker, 2007; Stahl, Hynd, Britton, McNish, & Bosquet, 1996; Walraven, Brand-Gruwel, & Boshuizen, 2009; Wineburg, 1991). Research suggests that such lack of source feature consideration to establish trustworthiness has consequences for effectiveness and efficiency when acquiring new knowledge. In Kiili et al. (2008), for example, the majority of comments secondary school students produced while evaluating information resources concerned content relevance, with very few instances reflecting credibility assessments based on the available source feature information. Kiili et al. (2008) characterized some students as «uncritical readers» due to their source feature inattention, a designation evidenced by a greater proportion of time spent reading information from less

reliable texts. These findings correspond with those of Wineburg (1991) and Maggioni and Fox (2009), both of which documented minimal verbal protocol evidence that students use source features when they are reading to learn from multiple history texts. Both Britt and Aglinskias (2002) and Stahl et al. (1996) analyzed the notes produced when reading multiple history texts. Similar to the studies cited above, they found that students rarely mentioned source information in the notes they generated, which was related to poor performance on source knowledge questions after reading. Finally, students have been found to use fictional information retrieved from novels and movies as facts to support their arguments, which can be viewed as additional evidence of poor source evaluation (Britt & Aglinskias, 2002; Seixas, 1994).

Scholars interested in digital media technologies, especially with respect to the Internet, have given the issue of trustworthiness of sources and information particular attention in the last decade. One reason is that professional gatekeeping is essentially lacking on the Web, with posted texts seldom having explicit review policies or undergoing the quality control most paper-based publications do. Thus, judgments of trustworthiness are more often left with the individual learners or information consumers themselves. The challenges increase because the author and other source feature information that is typically available in printed texts is often masked, unavailable, or, at best, hard to interpret on many Web sites (Britt & Gabrys, 2000; Flanagin & Metzger, 2008). Given this backdrop, it is hardly surprising that students “rarely to occasionally” attempt to verify the credibility of information obtained via the Internet (Metzger, Flanagin, & Zwarum, 2003). Sanchez, Wiley, and Goldman (2006) provided evidence that—even within a sample of college undergraduates—understandings of the methods used to evaluate the trustworthiness of Web sites were fragile, with considerable student problems in justifying evaluations of trustworthiness. Moreover, readers often draw on superficial features, seldom judging information credibility based on author credentials (Metzger et al., 2003). For example, when judging the trustworthiness of Web-based health information, university students often use superficial or inadequate criteria, such as whether documents include information-redundant illustrations (Wittwer, Bromme, & Jucks, 2004), their preconceptions or first impressions of a Web site’s layout (Stadtler & Bromme, 2007), or even the picture of the site owner (Eysenbach, 2008). Such problems are even more salient with younger students, found to rely heavily on surface credibility markers (e.g., more authors, presence of numerical values), and seldom moving beyond a selected site to look for corroborating information (Brem et al., 2001). A particular challenge noted by Strømsø et al. (2013) seems to be that students may link content information to sources cited in a text without embedding this source information within information about the source of the text itself, with this involving a decontextualization of the content information that makes it harder to evaluate. It may be essential to note, for example, whether a particular scientist making a particular claim is cited in a scientific journal or in a tabloid.

### 3.2 *Benefits of Source Information*

As problematic and challenging as source evaluation may be for students across educational levels, several correlational studies have shown students' consideration of trustworthiness based on source features to be linked to their learning about controversial issues from diverse texts (Anmarkrud, Bråten, & Strømsø, 2014; Barzilai & Eshet-Alkalai, 2015; Barzilai, Tzadok, & Eshet-Alkalai, 2015; Bråten et al., 2009; Goldman et al., 2012; Strømsø et al., 2010; Wiley et al., 2009). For example, Bråten et al. (2009) demonstrated a relationship between students' judgments of the trustworthiness of texts on global warming based on their respective source features and their learning from the texts, both of which were assessed after reading when students did not have access to the texts. In that study, results indicated that trust in reliable sources, indeed, seems to matter, even if learners are not necessarily able to justify their trust in terms of relevant source features, such as document type and publisher. If they are, such justifications may represent a level of sourcing skills capable of boosting performance even further, however (Bråten et al., 2009). Recent studies using think-aloud methodologies also demonstrate that strategies focused on differentiating more versus less useful texts during reading and using trustworthiness criteria when doing so relate to better learning. For example, Anmarkrud et al. (2014) and Barzilai et al. (2015), who also had students read multiple texts about controversial socio-scientific issues (viz. cell phone radiation and desalination), demonstrated relationships between attention to and evaluation of information sources produced during reading and argumentation sophistication and source use in post-reading essays (see also, Barzilai & Eshet-Alkalai, 2015, for a recent documentation of the linkage between students' sourcing skills and their written argumentation). In the same vein, Goldman et al. (2012), who contrasted the kinds of processing that better and poorer learners' displayed during reading more and less reliable texts about a complex scientific issue, found that better learners were more likely to evaluate the source credibility of texts compared with poorer learners. Related to this finding, poorer learners spent more time reading unreliable texts and were more likely to include erroneous concepts in post-reading essays. In brief, the correlational research suggests that to successfully construct complete, accurate mental representations of controversial issues that can be applied in novel situations, be involved in argumentative reasoning, and form the basis of important behavioral decisions, students must apply more sophisticated source evaluation strategies in efforts to selectively process higher-quality information. However, it is clearly the case that intervention work is needed to draw stronger conclusions concerning causal relationships between these variables. Before turning to interventions, we will discuss the roles of individual and textual factors in source evaluation as well as students' difficulties distinguishing between content relevance and source trustworthiness.

### ***3.3 Individual and Textual Factors in Students' Source Evaluation***

Although much remains to be known about individual factors associated with source evaluation, there is currently evidence to suggest that students' working memory capacity (Braasch, Bråten, Strømsø, & Anmarkrud, 2014) and their prior knowledge about the issue (Braasch, Bråten, Strømsø, et al., 2014; Bråten, Strømsø, & Salmerón, 2011; Rouet, Britt, Mason, & Perfetti, 1996; Strømsø et al., 2010) are positively correlated with critical evaluation of sources when reading about controversial issues. Likewise, students' implicit theories of intelligence (i.e., the degree to which they consider their own intelligence to be malleable rather than fixed; Dweck, 1999) have recently been linked to source evaluation. That is, students considering intelligence to be a malleable, increasable quality were also more likely to discriminate between more and less useful documents about a controversial issue based on trustworthiness assessments (Braasch, Bråten, Strømsø et al., 2014). Other individual difference variables that have been linked to students' source evaluation include their beliefs about knowledge and knowing concerning a particular domain or issue, for example, beliefs regarding the certainty or simplicity of knowledge or the justification of knowing (Barzilai et al., 2015; Barzilai & Eshet-Alkalai, 2015; Bråten, Ferguson, Strømsø, & Anmarkrud, 2014; Kammerer, Amann, & Gerjets, 2015; Kammerer, Bråten, Gerjets, & Strømsø, 2013; Strømsø, Bråten, & Britt, 2011). In this vein, Strømsø et al. (2011) suggested that students believing knowledge about an issue to be complex may be less likely to rely on information from sources that often simplify rather than elaborate upon complex issues, such as a newspaper. Additionally, these authors found that the belief that justification for knowing should refer to reasoning, scientific inquiry, and the evaluation and integration of multiple sources was linked to students' trust in research-based sources and attention to a variety of source features when evaluating such sources on the issue of global warming. Finally, there is some evidence to suggest that students' prior attitudes and motivations play a role in situations that require evaluation of source information (Andreassen & Bråten, 2013; Braasch, Bråten, Britt, Steffens, & Strømsø, 2014; Strømsø et al., 2010; van Strien, Brand-Gruwel, & Boshuizen, 2014). For example, Braasch, Bråten, Britt et al. (2014) found that when reading inaccurate arguments about controversial health-related issues, students remembered the sources of those arguments better, the stronger their prior attitudes about the issues. Presumably, when textual arguments are not sufficient to support or strengthen prior attitudes because the arguments are inaccurate, readers holding stronger attitudes about the issues may turn to source information (e.g., a reliable author, a well-respected publication venue) to bolster their prior attitudes. Regarding motivation, Strømsø et al. (2010) found that students' topic interest was positively related to their memory for source information when reading multiple texts about global warming, and, more recently, Andreassen and Bråten (2013) showed that learners' source evaluation self-efficacy (i.e., their perceived capability to evaluate the trustworthiness of sources) predicted

their reliance on relevant source features related to both the product and the producer of Web sites when evaluating their trustworthiness.

However, not only individual but also textual factors have been shown to play a role in source evaluation. Braasch, Rouet, Vibert, and Britt (2012) launched the idea that learners' attention to source information (i.e., to "who said what") might increase when different sources provide discrepant accounts. More specifically, these authors proposed that when different sources make conflicting claims about a controversial situation or issue, one mechanism for resolving the resulting break in situational coherence (Graesser, Singer, & Trabasso, 1994) and constructing an integrated mental representation may be to link discrepant content information to the respective sources. Referring to this assumption as the discrepancy-induced source comprehension or D-ISC assumption, Braasch et al. (2012) provided preliminary evidence in two experiments where undergraduate students read brief news reports containing two claims that were either conflicting or consistent. In accordance with the D-ISC assumption, online and offline data, respectively, indicated that conflicting claims promoted deeper processing of and better memory for the sources of the claims, as compared to consistent claims. Recently, de Pereyra, Belkadi, Marbach, and Rouet (2014) showed that similar effects also can be observed with lower-secondary students, but with stronger effects obtained for undergraduates than for seventh- and ninth-graders. Braasch, McCabe, and Daniel (2016) corroborated these findings by demonstrating that when different sources provided semantically congruent arguments, readers were less attentive to source information relative to a control condition involving distinct arguments.

Of note is that in the Braasch et al. (2012) and the de Pereyra, Belkadi et al. (2014) studies, the conflicting claims and their respective sources were embedded in a single text (i.e., a brief news report). However, the D-ISC assumption has also received empirical support in reading contexts where conflicting claims about the same issue are presented in multiple distinct texts (Kammerer & Gerjets, 2014; Stadler, Scharrer, Skodzik, & Bromme, 2014; Strømsø & Bråten, 2014; Strømsø et al., 2013). For example, Kammerer and Gerjets (2014) found that conflicts between the claims of an institutional Web page and several other, partly commercial, Web pages on a controversial fitness-related issue made students allocate more attention to the source of the institutional Web page during reading and include more source citations in their written summaries. In the same vein, Stadler, Scharrer, et al. (2014) found that when the existence of conflicting claims across multiple texts on a controversial health issue was explicitly signaled through rhetorical means (e.g., by starting a text with the following phrase: "Contrary to what some health professionals argue, ..."), students included more source citations when generating essay responses on the issue than when conflicts were not explicitly signaled.

It seems fair to say that so far, less is known about students' attention to and use of source information when reading single text compared to multiple texts. For example, learners might be unlikely to separate source and content when they read only a single text on a topic or a single perspective without controversy (Braasch et al., 2016; Bråten, Strømsø, & Andreassen 2016; Britt et al., 2013). Even when a

controversy is discussed in a single text, however, there may be less attention to source information than when a controversy is discussed across multiple texts. Admittedly, Braasch et al. (2012) and de Pereyra, Belkadi et al. (2014) found that discrepant views on an issue presented within a single text increased attention to and use of source information relative to a condition where consistent views on the same issue were presented. Other work (de Pereyra, Britt, Braasch, & Rouet, 2014; Stadtler, Scharrer, Brummernhenrich, & Bromme, 2013; Steffens, Britt, Braasch, Strømsø, & Bråten, 2014), however, suggests that source information for inconsistencies within a single text is mostly disregarded. For example, Steffens et al. (2014) found that students' memory for source information when reading single texts was poor, with no evidence that source information was recalled better when inconsistent information was presented within the texts. Consistent with findings reported by Stadtler et al. (2013), one reason for this may be that students are less likely to attend to and remember conflicting views and controversies when they are discussed within single texts compared to across texts.

In brief, whether conflicting information is presented in a single text or in multiple texts may impact the extent to which students focus their attention on source information in addition to content. Likewise, whether conflicting information presented in multiple texts is explicitly highlighted through cross-referencing or not seems to matter in this regard. Recently, researchers interested in source evaluation in students' critical reading and learning have also started to address how individual factors may interact with text factors in both single- and multiple-text contexts (Maier & Richter, 2013; Barzilai & Eshet-Alkalai, 2015; Bråten, Salmerón, & Strømsø, 2016). Maier and Richter (2013) presented findings consistent with the idea that a discrepancy between students' prior beliefs regarding controversial issues and textual information may trigger attention to the source of a text. Thus, when students read two texts conflicting and two texts consistent with their prior beliefs on the topics of global warming or vaccination, these authors found that students displayed better source memory for texts presenting arguments in conflict with their prior beliefs. For example, students believing global warming to be caused by human activities and reading that it has natural causes displayed better source memory than students believing global warming to be caused by human activities and reading that it is caused by human activities. Building on de Pereyra, Britt et al.'s (2014) extension of the D-ISC model to situations involving discrepancies between learners' prior knowledge and textual information, Bråten, Salmerón et al. (2016), in a single text study, also showed that students' memory for source information may increase with the discrepancy between textual claims and prior beliefs. This suggests that when readers judge content information to be implausible in light of their prior beliefs about the topic, they may be more likely to seek support from available information about the source to make sense of the content. Finally, in a multiple-text study, Barzilai and Eshet-Alkalai (2015) found that conflicts between sources improved attention to and memory for "who said what" only among readers with higher levels of multiplist and evaluativist epistemic thinking (Kuhn, 2001).

Despite the progress that has been made in this area of research, there is a great need to further investigate individual and textual factors contributing to source evaluation when students read about controversial socio-scientific issues (Braasch, de Pereyra, & Bråten, 2015; Bråten et al., in press). Among the potentially contributing individual factors in need of further investigation are general cognitive competencies such as cognitive reflection (Frederick, 2005; Kahneman, 2011) and critical thinking (Bonny & Sternberg, 2011; Halpern, 2007), as well as students' general and domain-specific knowledge of relevant source features (Rouet, Ros, de Pereyra, Macedo-Rouet, & Salmerón, 2013). First, it is important to clarify to what extent critical source evaluation is an aspect of more general cognitive competencies. Second, the relationship between declarative knowledge of relevant source features and sourcing activities during reading (i.e., procedural source knowledge) needs to be clarified. Likewise, there are several additional textual factors that need to be further researched. For example, source salience, that is, how detailed and elaborated the descriptions of the sources are and where they are located, may impact the extent to which students focus their attention on source information (Britt et al., 2013; Strømsø et al., 2013). In addition, because of the consequentiality of receiving unreliable information, texts that focus on unsettled and controversial issues related to people's health or safety (i.e., risk issues) may make questions of trust in sources particularly pertinent (Jungerman, Pfister, & Fischer, 1996; Kolstø, 2001). Finally, although some recent evidence suggests that characteristics of the reader and characteristics of the text(s) may interact to facilitate or constrain attention to and memory for source information, the issue of reader-text interaction is wide open for further research.

### ***3.4 Distinctiveness of Content Relevance and Source Trustworthiness When Dealing with Controversial Issues***

Clarifying students' judgments of content relevance in relation to their judgments of source trustworthiness is a vital issue with theoretical as well as practical implications. As we previously stated, students' text evaluations more typically concern content relevance than source trustworthiness (Braasch, Bråten, Strømsø, Anmarkrud, & Ferguson, 2013; Kiili et al., 2008). For example, when tasked to select and use information resources for a particular purpose, they are likely to base their selection and use on the relevance of the content (i.e., the perceived instrumental value of the content for their purpose; McCrudden & Schraw, 2007) and tend to disregard the credibility of the source (e.g., the expertise of the author; Pornpitakpan, 2004). A pertinent question is, however, to what extent are content relevance and source trustworthiness psychologically distinct constructs for student readers. If they are psychologically blurred, some of students' difficulties with source feature evaluations of trustworthiness may be due to their difficulties in distinguishing such processing from evaluations based on the relevance of the



content. This may lead them to just focus on whether a text deals with matters connected to the issue they are inquiring or contains key words matching their search terms. Researchers may take for granted that relevance and trustworthiness are psychologically distinct categories because they are orthogonal in logical terms, meaning that something can be relevant but not trustworthy and vice versa, a view also supported by studies of expert readers (Afflerbach & Cho, 2009; Pressley & Afflerbach, 1995). Still, student readers may come to overlook source information because they do not clearly realize that evaluating trustworthiness based on source features is a process above and beyond evaluating the relevance of the content information (Macedo-Rouet, Braasch, Britt, & Rouet, 2013).

Recently, McCrudden, Stenseth, Bråten, and Strømsø (2016) investigated this issue by asking secondary school students to select the most useful texts for a given purpose among texts varying with respect to both content relevance and author expertise (as an indication of source trustworthiness). In this study, participants were presented with texts concerning two different controversial issues varying in familiarity, climate change (more familiar) and nuclear power (less familiar), and selected the texts that they deemed most useful for giving a presentation to their class about each of those issues. In brief, the results indicated that the extent to which students distinguished between and took the two constructs into consideration when selecting texts varied with the familiarity of the issue. Thus, content relevance was equally valued and highly salient to students for both issues such that they clearly selected more-relevant than less-relevant content. However, the same students distinguished much less between high and low author expertise when they selected texts for the more familiar issue than when they selected texts for the less familiar topic, with the salience of content relevance seemingly overshadowing the salience of author expertise in the former case.

From an educational perspective, it is important to understand to what extent content relevance and source trustworthiness are psychologically distinct for students when reading to learn about controversial issues, so that is possible to develop effective interventions that help them select and use relevant information from trustworthy sources. Thus, making students aware of how they actually evaluate the usefulness of textual information resources across issues may be a first step to help them strike an adaptive balance between content relevance and source trustworthiness in this evaluation process. Much further research is needed to understand the extent to which source trustworthiness is viewed as distinct from content relevance across diverse issues for students at different educational levels, however.

### ***3.5 Source Evaluation Interventions***

Because research suggests a general lack of consideration of the importance of available source features among students, and because source feature evaluation seems tantamount when reading to learn about controversial issues using multiple texts, students appear to require interventions targeting the acquisition of source

feature evaluation strategies. Accordingly, some researchers have developed interventions for elementary, secondary, or post-secondary students, as well as for adults out of school, to improve their consideration of source features when working with multiple texts (Braasch et al., 2013; Britt & Aglinskias, 2002; De La Paz & Felton, 2010; Graesser et al., 2007; Kammerer et al., 2015; Macedo-Rouet et al., 2013; Mason, Junyent, & Tornatora, 2014; Nokes, 2014; Nokes et al., 2007; Reisman, 2012; Sanchez et al., 2006; Stadler, Scharrer, Macedo-Rouet, Rouet, & Bromme, 2016; Walraven, Brand-Gruwel, Boshuizen, 2010, 2013; Wiley et al., 2009).

For example, in a much cited study, Britt and Aglinskias (2002) developed a computer-based tutorial to promote students' attention to source features of multiple historical texts. Inquirers were first provided with direct instruction on three strategies (sourcing, contextualization, and corroboration). During reading, note cards appeared at the bottom of each screen, which required students to provide entries about source features of texts (author, type, and date of publication), as well as about content information. Results indicated that students who received the intervention cited more sources in their notes, answered more source knowledge questions correctly on a post-reading transfer test, and cited more sources in their post-reading essays than did students in a control group.

In an example from the domain of science, Wiley et al. (2009) instituted the *SEEK* intervention, which focused on ways to instruct students on four important facets of texts: the Source of the information in each text, the nature of the Evidence that was provided in each text, the fit of a text's evidence into the Explanation of the phenomenon, and the fit of the new information within a text with prior Knowledge. The students in the treatment group were first provided with declarative information and received instruction regarding ways to evaluate multiple texts with respect to the four components of *SEEK*. They then read multiple texts that varied in reliability and answered questions indicative of the criteria in the declarative information. After reading, they rank-ordered the texts based on their interpretations of the texts' reliability, justified their rank-orders, and compared their rankings with those generated by experts using the same text set. During an application task using a novel set of multiple texts, *SEEK* students were better at discriminating the reliability of the texts, included more correct and less incorrect causes in post-reading essays, and displayed better pre-post-learning gains relative to controls.

Finally, in one of the very few interventions designed to promote secondary school students' implementation of source evaluation strategies in multiple science texts inquiry contexts (see also, Stadler, Scharrer, Macedo-Rouet, et al., 2016), Braasch et al. (2013) developed and implemented an intervention harnessing activities that typify science classrooms. At the same time, they extended prior work by acknowledging and targeting inappropriate evaluation strategies that secondary school students frequently employ when they interact with multiple scientific texts, building on a contrasting-cases approach recently substantiated in other instructional areas (Gadgil, Nokes-Malach, & Chi, 2012; Rittle-Johnson & Star, 2009). Two hypothetical students' text evaluation strategy protocols were designed: One featured more sophisticated strategies focusing on source features, more commonly

enacted by experts and better college students, and a second featured less sophisticated strategies focusing on the relevance of content information (i.e., key words), more commonly enacted by secondary school students. A series of classroom-based activities required students to compare and contrast the two protocols to decide which were the best strategies when analyzing multiple texts on a controversial socio-scientific issue and why. Findings demonstrated that students who previously participated in the intervention activities included more scientific concepts from more reliable texts when writing essays based on more or less reliable texts on a different issue, displayed more expert-like rankings of the usefulness of the set of multiple texts, and offered more principled justifications for their rankings based on source feature evaluations of trustworthiness compared to students who instead received typical classroom instruction. Although promising, the Braasch et al. (2013) study can be considered limited by the facts that it was a very brief intervention (lasting only 60 min), that the intervention was implemented by the researchers rather than by the regular class teachers, that students' learning from texts was assessed quite narrowly (by their inclusion of scientific concepts in their essays), and that no follow-up data demonstrating long-term effects were produced.

## 4 Future Directions

Both inside and outside of classroom contexts, students at different educational levels are increasingly confronted with texts on unsettled and controversial issues that vary with respect to reliability. Further advancement of our understanding of critical source feature evaluation and its relation to learning processes and learning outcomes is therefore needed, providing a basis for theory-based educational innovations in the area. In the following, we briefly discuss some future goals for research on students' source evaluation skills that are likely to have important theoretical as well as educational implications.

A first goal is to further investigate individual and textual factors contributing to students' source evaluation when they read to inform themselves about controversial socio-scientific issues. So far, we have only limited knowledge of how students' cognitions, beliefs, attitudes, and motivations may contribute to their source evaluation in scientific text contexts, and even less is known about how such individual difference variables may be interrelated. One way to fill this knowledge gap is therefore to include such variables in the same study to examine how they separately and in concert may contribute to students' source evaluation practices. In addition, aspects of the textual materials need to be further investigated to better understand how textual factors may contribute to source evaluation differences. Conflicting views and the sources that convey them may be presented in multiple texts with cross-references to the sources of the other texts, in multiple texts without such cross-references, or in one single text. The extent to which such textual variation may influence students' source evaluation practices is currently not well understood, however. Moreover, further investigating interaction effects of

individual difference variables with textual factors on students' source evaluation (e.g., whether effects of individual differences in prior topic knowledge or epistemic beliefs may be moderated by explicit cross-referencing in multiple conflicting texts) would, indeed, traverse new empirical territory and contribute to our theoretical understanding of source evaluation in student readers. In such experimental work, dependent measures might be students' ability to identify and understand the conflicting perspectives as well as their judgment of the trustworthiness of each perspective, spontaneous attribution of trustworthiness to features of the sources, cued recall of features of each source, and, possibly, justifications for intended behavioral change based on source feature evaluations of the sources.

A second, related goal is to further examine students' understanding of the distinction between content relevance and source trustworthiness, as well as their ability to flexibly balance those criteria when selecting and using information resources on controversial issues in inquiry contexts. For this research purpose, mixed-methods approaches (Creswell & Plano Clark, 2007) combining quantitative and qualitative data sources seem suitable. Concerning quantitative facets of the research, students may be tasked to select and use information resources varying with respect to both content relevance and source trustworthiness to answer inquiry questions about different controversial issues, with their selection behavior and their construction of evidence-based arguments about each issue analyzed to indicate the extent to which they base their judgments on content relevance, source trustworthiness, or perhaps both. In this design, task instructions may be manipulated to see whether they can affect students' orientations toward the content and sources of competing knowledge claims, that is, toward "what is true" and "whom to believe," respectively (Stadtler & Bromme, 2014). Moreover, follow-up interviews with purposefully selected individuals who differ with respect to selection and use of information resources (e.g., base their selection and use primarily on content relevance vs. on source trustworthiness) may provide qualitative data about their understanding of the distinction between content relevance and source trustworthiness as well as their underlying reasoning when considering or ignoring those criteria. By varying task instructions, the insights derived from this line of research may facilitate the construction of materials for use in theory-based source-evaluation interventions.

A third goal is to further address the question of how students' acquisition and application of sophisticated source evaluation strategies can be effectively and efficiently promoted. Although quite a few studies indicate that students' source evaluation strategies can be improved through instruction (e.g., Braasch et al., 2013; Britt & Aglinskas, 2002; Wiley et al., 2009), longer-term classroom-based intervention research targeting source evaluation when students work with information resources on controversial socio-scientific issues is conspicuous by its absence. Moreover, while prior work has mainly consisted of researcher-led interventions, it seems essential to investigate how efforts to promote source evaluation may be incorporated into regular subject-matter instruction and conducted by classroom teachers through means of professional support, highlighting needs to further develop the professional competencies of teachers and assessing

implementation quality through the collection of process data (e.g., trace and observation data). Following Braasch et al. (2013), such intervention work may profitably utilize a contrasting-cases approach, thus providing an instructional context that acknowledges students' default, yet inappropriate evaluation strategies drawing primarily on content relevance in close juxtaposition with sophisticated source evaluation strategies taking relevant source features into consideration. Key design features of such an approach may include illustrations of both inappropriate and appropriate source evaluation strategies provided by hypothetical peers reading about different controversial socio-scientific issues in multiple texts, solicitations for students' explanations of the (lack of) importance of each identified strategy for multiple-text inquiry, and solicitations for participation in dyadic and instructor-lead, whole-class discussions concerning the strategies. In this way, contrasting cases can be embedded within several tasks that typify classroom-based instructional practices and framed in pedagogically meaningful ways. Moreover, competencies acquired via the contrasting-cases approach should be practiced in "real-world" contexts of retrieving, evaluating, and comprehending diverse Internet documents for inquiry purposes. It seems important that intervention effects are evaluated in terms of application tasks requiring that students transfer source evaluation strategies to novel situations where they read to learn about other issues or have to make well-grounded behavioral decisions. In particular, such application tasks should assess students' ability to build an integrated understanding of a controversial issue based on the most trustworthy information. Finally, a lack of follow-up data assessing long-term effects of source evaluation interventions is a serious limitation of previous work that future research needs to address.

## 5 Conclusion

That students selecting and using textual resources concerning controversial issues more often than not tend to disregard source information and pay attention only to the content is especially problematic in the current reading context, where the abundance of easily accessible information of dubious quality requires that students more than ever are capable of critically evaluating the sources they come across. Unfortunately, this also implies that many individuals now enter higher education and the workplace lacking critical reading and learning skills (see also, OECD, 2011). In the current chapter, we have addressed this broad educational issue and called for further research that will not only provide basic scientific knowledge but also generate guidelines for essential, evidence-based pedagogical innovations. Systematic research on critical reading and learning with a focus on source evaluation extends ongoing mainstream international research on student reading and learning. Such extension, however, is necessary to advance our understanding of the kind of learning and literacy required in twenty-first century and create innovations that help students become critical readers and learners rather than passive consumers of the diverse information resources they encounter.

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# Image–Language Interaction in Text Comprehension: Reading Reality and National Reading Tests

Len Unsworth

**Abstract** The significance of the image–language interface in comprehending multimodal texts is now well recognised and is reflected prominently in the Australian Curriculum: English (ACE). Large-scale research has shown that different kinds of image–language relations distinguish levels of achievement on state-wide reading comprehension tests undertaken by primary school students in New South Wales and similar results have been found for students’ comprehension of online tests. To date, however, comprehension of the image–language interface is inadequately addressed in Australia’s National Assessment Program in Literacy and Numeracy (NAPLAN) and a very restricted conceptualisation of image–language relations is addressed in international tests such as the Program for International Student Assessment (PISA). This chapter discusses the significance of this data and ongoing research into multimodal reading comprehension to enable national and international reading assessments to address the reality of reading experience in the twenty-first century, facilitate curriculum responsive student achievement data, address a key aspect of reading differentiating reading comprehension effectiveness and support new pedagogies of multimodal reading comprehension.

**Keywords** Multimodal · Reading · Comprehension · Assessment · Reading tests · Image-language interaction

## 1 Introduction

Inclusion of an increasing number of different kinds of images in an ever-widening variety of paper and digital media texts has been a steadily expanding phenomenon over recent decades. This is very obviously the case with the range of texts

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students are expected to read during their schooling as well as with the texts they read outside of school. The images are rarely gratuitous decoration or inconsequential additions and are frequently integral to the interpretation of the text (Rowse, Kress, Pahl, & Street, 2013). In view of this, reading comprehension can no longer be thought of as simply negotiating understanding of the wordings of the texts. While the need to reconceptualise reading comprehension to take account of the ways in which images and image–language interaction contribute to the meanings that can be made from texts is now reflected in some national language curriculum and reading assessment documents, it appears that national reading tests do not adequately address the reality of the prominence of multimodal texts in lives of students in the early twenty-first century. Predicated on the importance of the increasingly multimodal nature of reading in today’s world, the author examines in this chapter the discrepancy between acknowledgement of this in curriculum and assessment documents and the negligible extent to which national reading tests in the USA, England and Australia actually address the role of images in text comprehension. The question of why this neglect persists is raised in the context of the prominence of assessment of student understanding of images in multimodal texts in the testing of the Program for International Student Assessment (PISA) as well as in earlier state-based testing in Australia. Consideration of the types of image–language relations that are focussed on in existing test items indicates the need to establish a more comprehensive and robust theorisation of the variety of forms of image–language interaction that contribute in different ways to the construction of meaning from texts. Such research may help to provide a basis for more socially responsible and curriculum responsive national reading tests.

## **2 The Language–Image Interface: A New Locus for Twenty-First-Century Reading Development**

For many decades now images have been assuming an increasingly prominent and integral role in a wide range of paper and digital media texts in academic, educational, professional, social, civic and popular media contexts (Bezemer & Kress, 2009; Kress, 1997; Kress & van Leeuwen, 1995). In fact, Kress has argued that it ‘... is now impossible to make sense of texts, even their linguistic parts alone, without having a clear idea of what these other features might be contributing to the meaning of a text’ (Kress, 2000, p. 337).

Writing about books for youth in a digital age, Dresang (1999) noted that, ‘in the graphically oriented, digital, multimedia world, the distinction between pictures and words has become less and less certain’ (Dresang, 1999, p. 21), and that ‘in order to understand the role of print in the digital age, it is essential to have a solid grasp of the growing integrative relationship of print and graphics’ (Dresang, 1999, p. 22).

In both electronic and paper media environments then, ‘although the fundamental principles of reading and writing have not changed, the process has shifted

from the serial cognitive processing of linear print text to parallel processing of multimodal text-image information' (Luke, 2003, p. 399).

Andrews (2004) has noted explicitly the importance of the visual/verbal interface in both digital and paper media texts, '... it is the visual/verbal interface that is at the heart of literacy learning and development for both computer-users and those without access to computers' (Andrews, 2004, p. 63).

The most recent edition of *Theoretical Models and Processes of Reading* (Alvermann, Unrau, & Ruddell, 2013) includes chapters that continue to emphasise the significance of images and image–language relations in reading multimodal texts (Leu et al. 2013; Rowsell, Kress, Pahl, & Street, 2013). The importance of images in leading the comprehension process has been established for some time, especially in the case of picture books (Goldstone, 1989; Goldstone & Labbo, 2004). A very clear example can be seen in Anthony Browne's picture book, *Zoo* (1994). In this story, Mum and Dad and their pre-adolescent sons, the narrator and his brother Harry, go to the zoo. In the book, images of the family and other visitors to the zoo are on the left-hand side of the double-page spreads and images of the zoo animals are on the right-hand side. During the zoo visit, the boys ask their father if they can have the chocolate their mother brought with them. The father tells them they cannot have the chocolate and when the boys ask why, he says 'because I say so'. On the following double-page spread, the image shows a rear view of the boys and their father leaning on the barrier looking into the tiger's enclosure. At the father's feet is the crumpled chocolate wrapper. It is this image in combination with the father's negative response to the boys on the previous page that suggests the real reason the boys were not allowed to have the chocolate (Unsworth, 2008a).

Recognition of the importance of the image–language interface in reading development is reflected in government syllabus documents that mandate the nature of the English curriculum in schools. Internationally, many such documents now require the interpretation of images to be included within a broader concept of literacy (ACARA, 2014; British Columbia, 2009; New York, 2012; Singapore, 2008; Sweden, 2009). The Australian Curriculum: English (ACE) (<http://www.australiancurriculum.edu.au/English>) clearly establishes the multimodal nature of the English curriculum in its first aim: 'The ACE aims to ensure that students: learn to listen to, read, view, speak, write, create and reflect on increasingly complex and sophisticated spoken, written and multimodal texts across a growing range of contexts with accuracy, fluency and purpose' (ACARA, 2014, p. 3).

Many of the content descriptions in the Australian Curriculum: English indicate that the interplay between words and images is a key aspect of these multimodal texts that students are expected to be able to understand and deploy in their own text creation (Unsworth, 2014). For example in year nine, students are expected to:

Explore and explain the combinations of language and visual choices that authors make to present information, opinions and perspectives in different texts (Content Description Number 1745, Australian Curriculum: English—Literacy, ACARA, 2014: <http://www.australiancurriculum.edu.au/English>).

Other curriculum documents such as the *New York State Common Core Learning Standards for English Language Arts and Literacy* (New York, 2012) also include explicit attention to the development of students' capacities to address meaning-making through image–language interaction in their text comprehension and composition. For example, the reading standards for literature from kindergarten to grade five require students to 'Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasise aspects of a character or setting)' (New York, 2012, p. 18). And the reading standards for informational text K-5 require students to 'Use the illustrations and details in a text to describe its key ideas' (New York, 2012, p. 20).

Such curriculum requirements for multimodal literacy clearly warrant teachers' engagement with research about how image–language interaction constructs meaning (Bateman, 2014; Painter, Martin, & Unsworth, 2013) and their commitment to advancing multimodal literacy pedagogy (Kalantzis & Cope, 2012; Unsworth & Thomas, 2014), and one might also expect that national literacy testing would be responsive to curriculum expectation of multimodal literacy development (Unsworth, 2014; Unsworth & Chan, 2009).

### **3 Disconnect: The Multimodality Chasm Between Curriculum and National Literacy Tests**

The *Reading Framework for the 2015 National Assessment of Educational Progress* (NAEP) in the USA (Mazany et al. 2015) makes little reference to multimodal literacy. The framework indicates that literary and informational texts are included in the assessment and that these 'may contain non-continuous print material such as charts' (p. 3), acknowledging that 'expository text, argumentation, and persuasive text often contain pictures, charts, tables, and other graphic elements that augment text and contribute to its meaning' (p. 10). But astoundingly claiming that 'literary texts differ in that illustrations, pictures, or other non-print elements (when present) may aid readers in understanding the text but are not usually critical for comprehension' (p. 10).

The fundamentally bi-modal meaning-making inherent in literary picture books and many illustrated longer literary narratives that has been firmly established in extensive research (Guijarro, 2014; Meek, 1988; Nodelman, 1988; Painter et al., 2013; Serafini, 2010; Sipe, 1998; Trifonas, 1998; Watson, 1997) seems to have been by-passed or disregarded in this claim. Nevertheless, the NAEP framework concludes that 'finally, balance must be considered so that the assessment as a whole reflects the full range of print and non-continuous text that students encounter in their in-school and out-of-school reading' (p. 31).

While it has not been possible to examine the actual NAEP test materials, on the basis of the publicly available samples, it appears that student comprehension of the contribution of images to meaning-making in multimodal texts is not assessed at all.

The website for the Institute of Educational Sciences National Center for Educational Statistics provides sample questions from the 2015 NAEP reading assessment (<https://nces.ed.gov/nationsreportcard/about/booklets.aspx>). One assessment text sample is provided for year levels four, eight and 12, and two sample questions on these texts are provided for years four and eight and three sample questions for the year 12 text. Three images appeared in the year four text, one image in the year eight text and no images in the year 12 text (Table 1). None of the sample questions required the readers to attend to the images.

The website for the Institute of Educational Sciences National Center for Educational Statistics also allows website visitors to take a sample online test of up to thirty NAEP reading assessment items from previous tests at each of year levels four, eight and 12 (<http://nces.ed.gov/NationsReportCard/nqt/>). A sample test was undertaken of 30 items at the year four level including ‘easy’, ‘medium’ and ‘hard’ items. As shown in Table 2, the 30 test items provided were based on sixteen different texts, eight literary and eight informational, and including a total of 21 images. None of the sample questions on any passage required the reader to attend to an image in order to answer correctly.

This sample evidence suggests a yawning chasm between the concerns for multimodal literacy development in curriculum documents and in national reading tests.

In England, the Assessment and Qualifications Authority (AQA) on its Testbase website (<http://www.testbase.co.uk/sec/pastpapers.php>) provides sample papers for previously administered Standard Achievement Tests for the assessment of the national curriculum. This study examined the reading tests for Key Stage 2 (years four to six) in 2013 and 2015. Table 3 summarises the texts used in the 2013 tests.

Only two questions in the entire 2013 test addressed images. Both of these referred to the final text, *Wolf Communication*. This text included four separate profile images of a wolf’s head, each indicating, respectively, the facial expression that communicates the wolf is feeling calm, frightened, threatening or aggressive. Questions 26 and 28, shown below, require readers to use these images to determine the correct answer.

26. Look at the illustrations of the wolves.

Tick to show if the following statements are true or false.

- A wolf shows its teeth when threatening.
- A wolf’s ears point up when it is afraid.
  - It is safe to approach a wolf when its mouth is open.
  - A wolf is always frightened when its mouth is closed.

**Table 1** Summary of 2015 sample NAEP reading assessment texts

Year	Assessment text title	Text type	Images
4	Daddy Day Care	Informational	3
8	Tech-Trash Tragedy	Informational	1
12	The Open Window	Literary	0



**Table 2** Summary of sample ‘take a test’ texts from NAEP item bank for year 4 reading

Text	Title	Text type	Questions	Images
1	Amanda Clement: The Umpire in a Skirt	Informational	1	1
2	Hungry Spider And The Turtle	Literary	2, 3	0
3	Blue Crabs	Informational	4	2
4	A Brick to Cuddle Up To	Literary	5	1
5	The Box in the Barn	Literary	6, 7, 8	1
6	Watch out for Wombats	Informational	9, 10,	2
7	How the Brazilian Beetles Got Their Coats	Literary	11,12	0
8	Dr. Shannon Lucid: Space Pioneer	Informational	13,	0
9	Nutting	Literary	14, 15	1
10	Dishpan Ducks	Literary	16, 17, 18	1
11	Ducklings Come Home	Informational	19, 20, 21	2
12	Marian’s Revolution	Informational	22, 23	3
13	Daddy Day Care	Informational	24	3
14	La Ñapa	Informational	25, 26	0
15	Granddaddy	Literary	27, 28	3
16	The Gardener and the Nightingale	Literary	29, 30	1

**Table 3** Summary of Key Stage 2 levels 3–5 texts from 2013 England national reading tests

Text	Title	Text type	Questions	Images
1	The Jungle Book	Narrative	1–18	5
2	Wolves–good or bad	Informational	19–20	1
3	Romulus and Remus	Narrative	20–24	0
4	Wolf Communication	Informational	25–29	4

28. Use the illustrations on page 10 to answer the following questions about the characters in *The Jungle Book*.

- Which two of these expressions might have been on Father Wolf’s face when he pounced into the bushes at the top of page 7?
- Which one of these expressions might have been on Mother Wolf’s face when she was looking at the human baby?

(AQA 2014, testbase, NC2014 and test, KS2 English)

Question 28 deals with interpreting the emotional state of the characters at particular points in the story. The answers can be obtained from the image captions (Calm, Aggressive, Frightened and Threatening), and hence, the question does not actually necessitate attention to the images. In the entire 2013 Key Stage 2 test therefore, there is only one question that necessitates the reading of images.

The summary of texts used in the 2015 test is provided in Table 4.

**Table 4** Summary of Key Stage 2 levels 3–5 texts from 2015 England national reading tests

Text	Title	Text type	Questions	Images
1	Charlie Small	Narrative	1–12	2
2	Guide Dogs	Informational	13–28	3
3	California’s Unlikely Warriors	Informational	29–39	7

**Table 5** Proportion of reading test questions involving images in the NAPLAN in Australia

	Year 3 (%)	Year 5 (%)	Year 7 (%)	Year 9 (%)
2008	5	8	2	4
2010	3	3	8	2
2012	3	5	0	2
2014	0	2.5	2	0

There were no questions at all in this test that required the readers to attend to the images. This is despite the fact that the 2015 test included more images than the 2013 test and also included more questions.

In Australia, since 2008 when literacy tests formerly administered separately by the Australian States were replaced by the National Assessment Program in Literacy and Numeracy (NAPLAN), there has been minimal and decreasing attention to the role of images in reading comprehension. Table 5 shows the proportions of test questions that required readers to attend to images in the tests administered to students in years three, five, seven and nine, at two yearly intervals from 2008 to 2014.

In the 2012 NAPLAN test, over the four tests for years three, five, seven and nine, there were only four questions that required attention to images from a total of 171 questions (2%). These four questions across all year levels were based on only three images in texts because some stimulus pages, and the questions about them are repeated over some year levels.

In the 2014 NAPLAN test, only two questions in the entire reading test over years three, five, seven and nine, required the students to attend to images in order to answer correctly. One of these questions in the year five test shows in the question booklet an image of a person’s foot positioned flat on a bicycle pedal. The stimulus booklet lists five steps for checking that the bicycle seat is in the correct position. The test booklet image needs to be matched to step two which states: ‘Sit on the bike and put your feet on the pedals. Your feet should be flat’.

The second question dealing with an image related to a report of a shipping accident which involved many thousands of floating bath toys being lost in the ocean and scientists tracking where these were washed up ashore as a means of studying ocean currents. The text was accompanied by a world map with red lines showing the paths followed by the bath toys across the oceans. The caption indicated that ‘A thicker line represents more toys’. The question required the readers to note where the thickest line was to answer the following multiple-choice item:

According to the map, which of these statements is true?

- More bath toys were found in Europe than Australia
- More bath toys were found in South America than Europe
- More bath toys were found in South America than Australia
- More bath toys were found in Australia than South America

The only two questions involving images in the entire 2014 NAPLAN reading tests across four year levels involved only the most basic comprehension processes.

Despite very clear curriculum requirements based on the understanding that literacy entails the integrative deployment of language and images, there is negligible attention to the role of image–language relations in national reading tests in the USA, England and Australia. Yet there are also very well established examples of large-scale reading tests that allocate a substantial proportion of test items to the assessment of students’ understanding of the role of images and language in constructing meaning in a range of different types of text.

#### **4 Realistic Recognition of Image–Language Interaction in PISA and State Reading Tests**

The International Organization for Economic Co-operation and Development conducts the triennial Program of International Student Assessment (PISA) for fifteen-year-old students in 65 middle-income countries and economies (<http://www.oecd.org/pisa/home/>). In 2012, the PISA test of reading literacy, which was conducted in paper and digital media formats, included texts that consisted of language only (continuous text); graphs, tables and diagrams, schedules, catalogues, indexes and forms (non-continuous text); and ‘mixed’ text consisting of continuous language with non-continuous text features interpolated, as well as ‘multiple’ texts, which were two or more discrete texts juxtaposed, which may have consisted of continuous, non-continuous or mixed texts. Examples of non-continuous items include a map of a library and an annotated comparative display of images of the tallest buildings in the world such as the Eiffel Tower, the Empire State Building, Taipei 101, the CN Tower in Toronto and the Burj Tower in Dubai. An example of a ‘mixed’ text deals with *The Northern Drakensburg Trek* in South Africa, which, along with continuous text, includes a table of daily average temperatures and precipitation and a graphical representation of a walk profile. Table 6, from the PISA 2012 Assessment and Analytical Framework, shows the allocation of ‘score points’ to test items addressing the various forms of text in the reading assessment (OECD, 2013, p. 69).

The 31% allocation to non-continuous texts and an additional 9% to mixed texts in the print (paper media) format of the 2012 PISA test indicates a substantially greater commitment to assessing the comprehension of non-print images of various kinds and their interaction with language than was the case for the NAEP in the USA, the NAPLAN in Australia and the Key Stage 2 reading tests from England.

In Australia, prior to the introduction of NAPLAN in 2008, mandatory group reading comprehension tests were conducted by each of the Australian States and

**Table 6** Approximate distribution of digital score points in reading, by text format in the 2012 PISA reading literacy test

Text format	Percentage of total score points PISA 2013	
	Print	Digital
Continuous	58	4
Non-continuous	31	11*
Mixed	9	4
Multiple	2	81
Total	100	100

\*Rounded up, the figure is 12% (11.54) but this would make the total 101%. “Approximate” in the title covers this. (OECD, 2013, p. 65)

**Table 7** Proportions of test items involving images in the 2005 and 2007 New South Wales basic skills tests

Data on test items and their relation to images	2005 BST YR3	2005 BST YR5	2007 BST YR5
Total number of images in magazines	24	23	34
Total number of test items	36	46	46
Number of test items involving the use of images	12	15	14
Proportion of test items involving images (%)	33	33	30

Territories, usually for year three, year five and year seven children in government primary schools. In the State of New South Wales, these tests were called the Basic Skills Tests (BST). As part of a larger study I examined the proportion of test items addressing image–language relations in the year three BST for 2005 and the year five BST for 2005 and 2007 (Unsworth & Chan, 2008, 2009). These proportions are shown in Table 7.

The format of the BST tests is very similar to that of the current NAPLAN tests. They consist of coloured stimulus magazines with narrative and informational texts replete with images of various kinds, and accompanying multiple-choice comprehension test booklets. There does not appear to be any obvious reason why the NAPLAN and other national reading assessments could not include similar proportions of questions addressing image–language relations as those in the BST.

## 5 Limitations of Test Items Addressing Image–Language Relations in National Reading Tests

A clear rationale for including image–language relations in national and international tests of reading comprehension is that of content validity, given the ubiquitous nature of various kinds of images in an increasing range of texts in the

broader community. In the national reading test materials examined here, not only is the paucity of attention to the role of images of concern but also the apparent lack of any principled theoretical basis for the construction of the test items that do involve images.

As noted in the previous section, in the 2012 NAPLAN reading tests across the four year levels, only four questions required attention to images. These four questions have been shown to deal with only the most basic level of reading comprehension and/or demonstrate inadequate construct validity (Unsworth, 2014). The first of the three questions was about a text entitled ‘Giddy Galahs’ and was used in both the year three and year five tests. The text describes the amusing postures and antics of the galah, which is a common Australian bird, and includes four drawings of galahs exhibiting such amusing behaviours. The test item was:

The text suggests galahs are

- uncommon
- quiet
- gentle
- playful.

While the images certainly indicate that galahs are playful, the language of the text states this explicitly: ‘Galahs are intelligent birds that seem to like having fun’. Hence, answering this question directly does not require accessing the images at all. The verbal comprehension task is simply seeing the option ‘playful’ as equivalent to ‘having fun’.

The second of the three items in the 2012 NAPLAN dealing with image–language relations was based on an informational text about honeybees. It was not possible to obtain permission to reproduce the original text, so a schematic representation of the original text is shown in Fig. 1. The text item was:

What do the arrows show in the text?

- Which picture belongs to each box?
- The order to read the information
- Which piece of information is the most important?
- The direction that honeybees move around the hive

This item seems to be dealing with the relatively inconsequential matter of the order of reading the text boxes. This only becomes an issue in relation to the order of reading of the two boxes in the middle of the page. Perhaps the left to right principle might suggest moving to the left box first and the arrows guide the reader not to do this. The incorrect options can be easily dismissed in that the arrow at the top right is not associated with any picture, so option one is ruled out; all arrows are the same, so no one piece of information is distinguished by them, ruling out option three, and option four is ruled out because the image of the flower is obviously not inside the hive.

The last of the three items dealing with image–language relations in the 2012 NAPLAN refers to an informational text indicating that multitasking reduces

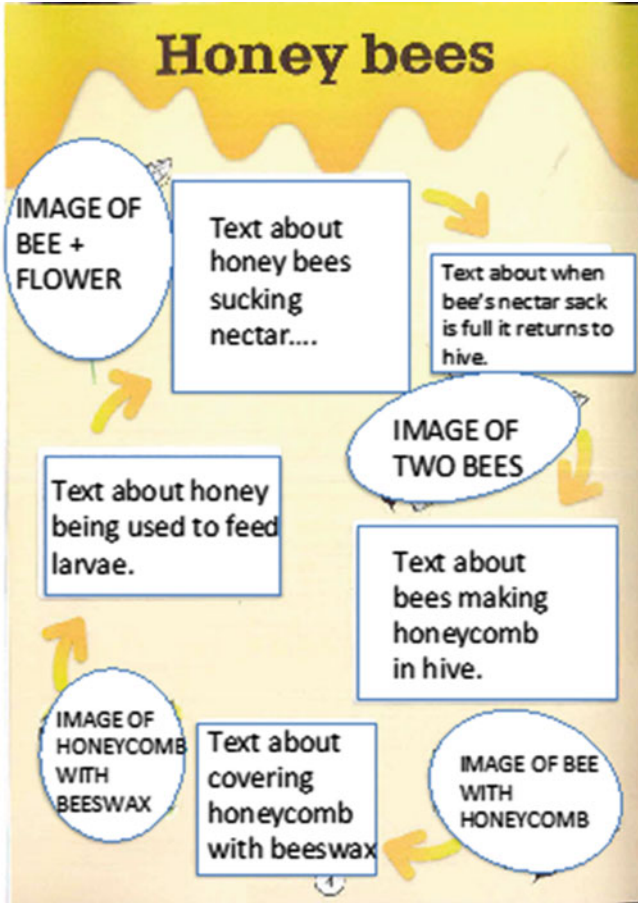


Fig. 1 Schematic representation of the honeybees text from the 2012 NAPLAN

concentration, which has an accompanying cartoon showing a mother apparently admonishing her daughter who is at a desk using her mobile phone and her computer while listening to music on an I-pod, watching TV and using (reading?) a book. The speech bubble for the girl says ‘I’m multi-tasking! It helps me concentrate’. The test item is:

What is the effect of including the cartoon in the text?

- It challenges some readers’ prejudices against multitasking.
- It contrasts with the writer’s own opinion about multitasking.
- It suggests that multitasking is not a very important issue.
- It places multitasking in a familiar context.

It could be quite legitimately argued that options two, three and four are all true in relation to the role of the cartoon. Options three and four could be determined to

be appropriate responses without requiring a reading of the main text at all. Option two simply requires the reader to understand that evidence is described in the main text indicating that multitasking reduces concentration.

The only two items in the entire 2014 NAPLAN reading test that address image–language relations as discussed above similarly require only the most basic reading comprehension. In the case of the test item about positioning a bicycle seat correctly, the reader needs to match the image of a person’s foot flat on a bicycle pedal with the step in the stimulus book stating ‘Sit on the bike and put your feet on the pedals. Your feet should be flat’. But the image includes a caption—‘keep foot flat’. So the question can be answered correctly by simply matching the two occurrences of the word ‘flat’, and the image is not required. In the case of the second question about where most bath toys were distributed by the ocean currents, the reader simply has to note the legend for the map ‘Paths of the toys (A thicker line represents more toys)’—and then locate the country near the thickest red line on the map.

While information about the relative difficulty of these very few NAPLAN items requiring attention to image–language relations is not available, they certainly appear to require only the most basic level of processing of text information, referred to in the PISA materials as *accessing and retrieving* information, compared with higher-level processing of text information as *integrating and interpreting* (OECD, 2013). Nor does the narrow range of these limited test items reflect the multiple ways in which meaning-making is distributed among the affordances of image and language in literary, informational, persuasive and other kinds of texts (Bateman, 2014; Painter et al., 2013; Unsworth, 2008b; Unsworth & Cleirigh, 2009b). If national reading tests are to be more socially responsible, reflecting the actual curriculum reading required of students during schooling and the multimodal nature reading outside of school, it is essential that reading test designers engage with and in research addressing the complex role of image–language interaction in paper and digital media reading in the twenty-first century, and how student development in negotiating this can be effectively assessed.

## **6 Towards a Theoretical Basis for Multimodal Reading Assessment**

From 2006 to 2009, an Australian Research Council (ARC)-funded study sought to develop a description of a range of ways in which images and language contributed to the meanings constructed in multimodal texts that comprised the stimulus booklets for reading tests in the NSW BST (Unsworth & Chan, 2008, 2009). The study investigated different kinds of image–language relations underlying test items in state-wide reading tests for students in years three, five and seven. Results indicated that the relative comprehension difficulty of questions involving image–language relations corresponded to different types of such relations in the stimulus

text segments on which the questions were based (Unsworth & Chan, 2008). The research was undertaken in collaboration with the New South Wales Department of Education and Training in Australia, and hence, access was provided to the scores of all government school students in years three and five, who in 2005 and 2007 undertook the mandatory reading test of the BST.

From an analysis of the 2005 and 2007 BST test stimulus materials and multiple-choice questions a description was derived of two basic types of image–language relations underlying those questions involving images, which were designated *concurrency* and *complementarity*. These basic types and more delicate sub-types are displayed in Fig. 2. In *concurrency*, one mode elaborates on the meaning of the other by further specifying or describing it, while no new ideational element is introduced by the text or image. Two sub-types of *concurrency* were found: *equivalence*, where there is some redundancy of meaning since the ideational content corresponds across modes, and *exposition*, which refers to the reformulation or elaboration of the meanings of the image or the text in the alternative mode.

An example of *equivalence* can be seen where a descriptive caption provides the same information as depicted in an image, such as in the 2005 BST year three text ‘Water Animal Records’ where a diagram depicting a large shark on one side of a beam balance and seven elephants on the other side is accompanied by the caption, ‘One whale shark weighs the same as 7 elephants’.

An example of *exposition* is found in the 2007 BST year three stimulus extract from *Big Dog* by Gleeson (1991). This includes an illustration of the youngest child in the story patting the forehead of a dog with its tongue hanging out, lying on its back on the grass. The text states: ‘It put out its wet, pink tongue and licked the lion’s face and made a happy, gurgly sound. After a minute, Jen stretched out her hand and gently touched the top of its head’. While the image depicts a friendly-looking dog, the text provides further specification of details such as the name of the child, the wetness of the dog’s tongue, the sound it was making and the gentleness of the child’s touch.

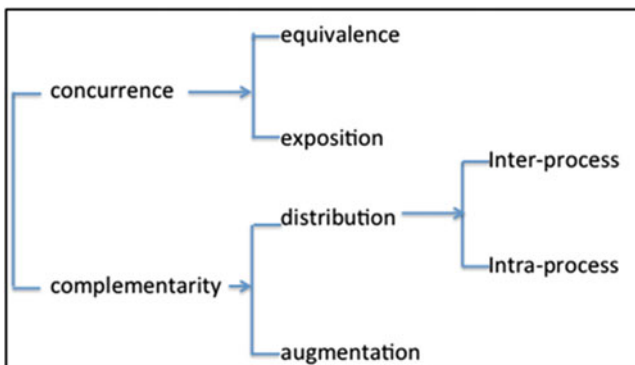


Fig. 2 Main types of image–language relations



With the second type of image–language relation, *complementarity*, two sub-types were also found. *Augmentation* involves new meanings being constructed through the combination of meanings from the image(s) and the language. One of the questions from the 2007 year three BST provided separate pictures of the four characters from Gleeson’s (1991) *Big Dog* and asked which of them was telling the story. Readers need to combine information from the language and images to determine which of the images is the narrator. The second sub-type, *distribution*, refers to images and text jointly constructing activity sequences. According to Gill (2002), there are two types of distribution. *Intraprocess* distribution refers to the portrayal by images and text of different aspects of a shared process. For example, the image(s) might depict the end result of a process described in the verbal text. This occurs in the 2007 BST year three extract from *Mr Archimedes’ Bath* by Allen (1991) where the text states ‘the water rose’, while the image shows water overflowing from the bath. *Inter-process* distribution occurs when images fill a gap in the meaning in the text; image and text complement each other in that activities or processes are distributed across the two modes. An example occurs in Browne’s (1983) picture book *Gorilla*. Hannah had asked her father for a gorilla for her birthday. In the middle of the night Hannah wakes up to find a parcel on her bed, but to her disappointment it was only a toy gorilla. That Hannah unwrapped the parcel is not specified, but is presupposed by the revelation of what the parcel contained. The presence of scrunched up wrapping paper on the bed beside Hannah implies that she has just unwrapped a present—the toy gorilla. Thus, the image relates to the verbal text by implying that a process presupposed by the verbal text did indeed occur.

Image–text relations associated with test items from the 2005 and 2007 BST were specified using the four categories: *equivalence*, *exposition*, *distribution* and *augmentation* as briefly described above. A total of 64 such items were identified. The test response data for these 64 items from all children who undertook the tests in the State of New South Wales were then analysed.

The difficulty level of each test item, measured in logits ( $\delta$ ), and by the percentage (%) of the test population that answered the question correctly, was obtained. A clustering of results suggested an ordering of the types of image–text relation according to item difficulty. To determine the significance of this finding, the data were subjected to a one-way analysis of variance (ANOVA) which confirmed a difference in the mean item difficulty for each of the image–text relation types in decreasing order of difficulty: ‘augmentation’, ‘distribution’, ‘exposition’ and then ‘equivalence’. [For details of statistical analyses of results, see Unsworth and Chan (2008)].

The spread of difficulty among the items assessing image–language interaction reflected the range of difficulty across all test items and was similar in the year five BST and the year 3 BST with slightly more in the difficult range for the year five BST. Table 8 shows the number of 2005 year three and year five items that assessed image–language interaction from the total number of items located in quartiles of difficulty.

**Table 8** Spread and location of 2005 year 3 and year 5 items assessing image–language interaction

2005 BST (number of items)	First quartile (easiest items)	Second quartile	Third quartile	Fourth quartile (hardest items)
Year 3 (12 out of 36)	5 out of 9	2 out of 9	2 out of 9	3 out of 9
Year 5 (15 out of 46)	5 out of 11	1 out of 12	6 out of 12	3 out of 11

Table 8 indicates that test items addressing image–language relations can extend beyond the basic comprehension processes of *access and retrieve* information (OECD, 2013), which characterised the 2012 and 2014 NAPLAN test items involving images, as discussed above. All of the NAPLAN items were based on simple aspects of informational texts (*Giddy Galahs*, *Honey Bees*, *Multi-tasking*, *On Your Bike* and *Global Bathtub*). In the BST materials examined here, some of the most challenging test questions were those addressing image–language augmentation in the year five 5 2005 BST and the year three and year five 2007 BST (There were no questions on augmentation in the year three 2005 BST). Examples of such questions based on an informational text, a picture book excerpt and a graphic novel excerpt will be briefly outlined here to indicate the comprehension processes required by them as more consistent with the PISA description of *integrate and interpret* (OECD, 2013).

The most difficult question on the year five 2005 BST was item 28, which referred to a reproduction of a painting from the *Tobwabba Art Gallery* (<http://www.tobwabba.com.au/>) and an accompanying commentary on the painting. The image portrays a skeletal drawing of a sailfish in the foreground and two smaller versions in the background. The background consists of a pattern of multiple coloured triangular and trapezoidal shapes, three of which are noticeably darker than the others. The relevant part of the commentary to the right of the image is: ‘The sailfish is believed to be a cunning fish, able to feed amongst the various fish traps and nets shown by the dark areas, without being caught’.

Question 28 (In this artwork which shape shows a fish trap or net?) is accompanied by a copy of the painting with arrows pointing to four of the shapes, one of which is one of the darker ones, and the students need to colour in the bubble on the end of the arrow indicating which shape represents the fish trap. The correct answer can be obtained only by synthesising meanings from both the text (‘...the various fish traps and nets shown by the dark areas’) and from the image—by identifying the dark areas in the painting. This question was in the highest difficulty band (6) with only 44% of the year five 2005 student cohort answering correctly.

The most difficult question from the year three 2007 BST was the one based on the extract from the story *Big Dog*, referred to earlier. The question provided separate pictures of the four characters from the story and asked: ‘Who is telling the story?’ Again determining the character-narrator required synthesis of information from the images and the language (Unsworth, 2013). This question was also in the

highest difficulty band (6) with only 37% of the year three 2007 student cohort able to answer correctly.

The most difficult question in the 2007 BST for year five referred to the text ‘Puddles’ [adapted from the graphic novel of *The Puddleman* (Briggs, 2004)]. The comic strip depictions show two characters, a boy and his grandfather, while the words shown in speech bubbles come from three speakers. The third character is the grandma, who is represented indirectly by her projected speech only. In this way, the image and text augment each other in representing the story characters. Question 11 asked students to indicate how many characters there were in this text. Only 46% of the 2007 cohort of year 5 children was able to answer this question correctly, placing this question at the highest level of difficulty in band six.

The nature of the image–language relations at stake in responding to these reading test items seems to be a key factor contributing to the comprehension difficulty experienced by more than half the children in the age cohorts. However, there could be other contributing factors such as the complexity of the language and/or the complexity of the image [see Daly and Unsworth (2011) for a discussion of such factors]. Nevertheless, the evidence for the influence of what meaning-making processes are entailed in these broad descriptions of image–language relations on reading comprehension seems quite robust. As new research advances understanding of how meaning-making in multimodal texts is distributed across images and language (Bateman, 2014; Painter et al., 2013; Unsworth & Cleirigh, 2009a), it will be possible to specify more precisely the way(s) image and language interact in these initial broad contexts of equivalence, exposition, distribution and augmentation, and hence establish a more refined theoretical basis for the formulation of test items to assess readers’ comprehension of multimodal meaning-making in texts.

## 7 Implications and Future Directions

The implications of issues canvassed in this chapter concern nations’ school literacy education and assessment policies, the nature of literacy and literacy assessment research that is needed to determine the development of students’ capacities to interpret the meanings constructed in the increasingly multimodal texts of the twenty-first century, the reconceptualisation of literacy pedagogy to take account of the multimodal meaning-making of today’s paper and digital media texts, and the professional learning needed by teachers to facilitate students’ multimodal literacy development.

A key policy imperative is to address the misalignment between mandated school multimodal literacy curriculum requirements and the essentially mono-modal literacy competences addressed in national literacy tests. A number of studies have established the internationally widespread and constant struggle between high-stakes standardised testing/accountability systems and more learning-centred views of classroom assessment (Berry & Adamson, 2011; Klenowski, 2011), and it is clear

from the literature that to a very significant extent high-stakes testing narrows curricular content to what is tested (Au, 2007; Stillman & Anderson, 2011). However, while this is predominantly the case, there is also some evidence that nature of the effects of high-stakes testing on curriculum is highly dependent on the characteristics of the high-stakes tests themselves (Au, 2007). Policy reform to establish a more curriculum responsible national literacy testing regime seems to be an obvious potential pathway to optimise curriculum implementation and achieve the multimodal literacy outcomes intended for students.

To achieve policy alignment across the literacy curriculum and national testing, it would seem necessary for literacy testing agencies to engage with and/or in test development research that incorporates multimodal semiotic perspectives on explicating the variety of ways in which language and images are related in multimodal text to construct interpretive possibilities, as well empirical investigations of how readers negotiate and respond to such possibilities afforded by these texts. The study of the BST testing in New South Wales schools in Australia, which has been outlined here, is an initial move in this direction, but the outcomes of that study point strongly to the need for further work in theorising the nature of image–language relations in constructing meanings in the test materials as well as investigating how these relate to readers’ strategies in comprehending the texts.

The sample questions from the *Tobwabba*, *Big Dog* and *Puddles* texts were among the most difficult for the majority of students in the relevant cohorts. Yet none of these questions is arcane, and all deal with normal aspects of comprehension that one might reasonably expect readers of the relevant age groups to negotiate. Notwithstanding the tentativeness of the typological descriptions of the underlying image–language relations as *equivalence*, *exposition*, *distribution* and *augmentation*, the latter category proved to be quite empirically robust, at least, in the clustering of the most difficult test items involving images across tests conducted in 2005 and 2007. However, what has been characterised as image–language *augmentation* has different semiotic realisations in each of the three texts (Unsworth, 2013). What this suggests is that theorising image–language interaction in terms of a simple typology of relations will not provide descriptions of sufficient delicacy to inform an investigation of how readers negotiate of the more challenging forms of intermodal meaning-making required in the comprehension of complex aspects of bi-modal texts. The three questions discussed here all seemed to entail negotiating the gap or variability in commitment to ideational meaning across the verbal and visual modes, that is, linking the meanings made in one mode that were not made in the other mode to achieve the synthesis of meanings required to respond to the test items. Theorising the nature and extent of meanings committed in images and language and how they integrate or ‘couple’ in these texts may assist in investigating readers’ synergistic construction of meaning from the distinctive resources of image and language (Painter et al., 2013).

The study reported here does not address if or how teachers might have dealt with these kinds of image–language relations in designing and implementing learning experiences in multimodal reading comprehension. In view of the difficulty level of comprehension questions drawing on image–language relations of

distribution and augmentation, exploration of the nature and extent of teaching related to these is an important agenda for future research. If these challenging aspects of reading comprehension are to be systematically addressed in pedagogic practice, aligning curriculum and national testing policies is crucial to a secure and facilitative professional context for teachers to pursue the teaching of multimodal literacy. Undertaking the kind of semiotically informed research into literacy assessment and teaching proposed here is crucial to reconceptualising the pedagogic content knowledge teachers need to undertake in multimodal literacy teaching. The challenge then is to orchestrate provision for the time teachers need for professional learning to engage in developing their professional knowledge base to support a reorientation of their pedagogic practice towards multimodal rather than mono-modal literacy development. In the light of the undisputed pervasive impact of national literacy testing on curriculum implementation and pedagogic practice, ongoing research-based reform of national literacy testing is essential to bridging the chasm between the realities of image–language interaction in meaning-making in today’s paper and digital media texts and the unrealities of the essentially mono-modal literacy assessment undertaken in national literacy testing programmes.

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# Reading the Future: The Contribution of Literacy Studies to Debates on Reading and Reading Engagement for Primary-Aged Children

Cathy Burnett

**Abstract** Reading in everyday life is commonly understood to be changing rapidly. It is increasingly multiple, multimodal and associated with constellations of participatory literacy practices that include the digital. This chapter argues that the field of literacy studies, and the study of new literacies in particular, has much to offer to contemporary debates related to reading and reading engagement. New literacies research not only implies a broad conceptualisation of reading but a broader conceptualisation of ‘evidence-based approaches’ than is generally accepted in the arena of school improvement. Studies in the field draw primarily on qualitative methods, often ethnographies, that describe literacies that are hard to gauge in terms of fixed measurable outcomes: literacies that are mobile, fluid, multimodal and meshed with other social practices. Drawing on a review of studies focused on intersections between literacy and technology for newborns to 11-year-olds from 2010 to 2015, this chapter explores five sets of ‘entanglements’ illuminated by research in the field which problematise simple conceptualisations of literacy. It ends with a series of principles for literacy provision which acknowledge these complexities. These are framed as a Charter for Literacy Education.

**Keywords** Digital · New literacies · Literacy · Technology · Literacy studies

## 1 Introduction

Reading in everyday life is commonly understood to be changing rapidly. It is increasingly multiple, multimodal, mediated by mobile devices and associated with constellations of participatory literacy practices that include the digital (Merchant, 2013). Dominant discourses in England and elsewhere, however, continue to position reading as individualised, singular, print-based and fixed. Despite notable

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exceptions in some national contexts, reading education—as conceived in curricula, assessment procedures and associated accountability systems—remains predominantly focused on the decoding and comprehension of print texts. Even in those countries where literacy curricula are underpinned by more inclusive definitions of reading—The Australian Curriculum [Australian Curriculum and Reporting Authority (ACARA, 2013)] is one of these—assessment and accountability frameworks may narrow the focus of the curriculum as enacted in schools (Comber, 2012; Cumming, Kimber, & Wyatt-Smith, 2012). Moreover, proposals for engaging with participatory dimensions of new literacies tend to be framed in terms of twenty-first-century skills rather than fully acknowledged within literacy curriculum and assessment arrangements. In England, for example, this manifests in a parting of ways between the discourses of transformation associated with twenty-first-century skills and those of accountability and alphabetic competences pervading policy statements around literacy (Burnett, 2016; Burnett & Merchant, 2014).

Reviews of research highlight omissions that may be problematic if we are to address these tensions. The majority of research focused on literacy and technology in education, for the youngest children at least, has focused on technology as a tool to support reading and writing associated with print literacy rather than engaging with new forms of communicative practices (Burnett, 2009, 2010; Burnett & Merchant, 2013; Labbo & Reinking, 2003; Lankshear & Knobel, 2003). It would seem then that there is a need to better understand the scope and qualities of reading in the twenty-first century. One way to address this is to tease out the skills and strategies required to read online and on-screen as others have done (e.g. Coiro, 2012; Leu, Forzani, Rhoads, Maykel, Kennedy, & Timbrell, 2015). More of such work is needed in order to generate insights into the skills and strategies educators will need to effectively support learners. A complementary approach—the one I commend in this chapter—is to explore literacy in practice, to consider what we can learn by examining the practices associated with digital environments.

Studies (e.g. Marsh, 2010; Merchant, 2014) drawing on a social model of literacy from the field of literacy studies have much to offer in this regard. They provide insights into how children make and take meanings in digital environments, what matters to them, what motivates them, and what gets in the way. Acknowledging the contribution of research in this field implies a more expansive conceptualisation of reading that includes reading using new media as manifest in multiple ways in everyday life. It also builds on a more inclusive conceptualisation of ‘evidence-based approaches’ than is often accepted in the arena of school improvement (Biesta, 2010). It involves drawing on studies using qualitative methodologies, often ethnographic in approach, that describe literacies that are hard to gauge in terms of fixed measurable outcomes: literacies that are mobile, fluid, multimodal and meshed with other social practices. This slipperiness, as I shall argue, is important to confront if we are to arrive at literacy provision that works for literacy as lived today and for the ways in which it might be lived in the future.

In making this argument, as explored below, I understand reading in relation to broader literacy practices. I begin by outlining the contribution of literacy studies in understanding literacy in children’s lives and the significance of digital technologies

in particular. Next, I draw on a review of studies from 2010 to 2015 to explore how educators and researchers are putting such insights to use and consequently learning from, and with, young children. I consider a series of themes that cut across these studies, each of which is at odds with restricted notions of literacy and can helpfully be presented, I suggest, as sets of ‘entanglements’. I explore how such studies, when taken together, help us see reading pedagogy in relation to rich and complex social practices. Following this discussion, I propose nine principles that might frame an expanded literacy provision, developed with colleagues and presented as a Charter for Literacy Education (Burnett et al., 2014). The Charter re-states calls made previously by influential literacy educators and researchers (e.g. Cope & Kalantzis, 1999; Lankshear & Knobel, 2010), but also foregrounds considerations which emerge from recent studies of literacy practices.

## **2 Literacies in Children’s Lives: What Do We Know from Literacy Studies?**

The field of literacy studies sees literacy as embedded in practice, and recognises the multiplicity of literacies with which people enact and transact their lives (Street, 1985). Literacy, from this perspective, is situated (Barton & Hamilton, 1998), and our knowledge about the changing nature of literacy, or literacies, is derived from our understandings about what people do as they engage in diverse communicative practices. Studies of children’s literacies have focused on children as ‘being rather than becoming literate’ (Mavers, 2007), demonstrating how children are participants in literacy practices from their earliest years (Larson & Marsh, 2013). Their literacy practices are not preparation or rehearsal for future competence but rather legitimate acts of meaning-making in their own right. Importantly, children’s meaning-making practices are socially, culturally and historically situated (Rowell & Pahl, 2007). Children take up literacies within specific settings, communities and relationships as they improvise with the ‘ways with words’ (Heath, 1983) available to them in their everyday lives. Many settings of course, including schools, are inflected by multiple practices (Burnett, 2015).

For young children, as in society as a whole, such literacy practices increasingly involve a mesh of online and offline activities (e.g. Lewis, 2012; Teichert, 2010). Many children become familiar with phones and tablets from their earliest years as mobile devices are used for play, communication and the documentation of everyday life (Merchant, 2014). Digital resources make it relatively easy for children to produce and create as well as access texts, to interact with others via a range of communicative practices and explore and play with virtual worlds and games. Studies such as Marsh’s account of Club Penguin have highlighted the agency and creativity with which children often engage in virtual play (Marsh, 2010). Importantly, children act and interact in ways that are locally meaningful; digital technologies are ‘placed resources’ (Prinsloo, 2005) that get taken up in certain ways according to local needs, resources and practices.

### 3 New Literacies: Where Is Reading?

Before proceeding, it is worth noting that in this chapter, I focus on research on ‘literacies’ rather than reading. I do this for a number of reasons. First, in everyday life, reading in digital formats is meshed with other literacy practices. We see this, for example, in how young children’s use of e-books in a nursery interfaces with other interactions with books, people and objects (Merchant, 2015), or in older children’s use of cheat-sites, online forums or searches for modifications (mods) as they play computer games (Burnett & Wilkinson, 2005). As Leu et al. (2015) argue, reading online is often ‘richly integrated within a complex process of enquiry and problem-solving’ (p. 38). Second, reading has become more multimodal (Kress, 2003) and texts may offer more overt opportunities for interaction (e.g. choosing pathways, clicking on sound files and animations). Reading and writing are often part of a single episode—as one ‘likes’ or ‘follows’ what one sees on-screen with a single keystroke, or reading becomes part of a written conversation during messaging. Third, and following this point, the boundaries between reading and writing become harder to draw when digital texts are involved (Burbules, 1997; Long, 2014). As we make choices about which search engines to use, websites to search or links to follow, reading becomes more writerly: we drive individual pathways through and between texts, and reading becomes akin to a process of writing or design. Simpson, Walsh, and Rowsell (2013), for example, chart the diverse reading pathways children make through online texts, while Coiro et al. (2012) identify a series of skills and strategies required, and others have explored the challenges of locating and critically appraising information online (Martin, 2011). The writerliness of reading reaches another level in virtual worlds and computer games: children make meaning from, or ‘read’, what is happening in these image-rich textual environments but simultaneously shape them, to varying degrees, through their actions. Use of new technologies, such as augmented reality apps and associated headgear, may stretch our conceptualisations of reading further still. We have yet to fully grasp what ‘reading’ might be or become in these varied online/offline on-/off-screen contexts. Nevertheless, it appears that we can gain useful insights by approaching reading by focusing more broadly on literacies and as integrated within a range of meaning-making practices.

### 4 Where Do We Go Next? Embracing Complexity

Calls to redefine the literacy curriculum are not new. Nearly twenty years ago, the New London Group’s multiliteracies framework provided a template for reworking literacy provision to recognise ‘ever more critical factors of local diversity and global connectedness’ (Cope and Kalantzis, 1999, p. 3) and highlighted the significance of multimodality, multilingualism and new forms of communication. Confident, creative and critical uses of digital media are increasingly central to how

individuals, including children, negotiate and ‘curate’ their lives online (Potter 2013), and engage with diverse forms of narrative linked, for example, to gaming and film (Beavis, 2014; Colvert, 2012; Parry, 2014). Ensuring that all children are equipped to navigate digital media with confidence, creativity and criticality is increasingly important in enabling them to participate safely and advantageously in opportunities (e.g. social civic, political) mediated by digital resources. This need is pressing given the ‘participation gap’ (Jenkins, 2006) that exists for many children. Inequalities persist despite the rapid rise in tablet ownership and access to the internet via mobile devices in many countries [Interactive Games & Entertainment Association (IGEA, 2014; Ofcom, 2014; Pew, 2013)]. Children from low-income families may have limited access both at home and school (Leu et al., 2015), and when those from low-income families do have rich digital lives, opportunities to draw on their expertise in school may be restricted (Drotner, 2014). Moreover, many have expressed concerns about the commercial interests that structure virtual sites and the stereotypical constructions they often produce (Black, Korobkova, & Epler, 2014; Carrington & Hodgetts, 2010). This matters if, as Carrington and Hodgetts argue, such texts add to the ‘social imaginary’ that legitimises some ways of being and not others. If we are to address these inequalities, we need to ensure that educational provision acknowledges, values and develops reading within literacy provision that acknowledges the diversification and ongoing evolution of literacies in everyday life.

Educational practices however have been slow to shift and even where a national curriculum, like ACARA, adopts a more inclusive model of literacy, competing discourses can generate tensions in practice. Such tensions are evident in discontinuities between teachers’ views of literacy in everyday life and literacy at school (Burnett, 2011; Nikolopoulou, 2015) and when new media are integrated in ways more suited to print literacy (Anderson & Wales, 2012). Reasons are complex, linked partly to limited, out of date, often unreliable equipment, concerns about children’s online safety (Hope, 2013) and a dearth of models for practice. However, intransigence is also explained by accountability frameworks closely tied to attainment in standardised tests of literacy. In England, as in other countries, such tests focus on a limited repertoire of print literacy skills and many schools, as might be expected, funnel literacy provision towards these skills. One response here is to broaden the scope of tests to include the skills and strategies associated with digital media or simply to add the digital or multimodal skills to an ever-longer list of reading competencies. However, re-fashioning texts or curriculum frameworks is unlikely to be enough in itself. To explore why we need, and how we might think about a much broader response, I draw on ideas associated with actor-network theory, specifically the work of Michael Callon, Anne-Marie Mol and John Law. In illustrating these ideas, I begin with Callon’s analysis of the workings of a market economy.

Any system or set of practices—economic, social and indeed educational—works through a process of framing, through seeing some relationships and experiences as relevant, and others as not. A market economy relies on highly complex relations including those between producers and consumers but also many other things

including the natural environment and the working conditions and economic circumstances of workers and their families across the world. As Callon (1999) explores, such an economy is only sustainable if some of these relationships are disregarded. In the everyday inter-relations between producers and consumers, for example, price points, product placement and profit margins are at the fore, whereas the implications of production for the workforce are pushed to the background. Such simplifications are necessary for things to happen. If we did not frame practices, and were continuously confronted by the multiple relationships and inter-dependencies that bring anything into being, it would be practically impossible to make decisions. We therefore develop ways of working that make things simple enough to handle, that write out some of the messier and more uncomfortable realities. These ways of thinking are helped by processes and artefacts that hold the frame in place. In a market economy, such processes and artefacts include exchange rates, wages, advertisements and shopping outlets among many other things.

We can explore parallels with literacy education, seeing this as an 'economy' in which measures of performance, league tables, curricula and accountability frameworks all play their part and have generated what we might see as a fixed linear logic in relation to literacy 'standards'. In England, for example, tests for 11-year-olds broker information about literacy attainment between parents and teachers and results are compiled as indicators of schools' relative performance, enabling local, regional and national comparisons. Such measures are popular with governments because they apparently provide grounds on which to make decisions and link 'underachievement' with teachers' performance. However, in order to accept their worth in brokering any of these relationships, it is necessary to disregard many other relationships and assumptions that are significant to children's literacies, not least the nuances and diversity of literacies in everyday life and economic, political and cultural factors. By including some things and not others, tests work as part of the frame that defines what counts in literacy education. In England, for example, a focus on synthetic phonics in early reading provision is held in place by a test for six-year-olds designed to assess the successful grasp of certain graphophonic strategies. Tied to a powerful accountability framework, this test has worked to embed synthetic phonics as the prime strategy for teaching reading, despite challenges to the underpinning evidence base (Ellis & Moss, 2014). Against such a background it is unsurprising that fluid and diverse digital practices are under-represented. Such tests, like the scientific methods Law considers, work to, 'not only to describe but to produce the reality that they understand' (Law, 2004, p. 5).

These 'regimes of truth' (Foucault, 1975) become particularly problematic if we stop noticing the frame. While frames may be necessary for dialogue and action, they limit understanding. As Law (1999, p. 9) writes:

...the premiums we place on transportability, on naming, on clarity, on formulating and rendering explicit what it is that we know – this premium though doubtless often appropriate, imposes costs. [...] It renders thinking – thinking that is not strategically ordered, tellable in a simple way, thinking that is lumpy or heterogeneous – difficult or impossible.

It may be that the practices associated with fixing and quantifying literacy squeeze out experiences needed to equip students with the skills, attitudes, abilities and orientations needed to participate creatively and critically in an increasingly digitised world. One way of responding to new literacies is, therefore, to radically re-think the literacy frame. This does not simply involve enlarging the frame to incorporate a range of digital skills, but looking beyond the frame to confront complexities, and recognise some of the processes, values and relationships we exclude when we start to pin down, name and fix what constitutes reading or literacy more broadly.

## 5 Challenging the Frame

In what follows, I put the notion of complexity to work in considering literacy in practice and pedagogy. I present a series of themes as sets of ‘entanglements’, each of which, I suggest, trouble simple accounts of literacy. These entanglements are drawn from a review that drew on a systematic search for studies of new literacies informed by a social model of literacies. The review aimed to explore pedagogical approaches that have built on research in literacy studies, and consider what needs to be addressed in taking new literacies into account in educational contexts. It focused on studies published between January 2010 and April 2015 related to the 0–11 age group. This under-researched age group deserves attention as competing discourses around literacy, technology and childhood play out in complex ways against the background of early literacy pedagogy.<sup>1</sup> For the reasons discussed in part three, the focus is on literacies rather than reading in isolation. Indeed, very few studies generated by the survey identified reading, as opposed to literacy, as a focus.

The studies examined were small-scale, case studies of single classes, for example, or individual children. Many would likely be screened out of meta-analyses or systematic evidence reviews, dismissed as providing ‘soft’ or ‘anecdotal’ evidence. None map interventions or approaches against measures of attainment or motivation. Instead, they chart relationships between broader themes such as identity and participation. Perhaps significantly many projects reported were introduced by researchers and occurred in ‘not-school’ sites, such as after-school clubs and summer schools. This in itself may suggest an incongruence between schooling and new literacies. They are important to examine, however, as through situating meaning-making more broadly in relation to social, cultural and economic contexts,

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<sup>1</sup>The search was conducted using British Education Index. Search terms, as appearing in titles or abstracts of peer-reviewed articles, included ‘literacy’ combined with each of the following: ‘technology’, ‘technologies’, ‘digital’, ‘touchscreen’, ‘iPad’, ‘tablet’, ‘game’, ‘Web 2.0’, ‘social media’, ‘virtual’, ‘participation’, ‘ICT’, ‘multimodal’, ‘multimedia’, ‘web’, ‘internet’, ‘mobile’, ‘online’, ‘film’, ‘media’, ‘multiliteracies’, ‘affect’, ‘production’, ‘creativity’. Studies which did not reflect a social model of literacies were screened out. Analysis generated five themes characterised as entanglements and explored here using exemplar studies.

they make apparent—as I shall explore—the entanglements that exist between children’s literacies within school and elsewhere. Each of the five sets of entanglements explored below, illustrated by examples from the review, represents ways in which researchers and educationalists have responded to literacies as rhizomatically related to multiple experiences, practices, values and semiotic resources. As will become apparent, these themes are also deeply entangled with each other.

### *5.1 Entanglements Across Multiple Domains and Sites*

This first set of entanglements concerns relationships between what is within, and what is beyond, the classroom or early years setting. A major contribution of studies drawing on a social model has been to argue for greater permeability between literacies as developed within educational institutions and as experienced in everyday life (Burnett et al., 2014), and digital tools have been used to mediate such permeability. Auld et al. (2012), for example, explored the use of mobile phones to connect the diverse worlds of school and home, while Parry (2014) notes how the ‘hierarchy of learners’ (p. 21) shifted when popular culture was integrated within schooled activities during film-making and children could draw on knowledge about texts from outside school. McPake, Plowman, and Stephen (2013) argue that ‘digital technologies have the potential to expand young children’s communicative and creative repertoires’ (p. 422) and note that the communicative practices children learn at home, such as karaoke, taking photographs and texting, can complement understandings about texts encountered at school.

Syncretic literacy is a strong theme here, which as Curdt-Christiansen (2012, p. 350) explains, ‘refers to the creative forms of literacy practices whereby children draw from the existing pool of languages and literacy practices in their homes, schools and communities and blend familiar practices with new forms, thus transforming their literacy learning experiences’. Gutiérrez, Bien, Selland, Pierce, & Guti (2011), for example, encouraged children to draw on digital resources to support syncretic practices. Their project sought to capitalise on learning ecologies through allowing, ‘school based literacy and everyday literacies to grow into each other’ (p. 236). Children progressed in academic literacy as they were encouraged to draw on their home language alongside English, facilitated by interactions with ‘El Maga’, an imaginary cyber wizard encountered in an online environment. The availability of multiple resources enabled children to move between the familiar and unfamiliar and act as both learners and teachers.

Such projects could be conceived as working to enlarge the scope and range of schooled literacy to value what children do elsewhere and graft unfamiliar literacies onto existing practices. While developing children’s repertoire of meaning-making practices in this way is clearly important, a focus on how literacies from different domains tangle together generates other insights too. Wohlwend and Buchholz (2014), for example, chart the traces of multiple relationships, preferences and identities in young children’s meaning-making as they play using digital and non-digital media.

As children make videos, they negotiate different resources and draw on their varied experiences and interests. Opportunities to make and take meaning are entangled, if you will, with meaning-making associated with multiple times and places.

Other work encourages children to engage critically with the widely distributed, usually commercially driven texts that circulate—or are entangled—in their lives. Such work starts from the premise that literacy education must address the power relationships perpetuated through and around texts. A series of projects have provided opportunities for children to draw on digital technologies to seek or assert alternative positions to those apparently made available. Long, Volk, Baines, and Tisdale (2013) describe how teachers and students engaged in critically syncretic practices, as they worked together with families and community members to generate new kinds of texts. This process could be seen as an invitation to entangle linguistic and cultural resources associated with school and community. In such work, the intention is for participants to re-frame what is valued in school and assert the worth of different kinds of knowledge and knowledge practices.

In some projects, children were encouraged to explore alternate readings of the world and consider their own role as activists, speaking back to salient global and local debates. Hobbs (2013), for example, used a chance encounter on a class trip as the starting point to interrogate notions of homelessness. Children presented their ideas in digital comic form, working up texts to influence public opinion about the issue. Digital resources eased access to information and the publication of their responses. The children were able to tangle with events and issues beyond the walls of the classroom. As Luke (2012) argues, real-life experiences and events, and the invitation to join debates in the public arena, provide important contexts for literacy: 'Reading and writing are always about something in the phenomenological world and they can be used to construct, build, imagine and critique other possible worlds—as a passport to other spaces, journeys and places' (p. 12). Place-based pedagogies adopt a similarly critical perspective using children's own lives as the starting point. Comber and Nixon (2013) describe a decade of work with teachers and children designed to generate 'spaces of freedom within everyday worlds of school' (p. 46). Through various projects, including the design of a new school playground, children were invited to explore their own relationships with, and memories of, place using diverse media. Such work enabled them to position themselves as valued members of the community. Comber and Nixon (2013) note that, as well as improvements in literacy skills, there were 'durable shifts in their learning dispositions and their sense of belonging' (p. 60).

Developed in supportive contexts in local sites, the pedagogical practices described here aim for empowerment: enabling children to draw on literate practices developed both within and outside school, to draw on multiple resources and to act within, and for, the world around them. Such approaches recognise how children's literate lives are entangled with multiple discursive practices associated with familiar and unfamiliar domains. Taken together, these approaches forge different pathways between children's meaning-making and the world around them, pathways that follow the traces of texts and children's experiences, and see these as inextricably entangled with economic and social circumstances.



## 5.2 *Multimodal Entanglements*

While texts have always been multimodal, the salience of non-verbal modes has increased as technological developments have facilitated the integration of images, sounds and so on (Kress, 2003). In the last decade, educationalists and researchers have drawn heavily on theories of multimodality (Kress, 1997) to account for a range of semiotic modes in meaning-making. Indeed, the majority of studies generated through this review cited multimodality as a framing concept. Looking across these studies, multimodality appears as a node through which diverse theoretical and methodological moves articulate. Below I summarise some of these moves. Read together they expand our ideas about what it might mean to fully address multimodality, suggesting we not only need to consider an entanglement of different modes, but different ways of seeing the significance of multimodality.

Perhaps the most influential application of multimodality, in policy documents at any rate, has been its use to articulate non-verbal dimensions of textual comprehension and composition. The influence of this work is evident in curriculum frameworks that build elements of design into their programmes of study (ACARA, 2013), in guidance that emphasises the need to integrate ‘multimodal’ texts within the range of provision (Department for Education, 2014) and in studies exploring use of metalanguage to support students in reviewing and designing texts with greater attention to multimodality (e.g. Pantaleo, 2012). Some literacy researchers have argued that literacy research needs to draw increasingly from arts-based approaches to reflect this turn (Huber, Dinham, & Chalk, 2015), and such work is beginning to explore affective dimensions of using different modes. Rowsell (2013), for example, advocates paying attention to the ‘feel’ of a mode.

Other studies focus on the modal affordances of different resources and activities. They illustrate how access to multiple modes enables learners to explore ideas and possibilities in nuanced ways. As meanings translate across modes, these transformations can generate new opportunities to engage with, experience and explore understanding. Wolfe and Flewitt (2010), for example, explore the affordances made available by different tools, including the digital, in early years settings. They found that when digital resources, and the modes they bring into play, are available alongside other resources, children move fluently between resources and make connections between the understandings they generate. Moreover, by paying attention to different modes, educators gain better insights into what children know, understand and are able to communicate (Haggerty & Mitchell, 2010). The opportunities children do or do not take up, however, are entangled with the broader context for teaching and learning. Rowe and Miller (2015), for example, explore how multimodal affordances are inter-related with the social affordances of classrooms. The four-year-olds they worked with, for example, only used multilingual software to create dual language books once their own language was present and valued in the setting. Bjorkvall (2010) meanwhile observed the ‘unofficial computer activities’ that slipped between official tasks, noting that children drew on resources more flexibly and with greater communicative potential when beyond the teacher’s gaze.

These studies remind us that acknowledging multimodality is not just about design, but about relations between embodied and disembodied modes (Norris, 2004), between what happens and what matters through and around texts, both on- and off-screen. Holding these different perspectives together with a focus on new literacies is important as it highlights the diverse ways in which surroundings, relationships, feelings and available resources are entangled with meanings made with digital resources. It suggests we do not just need to support children to read and produce multimodal texts (although this is certainly important) but look more widely at how interactions with texts are situated within a multimodal ensemble of meaning-making practices. These ideas are explored more fully in the next set of entanglements.

### 5.3 *Material/Immaterial Entanglements*

Recent work in literacy studies has used socio-material perspectives to highlight entanglements between bodies and things, including screens and the texts they mediate. The rapid uptake of mobile devices has brought socio-material relationships to the fore, highlighting the significance of our physical relationships with devices, and the apps they mediate, in different locations. Dezuanni (2015), for example, highlights how media production does not just involve design, but physical interactions with material objects—such as holding the video camera, making do with available physical spaces—as well as all the quirks and conventions associated with camera operation and function. Video production as a design practice is necessarily a material practice. Agency is distributed across software, devices and occurs through ‘digital assemblages’. Videos are, ‘authored not only by the individuals interacting with them, but through interaction and negotiation with the hardware and software required to display and manipulate objects on the screen’ (2015 p. 419).

Shared experience of literacy practices, and the relationships and practices associated with them, play through these material/immaterial entanglements. In a study using multimodal interaction analysis to explore how parents and children interact around story apps on iPads, Kucirkova et al. (2013), for example, describe interactions between parent, child and app as ‘triologic’. Paying attention to gesture, proximity, speech, and to interactions with words and images on screen, Kucirkova et al.’s analysis suggests that ‘reading’ was produced somewhere between screen and participants and shaped in many ways by their embodied, social experiences of reading with, and without, the app. Similarly, locating children’s communications within histories and experiences that play out in the moment, Merchant (2015) draws on an analysis of story sharing using story apps in a nursery setting. Describing both humans and devices as ‘actants’ (Latour, 2005), he explores how children, adults, iPads and apps each helped frame interactions. Specifically, he maps a ‘gestural vocabulary’ associated with the tablets that included ‘stabilising movements’ (keeping the iPad steady), ‘control movements’ (navigating the on-screen text) and ‘deictic movements’ (indicating part of the text or device). Kuby & Vaughn (2015) take up the notion of ‘intra-activity’ (Barad, 2007) to

explore this reflexive relationship between children and materials. In their study of a writing workshop, children were invited to engage ‘expansively’ with literacy and see themselves as designers and makers of diverse objects. Things emerged, were produced or perhaps were enacted, through what Ingold (2013) calls ‘correspondence’ between children, things, materials and spaces.

It is perhaps ironic that the increasing shift to the digital has recently been accompanied by a focus on the material. It seems that attempts to define the virtual—perhaps combined with the increased ease of using video for research purposes—have only served to highlight the salience of the physical or material and the inextricability of on-screen and off-screen (Gillen & Merchant, 2013). The growing use of mobile devices has perhaps intensified this move. When sited on tables in corners of classrooms, or rooted in certain rooms in homes, the situatedness of computers was perhaps taken-for-granted. Now, mobile phones and tablets are used in multiple locations, and physical relationships are remarkably evident.

#### 5.4 *Social Entanglements*

In their seminal paper on participatory cultures, Jenkins et al. (2006) highlight the role of collaboration and provisionality in media production. As Underwood, (2013) argues, twenty-first-century literacies do not just involve doing things with technologies but doing things with others. This fourth set of entanglements, therefore, relates to the different ways in which on-screen activity is embedded within relationships.

There are few studies that have explored how young children interact on-screen: Marsh’s analysis of children’s collaboration using Club Penguin and Merchant’s analysis of children’s play in the educational virtual world, Barnsborough, are two exceptions. Marsh (2011) describes how children’s on-screen literacy practices generate social cohesion and, importantly, how these practices were related to the social, cultural and material contexts in which they took place. Merchant (2010) similarly found that children’s interactions in-world were inflected by other practices, most notably schooled discourses.

Various studies, however, often drawing on the socio-material perspectives explored in the previous section, have considered how children interact around screens or through on- and off-screen interactions. Texts on screens are highly visible, and children’s activity is consequently made more public (e.g. Burnett, 2014, 2015). Given this, children’s relationships with what happens on-screen are often entangled with what happens off it. Davidson (2011) explored how young children acquired diverse literacy practices through social interactions around PCs. As she describes, in her commentary on one child’s interactions,

The young child was learning to ‘draw in’ the world using digital technology and to situate it in the here and now of his home. He accomplished this as ordinary and mundane activity through his social interaction with others and with technology itself, blurring the boundaries between online and offline activity in the process (p. 41).

Lewis's description of blog use by one mother and her son exemplifies the skill exchanges and apprenticeships that may occur as individuals work or play near, even if not ostensibly with, each other (Lewis, 2014). My own study of children's meaning-making with new technologies explores similar opportunities for children to share expertise as they moved fluidly between individual, group and whole class activity in a classroom. These interactions are socially situated in complex ways, entangled with shared histories of doing things together on- and off-screen, and in and out of school (Burnett, 2015).

What seems apparent is the reflexive relationship between use of digital technologies and being together, a 'being together' that might sometimes be conceptualised as companionship. McKee (2014), for example, describes an intergenerational project involving five-year-olds and elderly residents of a nursing home. Collaborating to create 'multimodal artefacts', the children shared their expertise in using iPads, recording conversations and taking photographs, while the elderly residents shared their knowledge of print literacies. Print literacy was included within 'ensembles' of diverse meaning-making practices moved between singing, writing and so on. In Kucirkova et al.'s (2013) study, parents and children bounced off each other's comments and contributions as they enjoyed an app together. Such literacy practices are sustained by, and help to reinforce, 'relationship-rich' contexts. Sometimes this collaboration is affirming and productive. At others it may be less so and children may be positioned in unhelpful or even unsafe ways by those they interact with on- and off-screen (Burnett, 2015).

## 5.5 *Entanglements of Affect*

A major contribution of the New London Group (1996) was to reconceptualise literacy as design. Recent post-structuralist work in literacy studies, however, has highlighted the often unplanned and emergent nature of children's meaning-making. Leander and Boldt (2013) suggest we might see meaning-making in terms of 'living its life in the ongoing present, forming relations and connections across signs, objects, and bodies in often unexpected ways' (p. 36). They see such activity as created by 'the ongoing flow of affective intensities that are different from the rational control of meanings and forms'. This final set of entanglements reflects this move, considering ephemeral relationships between literacies and affect.

Such work foregrounds how meaning-making is often playful and improvisational, not planned. Kuby & Vaughn (2015) argue for a shift from seeing 'literacy as design' to 'literacy desiring' in attempting to capture 'the unfolding, unexpected, agentic and in-the-moment aspects of creating multimodal artefacts' (Kuby & Vaughn 2015, p. 3). Often, as discussed earlier in this chapter, looking at, or making sense of, digital environments entangles with acting in, or making sense, with them. Re-visiting spontaneity may be important for teachers too. Hobbs (2013) for example explores what can be gained from following unexpected directions in learning. Rather than seeking to structure and frame, for example, addressing new

literacies may mean adopting more playful, improvisational and open-ended approaches (Alpers, 2013).

A focus on what matters in the moment also alerts us to how personal meanings and sensory experience inflects children's meaning-making. Even when working towards a planned outcome, affective intensities may drive the process of creation. Mills et al. (2013), for example, explore video production as 'emplaced experience' (p. 12), describing the sensory experience of being behind a camera in a specific location. Potter (2010) similarly explores affective dimensions of film-making as he explores how two girls curated a film about their experiences at primary school. He recounts how they used the process of film-making as a journey in itself, revisiting places around the school and remembering moments that were personally resonant to them. Little of this would have been apparent to anyone viewing their finished film, but the process was deeply personal. Paying attention to how affect is entangled with the process of meaning-making foregrounds what matters in the moment, located sometimes in longstanding relationships or histories and sometimes in more ephemeral concerns (Ehret & Hollett, 2014).

## 6 Conceiving (New) Literacies in Terms of Entanglement?

These five sets of entanglements relate to themes that cut across studies of new literacies, many of which have been well-rehearsed over the last three decades. They are not presented as definitive; there are many other ways of ordering and referring to the diverse relationships they represent. They do, however, help map diverse ways in which researchers are engaging with the complex and overlapping relationships associated with new literacies; they 'go against the grain of singularity, simplicity, or centring' (Law 1999, p. 11). Arguably these themes are pertinent to any literacies, but that is beyond the scope of this chapter. Much work in literacy studies over the last three decades has been framed in terms of multiplicities, with references to 'multiliteracies', 'multimodality' and 'multilingualism'. This focus on multiplicities has been, and continues to be, very powerful. However, it can be usefully complemented, I argue, by a focus on complexities that looks at how multiplicities tangle together.

Importantly, these entanglements are not discrete, but trouble and mesh with each other. They work, as Mol and Law suggest, like a series of images on the pages of a sketchbook, 'Each orders and simplifies some part of the world, in one way or another, but what is drawn is always provisional and waits for the next picture, which draws things differently' (Mol & Law, 2002, p. 7). So we might, for example, consider how relationships between affect, modality and materiality play out in particular instances and for particular children. Or how different languages and texts are associated with different social entanglements. Together these entanglements suggest that, in addressing new literacies, we need to acknowledge and respond to the complex ways in which different literacies (and the domains,

modes, languages, material/immaterial and social relationships, and feelings associated with them) ‘interface’ (Law, 2004). These complex relationships can be squeezed out if we hold onto simple conceptualisations of literacy. In contributing to debates about how we might generate a frame that acknowledges complexity, I tentatively suggest a need to examine entanglements through research and invite them through pedagogy.

Examining entanglements, whether as researchers or educationalists, involves challenging ‘true’ accounts of literacy performance or definitive judgments about what works. In seeking insights to develop practice, it may be helpful therefore to examine entanglements from different standpoints. From one standpoint, this might mean exploring how, for many children, digital resources intermingle with others rather than replace them: What happens, for example, to meaning and to meaning-making as children move between devices, modes and media? From another standpoint, we might consider affective, sensory, material and relational dimensions of children’s engagement with new literacies in the moment. Or we might think in terms of ‘translocal assemblages’ (McFarlane 2009), acknowledging the social, economic, political and historical conditions that flow through any act of meaning-making for children in a particular site, and consequently which resources are, or are not, made available. Rather than seeing children’s reading or reading engagement in relation to the fixed logic of tests or international surveys, we might seek out alternative and various ways of capturing what children do, exploring how we can tangle things up differently through what we look at and value. Of course this would make regional, national and international comparisons very difficult but that is another matter. We need to find and share ways of thinking about new literacies provision that help eradicate the participation gap. The studies reported in this chapter suggest this means acknowledging the complexities of those practices we wish to promote and develop. Examining entanglements may require new methodologies and conceptualisations. In doing so, new literacies research has traditionally drawn extensively from ethnography. Research drawing on post-materialist and post-humanist perspectives, and using methodologies such as sensory ethnography and narrative, offer ways forward that are generating other ways of knowing literacy practices (e.g. Burnett & Merchant, 2014; Ehret & Hollett, 2014).

In response to the insights gained from such research, we might approach pedagogy as a process of inviting entanglements. The following recommendations, which reflect the five sets of entanglements described above, represent one attempt to identify broad pedagogical principles that build on the approaches described in the studies cited in this review. Conceived and expanded on elsewhere as a Charter for Literacy Education (Burnett et al. 2014), they are designed to be interpreted differently to suit different local circumstances and to be flexible enough to respond to changing communicative practices in the future. They propose that literacy education needs to:

1. Recognise the linguistic, social and cultural resources learners bring to the classroom, while encouraging them to diversify the range of communicative practices in which they participate.
2. Provide opportunities to make meanings through orchestrating multiple semiotic resources.
3. Encourage improvisation and experimentation as well as the need to produce intelligible texts.
4. Recognise the affective, embodied and material dimensions of meaning-making.
5. Promote collaboration around and through texts in negotiating meaning.
6. Generate opportunities for students to engage with others in a variety of ways with and through texts.
7. Provide contexts for exploring how texts position self and other.
8. Provide safe, supportive spaces that promote experimentation.
9. Acknowledge the changing nature of meaning-making.

This Charter does not specify a set of skills, attitudes or knowledge to be learned that map onto current uses of digital media. To do so would be inappropriate given that literacy practices are diverse and likely to continue to evolve. Instead it offers ways of working to support children's judicious use of digital media, approaches that open up new possibilities. Items 1 and 2 address the need to broaden children's communicative repertoires and provide opportunities for creativity, while items 3,4, 5 and 8 suggest pedagogical approaches that reflect the ways of working that—as this review suggests—seem to engage children in new literacies in everyday life. Items 6 and 7 highlight the need to explore what children are able to do with digital media and review how they—and others—are variously empowered (or not) by this use. Item 7, in particular, foregrounds a critical orientation that encourages children to consider who is advantaged/disadvantaged through digital practices, and how digital resources relate to broader political, economic and commercial activity. Item 9 proposes that the curriculum must always be contingent on changing practices in everyday life and flexible enough to respond to the challenges and opportunities generated through new literacy practices.

In many respects, this Charter re-states previous calls for literacy provision to accommodate the changing nature of literacy (Cope & Kalantzis, 1999; Lankshear & Knobel, 2010). Rather than providing a blueprint for curriculum reform, however, these recommendations are intended to invite and respond to the kinds of entanglements discussed in this chapter. They invite educationalists, for example, to: plan open-ended activities that allow for different interpretations and pathways; plan contexts for literacies that relate to children's lives beyond school, contexts which matter to children; and encourage children to draw judiciously, critically and creatively in open-ended ways across their growing repertoire of literacies. Such work does not just involve the polished production or comprehension of finite texts, but the combination and re-mixing of textual and linguistic practices. Importantly, there is a need to consider what happens if these entanglements weave together in such ways that children are not empowered or do not feel able to critically engage with

texts or environments that are problematic or unsafe. While studies of new literacies often celebrate and validate the projects they describe, others emphasise the messiness and challenges involved in working with open-ended, loosely bound activities (Jenson, 2014; Toohey et al. 2012). We need to be cautious about replacing a fixed logic linked to print literacy with another focused on multiliteracies and multimodality (Masny & Cole, 2012). Long et al. (2013) for example warn against essentialising community literacy practices, and others explore how celebratory accounts of new media projects rarely engage with less positive or more problematic responses (Jenson 2013; Toohey et al. 2012). This Charter then invites us to approach reading pedagogy from a standpoint that recognises literacies as mobile, fluid, multimodal and meshed with other social practices, and approaches literacy pedagogy in ways that seek out and work with entanglements.

## 7 Conclusion

The language of ‘evidence’, ‘hard data’ and ‘comparison’ is problematic within a sociocultural paradigm which sees reading, and literacy more broadly, in terms of situated practices. In this chapter I have therefore attempted to demonstrate what happens if we embrace complexities in our thinking about literacy, holding multiplicities together rather than smoothing them out. By framing a series of themes as entanglements I have emphasised how literacies now and in the future are complex, at odds with the fixed linear logic often associated with evidence-informed practice. Addressing complexity in this way is ongoing as we can never obtain a complete picture (Law, 2004). However, as the framework for twenty-first-century literacies illustrates, an orientation to complexity challenges narrow frames and invites us to see literacies in terms of deeply personal as well as global concerns. It helps us to confront dimensions of children’s literacies that evade easy analysis and explanation. How, for example, do we accommodate the affective within schooled literacies? How do we respond to the ongoing emergence of new practices? How do children navigate inequities in relation to literacy and new technologies? And what is the extent and nature of their growing sense of local/global/transnational engagement in an increasingly connected world? In exploring such pressing questions, we need to complement our search for evidence of attainment and achievement with evidence that provides insights into the changing nature of literacy in everyday life. In doing this, we need to work with different kinds of evidence and with different kinds of relationships between research and practice. If we do not address these contradictions, many have argued that we risk perpetuating a ‘heritage curriculum’ (Yelland 2008) that diverges ever more from the practices, experiences and exigencies of everyday life for children now and in the future.



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**Part III**  
**Reading Motivation and Strategy**  
**Instruction**

# Engaging Students in the “Joy of Reading” Programme in Finland

Annette Ukkola and Riitta-Liisa Korkeamäki

**Abstract** The Finnish Ministry of Education and Culture funded the Lukuinto (Joy of Reading) literacy programme which aims to increase students’ desire to read and create a range of print and digital texts. Such an aim aligns directly with the Finnish core curriculum which places a strong emphasis on multiliteracies and new literacies. This study investigated effects of the programme on students’ literacy attitudes, activities in and out of school as well as differences between boys’ and girls’ attitudes. The data for the study were collected from students ( $N = 270$ ) from third to sixth grade using electronic questionnaires during the pilot phase of the programme. Our findings showed that the effect of the programme was small and that attitudes were strongly related to three activities during lessons: silent reading, self-selected reading material and recommending books to each other. Overall, girls’ attitudes were more positive than those held by the boys. There were differences between the activities that correlated with boys’ and girls’ attitudes. In addition, according to our study, it seemed that students yearn for more time to read for pleasure.

**Keywords** Joy of Reading programme · Literacy attitudes · Libraries and schools · Multiliteracies · New literacies

## 1 Introduction

Teachers, librarians and parents are challenged to keep children motivated to read. Access to both printed and electronic texts has increased rapidly in recent years, but many other activities are competing for children’s attention and time. According to Programme for International Student Assessment (PISA) research (OECD, 2001, 2010), a declining trend in the time spent by students engaged in the act of reading has been noted over recent years.

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Finnish students have been among the top readers in international comparisons since the first PISA 2000 survey (OECD, 2001). Although Finland did not perform as highly on the most recent PISA, when compared to PISA 2000, Finnish students still perform at the top in comparison with OECD countries (OECD, 2010). A strange paradox seems to exist between students' high achievement in reading and low reading motivation as shown in international testing exercises, including PISA (OECD, 2010) and Progress in International Reading Literacy Study (PIRLS). Furthermore, students' levels of reading engagement were lower than their reading motivation (Mullis, Martin, Foy, & Drucker, 2012).

Concerned about students' lack of reading motivation, the Ministry of Education and Culture funded the Joy of Reading (Lukuinto) literacy programme for students, aged 6–16 years, their teachers, parents and public libraries. The programme was designed to promote frequent and regular literacy activities in school and co-operation between students, teachers, librarians and students' parents. The purpose of this study was to examine the changes related to students' literacy attitudes. We report here the results of the first year of the ongoing programme.

## 2 Theoretical Background

### 2.1 Literacies

The understanding and definitions of literacy have changed over the past few decades. Traditionally, reading has been viewed as a passive decoding process without any interaction with the text (Clarke & Silberstein, 1977). Teaching decoding has been observed to be a dominating practice in the first-grade literacy instruction (Korkeamäki & Dreher, 2011; see the instructional materials, e.g. Backman, Kolu, Lassila, & Solastie, 2014). However, decoding alone is insufficient for meaning making, prompting literacy to be redefined and viewed as a set of social practices instead of individual cognitive process (Barton & Hamilton, 2000; Green & Dixon, 1994; Street, 1995). In addition to the social nature of literacy, current trends in literacy research have included not only print text but also images (Kress, 2003) and digital texts (Marsh, 2013) due to the influences derived from increased use of technology. As a result, the New London Group (1996) has redefined literacy as “multiliteracies”. Furthermore, Leu et al. (2004, 2011) defined literacy as “new literacies” due to the emergence of new technology in literacy practices.

Consequently, the Finnish Core Curriculum has renewed and adapted the concept of literacy on many occasions. In 2004, literacy was defined using a community-oriented view of language and a broad conception of text (National Board of Education, 2004). According to this conceptualisation, texts should be connected to students' lives and experiences using diversified multimodal literacy practices, including artistic subjects, drama, narrative and play, therefore supporting



each student’s personal learning and interaction. Digital environments are to be included in addition to printed ones. The most recent Curriculum Framework introduced the term “multiliteracy” to be included in the teaching of all subjects (National Board of Education, 2014).

The Joy of Reading programme shares the views of literacy as defined in the Finnish Core Curricula, but it also integrates views from the perspective of public libraries. The aim was to create operational models by incorporating the shared expertise of teachers and librarians. There was a need to enhance the understanding of new literacy practices held by teachers, librarians and parents in order to inspire communities of learners. The programme was designed to promote frequent and regular literacy activities in and out of school and co-operation between students, teachers, librarians and students’ parents along with a wide range of local partners. Students were encouraged to engage in reading activities at home that complemented the teaching in school.

The purpose of the current study was to examine the effects of the Joy of Reading programme on students’ literacy motivation by investigating the changes in their literacy attitudes and multimodal reading habits during the pilot phase of the programme. Our research questions were the following:

- (1) How did students’ literacy attitudes change during the nine months of the pilot phase of the Joy of Reading programme?
- (2) What were the reading activities in and out of school that were related to positive attitudes?
- (3) Were there any differences between boys’ and girls’ attitudes and literacy activities?

## ***2.2 Motivation, Engagement and Reading Attitudes***

Numerous research studies have lent support to the importance of motivation in learning (e.g. Eccles & Wigfield, 1985; Gambrell, 1996; Guthrie & Humenick, 2004; Guthrie, Klauda, & Ho, 2013; Schwabe, McElvany, & Trendtel, 2014). Motivation is a complex phenomenon and can be defined from various angles. For example, Guthrie and Wigfield (2000) defined reading motivation as an individual’s goals and beliefs regarding reading. They also claimed that factors influencing reading motivation are different from those influencing motivation in other school subject areas. Sainsbury and Schagen (2004), however, found that the literature of research and theorisation tends to deal with reading motivation in the same way in all subject areas. Despite these contradictory views regarding conditions that affect motivation in reading and other subject areas, they were united in acknowledging the significant role of motivation to sustain engaged learning. Gambrell (1996) regarded motivation as an important factor in learning to read as it promotes deep student learning.

Wigfield and Guthrie (1997) documented that motivated children spent more time reading than those who were not motivated. While enjoyment of reading, as an essential form of reading motivation, does not always have a direct impact on reading performance, many researchers maintain that enjoyment is an important precondition for becoming a good reader. Children who read for pleasure show more positive reading behaviours (De Naeghel, Vankeer, Vansteenkiste, & Rosseel, 2012). Interested students may read more which seems to lead, especially at a young age, to becoming better readers than those who do not have interest in reading. Similarly, children who have developed more positive attitudes towards reading, including high levels of reading interest, are more motivated to read (Baker & Wigfield, 1999).

It seems that there are gender differences in reading interests. Most active readers are girls: girls tend to read more frequently, and they choose more diverse reading materials than boys (Brozo, Sulkunen, Shiel, Garbe, Pandian, & Valtin, 2014). According to Sulkunen (2013), girls are better and more active readers than boys and the difference between boys' and girls' reading achievement is the most notable concern in many countries. Furthermore, the gender gap in students' reading motivation and achievement has been widening further in some countries (OECD, 2001, 2010). It seems that the gap between boys' and girls' reading motivation and achievement is an enduring international challenge for educators (Durik, Vida, & Eccles, 2006; McKenna, Kear, & Ellsworth, 1995; Mullis, Martin, Foy, & Drucker, 2012).

This discussion brings our attention to the process of reading and the importance of interest and gender-based attitudes. According to Ajzen and Fishbein (2005), attitude is acquired, not inherited. It follows that adults working with children have a great opportunity to enhance students' reading motivation by developing children's interest and attitudes in reading, which is also the starting point in the Joy of Reading programme.

Reading motivation can be defined as the likelihood of engaging in reading (Gambrell, 2009, 2011). According to Baker & Wigfield, (1999), reading motivation signifies reading behaviours and attitudes. Motivated readers regularly read different kinds of print, have positive attitudes towards reading, consistently strong reading motivation and interest, read for different purposes and utilise their prior knowledge to generate new understandings. They also are willing to take part in meaningful social interaction around reading.

There are various natural opportunities for social interaction in classrooms which may support reading engagement such as listening to the teacher, discussing text with classmates or reading independently (Yair, 2000). These social occasions can enhance engagement and focus such that, as suggested by Csikszentmihalyi (1990), students gain the "flow" experience by way of total absorption in the reading process. Although the social context is decisive and can attract some reluctant readers to share their experiences, motivational, instructional and contextual supports are still required (Guthrie, Wigfield, & You 2012). The level of reading difficulty associated with a specific text is important and ideally allows readers to feel challenged but not frustrated. According to Stipek (1996), motivated students

are more likely to approach their reading tasks eagerly and to persist when they face a certain level of difficulty.

People tend to feel motivated to engage in authentic and personally relevant learning tasks. Consequently, personally meaningful activities promote engagement (cf. Deci & Ryan, 2000; Stipek, 1996). Students need connections to their prior experiences and knowledge in order to understand the purposes of the text and make it comprehensible. Meanings and new concepts are constructed based on prior knowledge (Anderson, 1994), which facilitates deep levels of reading comprehension (Pearson, Hansen, & Gordon, 1979) and has the potential to increase the amount of reading. What is more important, according to Becker (1992), is the meaningfulness in opportunities and activities, which suggests that autonomy to choose and pursue learning tasks that give value to one’s whole life may be essential, even to human health.

Indeed, choice seems to be a critical factor in the enhancement of reading motivation. Guthrie and Wigfield (2000) argued that when students are allowed to choose the books they read, their effort and understanding of the text increase. Several researchers have found that by allowing students to choose their reading material, a teacher can have an impact on students’ reading intention and motivation. In addition, teachers can promote students’ motivation by giving them personally meaningful and relevant tasks which are appropriately challenging to students and by allowing students control and autonomy over their reading activities and learning. According to self-determination theory, a classroom environment that fosters a sense of relatedness, competence, positive outcome expectancies and autonomy enhances students’ motivation (Carver & Scheier, 1998; Deci & Ryan, 1985; Ryan & Deci, 2000; Urdan and Turner, 2005). Furthermore, the role of choice was found to be an important factor in improving reading in Stewart, Paradis, Ross and Lewis’s (1996) study which investigated a literature-based developmental reading programme. Turner and Paris (1995) summarised motivational factors into six C’s—choice, challenge, control, collaboration, constructing meaning and consequences of the task. They also emphasised the power of students’ authentic choices and purposes of reading.

Even when all favourable circumstances prevail, it is likely that children’s motivation decreases when they grow older. Children often come to school with strong enthusiasm, intending to learn to read. Mazzoni, Gambrell, and Korkeamäki (1999) found that school beginners’ reading motivation increased from first grade to second grade which can be explained by learning to decode and enabling them to read instead of having mere practice activities. But in a later study, Gambrell and her colleagues (2013) showed a slight decline in reading motivation at the end of the second grade. Indeed, this sliding tendency is common as students get older (McKenna, Conradi, Lawrence, Jang, & Meyer, 2012). The declining trend is rather noticeable around the third or fourth grade (Chall & Jacobs, 2003; McKenna, Kear, & Ellsworth, 1995; Wigfield & Guthrie, 1997). Chall and Jacobs (2003) attributed this decline to the changes regarding the purpose of reading, with reading tasks becoming increasingly challenging and a tool for learning.

Individual reading opportunities are not as equally desirable and powerful for students as opportunities for shared reading experiences. Goodenow (1993) and Osterman (2000) have found that when students have a sense of belonging in the classroom, the likelihood that they would be motivated increases. Students who have been encouraged to collaborate with each other are motivated to read, and such social engagement enables them to read widely and frequently (Guthrie & Klauda, 2014; Schiefele, Schaffner, Möller, & Wigfield, 2012). However, it is likely that a favourable reading environment in school is insufficient to sustain reading in out-of-school settings. Family and community involvement can affect students' reading (Epstein, 2001; Hindin & Paratore, 2007; Merga, 2014; Turner, 1995) and may have the potential to change their attitudes towards reading (cf. Stevenson & Newman, 1986). Research has shown the positive effects that family involvement has, not only for students' learning, but also for their reading (Gonzalez-De Hass et al., 2005; Heath, 1983; Taylor & Dorsey-Gaines, 1988). This connection seems to apply also for multimodal reading (Brown et al., 2013). There is also evidence that children whose parents promote the view that reading is valuable, are motivated to read for pleasure (Baker & Scher, 2002).

It was obvious that school alone is an insufficient agent in the promotion of reading and reading motivation. Therefore, the Joy of Reading programme was designed to create learning communities for reading in which professionals from schools and public libraries work together with students' parents to promote reading motivation. The programme allowed each community to create their own practices instead of standard solutions. In the study we used the term "literacy" instead of reading, although the name of the programme refers only to reading. It is worth noting that the programme was named as Joy of Reading instead of Joy of Literacy because the Finnish language does not have a single term equivalent to the English "literacy" to include both reading and writing.

### ***2.3 The Joy of Reading Programme***

Comparison of the two PISA surveys focused on reading revealed that Finnish students were reading less for pleasure than they had been earlier (OECD, 2001, 2010). Finnish students were still performing at the top in comparison with OECD countries, but alarmingly their reading motivation and engagement rates were not at the same high level as their skills. Concerned about students' lack of reading motivation, the Ministry of Education and Culture funded the Joy of Reading (Lukuinto) literacy programme for students, aged 6–16 years, their teachers and parents as well as public libraries. As mentioned above, unfortunately the name of the programme does not quite capture its breadth of content and activities. The programme was based on the notion of multiliteracies, including the production and consumption of texts in the field of new literacies. It had its pilot phase in 2013–2014 followed by a theme year in 2014–2015. The programme recognised that schools and public libraries share the common goal of developing and sustaining children's

habit and enjoyment of literacies and learning. Consequently, combining societal resources and services should be natural and seamless to schools, libraries and parents. In addition, new forms of literacies are rapidly changing and multiplying, which demand schools and libraries to expand their vision to prepare students for the future. Schools and libraries not only have to react to changes, but also must act themselves as driving forces.

The programme was based on bottom-up planning, so the forms of promoting students’ desire to read varied from location to location. Every learning community included at least a school and a public library, and a wide range of other local partners may also be involved, including cinemas, literary art schools, local artists and basketball clubs. The libraries and other partners were expected to develop new ways to promote various school works and literacies. The communities were supported before and during the pilot phase by providing 17 in-service training sessions in which participants took part in pairs, including an envoy from both the school and the library. In these sessions, university staff members and other professionals from performing arts provided presentations, inspiration and ideas for developing practices. Guidance for pilot communities was provided by programme workers via the Internet and by community visits.

Some of the working models implemented in the Joy of Reading programme were small in scale, while others were large media projects involving a municipality as a whole, combining both traditional and new literacies. Many traditional activities were mainly concerned with written fiction, including focal points on reading diplomas, specific genre months and book worms that grew in accordance with the number of books that students have read. Some schools broadened their literacy horizons and utilised both digital and print literacies in their reading diplomas. To promote digital literacies, various activities were implemented, such as multimodal reading circles, literacy orienteering races with Quick Response Codes (QR codes) in the library and animation workshops. Some communities developed activities specifically directed at boys.

Implementation of the pilot phase of the Joy of Reading programme (January 2013–May 2014) included sampled activities listed in Table 1.

**Table 1** Activities implemented in the pilot phase of the Joy of Reading programme

Pilot school	Location	Sampled activities
Aleksanteri Kena school	Sodankylä	Book talks, poetry and literary art workshops, reading with grandparents (virtual), author visits
Haapaniemi school	Viitasaari	Literacy markets, newspaper on the wall, communal writing competition organised by students, library orienteering
Muijala school	Lohja	Literacy ateliers, reading circles, library spooks, reading diploma to pre-schoolers, reading with prefects
Myllyoja school	Oulu	From games to game stories: writing stories about games, creating miniature worlds and animations
Puolala school	Turku	Media literacy workshops with the library, book and video talks, digital stories, multimodal reading circles, blogging, class photograph of personal poems

### 3 Method

In this study, we investigated the practices implemented by the schools and public libraries in their efforts to promote students' literacy motivation during the pilot phase. We collected data for the study on two occasions using electronic questionnaires. The first questionnaire was implemented at the beginning of the pilot phase in September 2013 and the second at the end of the school year in May 2014.

#### 3.1 *Participants*

For the pilot phase of the Joy of Reading programme, 30 pilot pairs, comprising of a school and a local library, were selected to participate in the programme. The pilot programme was implemented in two waves: the first half of pilot groups joined the programme in January 2013 and the second half started in August 2013. This study targeted the August pilot group, involving students in grades three to six who ranged in age from approximately nine to 13 years old.

The targeted groups for the surveys were students in the pilot schools. These participants were 270 third- to sixth-grade students from five Autumn pilot schools. Only those students who had completed all tasks in both the first and second questionnaires were included in this analysis. There were 135 boys (50%) and 135 girls (50%). Of these, there were 50 third graders, 91 four graders, 60 fifth graders and 69 sixth graders.

#### 3.2 *Data and Settings*

The questionnaires were based on PISA and PIRLS background questionnaires (OECD, 2009; IEA, 2011). Among other things, PISA and PIRLS questionnaires were designed to measure reading attitudes. To serve our research purposes, we added questions about multiliteracies and producing multimodal texts in these questionnaires. These included questions like "How often are you allowed to use your own electronic device during the lessons?" and "How often do you post to your own blog?" Our first questionnaire was designed to measure pre-existing literacy attitudes and habits before the pilot schools started to implement the Joy of Reading programme. The first questionnaire contained 42 questions, and the second questionnaire included 37 questions which were almost identical, with the exception of some questions concerning the Joy of Reading programme. Students' responses to the first questionnaire were compared with their responses to the second questionnaire at the end of the pilot phase.

Most of the items were scored on a four-point Likert-type scale with a score of one representing "strongly disagree", two representing "rather disagree",

three representing “rather agree” and four representing “strongly agree” (e.g. statements “I enjoy reading”, “I would like to have more time to read” and “I read only if I have to”). On an activity scale, a score of one represents “never or almost never”, two represents “once or twice a month”, three represents “once or twice a week” and four represents “every day or almost every day” (e.g. statements “I read for enjoyment”, “I read comics”, “I play board games”). The design of this scale means that the higher the score is, the better is the result. Some questions were negatively worded to check response reliability, and they were recoded to reflect the proper directions of response. In addition, the questionnaires consisted of a few forced choice open questions to gain more information about students’ multiliteracy habits including students’ choices about reading material.

### 3.3 Analysis

The descriptive statistics were computed for all data. To examine changes between the two data collection points and the strength and the direction of the relationships among variables, the responses of the first questionnaire and the second questionnaire were compared. Boys’ and girls’ responses were analysed separately. The statistical methods we used included factor analysis to group the activities, analyses of variance to find out the differences between genders and grades and Spearman’s correlation analysis to examine the relations between different variables.

We created scale scores according to the factor analysis for literacy attitudes (e.g. “I enjoy reading”, “I read only to get information that I need”), activities occurring during lessons (e.g. “the reading material is selected together”, “students read silent”) and diversity of both print and digital multimodal texts (e.g. fiction books, newspapers, board games, blogs) by summing the scores of the items and then computing the means.

We analysed the responses of the open questions by using the content analysis method for qualitative studies (Schreier, 2012; Tuomi & Sarajärvi, 2013). We classified these responses into categories which emerged from the data. We present our descriptive data based on frequencies in the categories.

## 4 Results

We present the results pertaining to students’ literacy attitudes, differences in attitudes by grade and gender, correlations between literacy attitudes and different literacy activities and reported frequencies of literacy activities.

The data showed that the changes in literacy attitudes during the programme were small. There was a slight increase in girls’ scores on literacy attitudes. In contrast, a slight decrease in boys’ scores on literacy attitudes was detected. It seems that many school-based activities had little effect on students’ literacy

attitudes. Instead, frequencies of students' out-of-school literacies correlated with their attitudes. In addition, the result suggests that students yearned for more time for reading to promote their participation in literacy activities.

#### 4.1 Literacy Attitudes and Desire to Read

Descriptive statistics (mean and standard deviation) of literacy attitudes are presented in Table 2. The scale was reliable in both the first ( $\alpha = 0.82$ ) and the second questionnaires ( $\alpha = 0.83$ ).

The mean score of the literacy attitudes scale in the first questionnaire was 3.00 and in the second questionnaire 2.90. In this sample, these scores seem to be linearly associated with grade levels. The minimum value by grades was 3.14 in the first questionnaire by third graders, and the maximum value was 2.74 in the second questionnaire by sixth graders. In the both questionnaires, girls' scores on attitudes were better than boys'. The score of girls even slightly increased from 3.21 to 3.22. In contrast, the literacy attitudes of boys worsened; the mean score of the first questionnaire was 2.80 and the second questionnaire 2.57. However, the changes were rather small.

Descriptive statistics, frequencies and percentages of responses of the pilot school students to the Likert-style question, *My desire to read has increased this year*, are presented in Table 3. At the end of the pilot phase, 67.4% of the students agreed with the statement that their desire to read had increased, which indicates that the pilot programme might have positive effects on literacy attitudes and, consequently, on students' reading behaviours. Unfortunately, there was a pronounced difference between boys' and girls' responses to this statement. More girls (74.9%) than boys (60.0%) agreed that their desire to read increased. The gender difference was more pronounced in relation to the "strongly agree" response. Far more girls (30.4%) than boys (17.8%) selected this response.

**Table 2** Means and standard deviations of the literacy attitude scale score

	N	M (first questionnaire)	SD (first questionnaire)	M (second questionnaire)	SD (second questionnaire)
Total	270	3.00	0.62	2.90	0.72
Third grade	50	3.14	0.53	3.11	0.68
Fourth grade	91	3.06	0.59	2.87	0.77
Fifth grade	60	3.06	0.57	2.93	0.600
Sixth grade	69	2.77	0.71	2.74	0.73
Girls	135	3.21	0.55	3.22	0.58
Boys	135	2.80	0.63	2.57	0.70



**Table 3** Frequency and percentage of question of desire to read

My desire to read has increased this year	Total N = 270	Percentage	Boys N = 135	Percentage	Girls N = 135	Percentage
Strongly agree	82	30.4	24	17.8	58	43.0
Rather agree	100	37.0	57	42.2	43	31.9
Rather disagree	54	20.0	31	23.0	23	17.0
Strongly disagree	34	12.6	23	17.0	11	8.1

**Table 4** Correlations of the literacy attitude scale score with frequency of activities occurring during lessons

Activity occurring during lessons	Literacy attitudes (first questionnaire)	Literacy attitudes (second questionnaire)
The reading material is selected together	0.22**	0.12*
Students read silent	0.34**	0.37**
Students read self-selected material	0.33**	0.47**
The teacher uses a computer	0.16*	0.14*
Students recommend to each other books to read	0.10	0.16*
A scale score of all the activities	0.10	0.12*

\* $p < 0.05$ , \*\*  $p < 0.001$

## 4.2 Activities During Lessons and Choosing Material for Reading

Descriptive statistics of “frequency of activities occurring during lessons” are presented in Appendix A. The scale was reliable for both the first ( $\alpha = 0.78$ ) and second questionnaires ( $\alpha = 0.81$ ).

Correlations of the literacy attitude scale score with student’s reports of activity frequency of activities during the school lessons are presented in Table 4. Only four of the correlations in the first questionnaire were statistically significant. These activities were *students read silent* ( $r = 0.34$ ), *students read self-selected material* ( $r = 0.33$ ), *the reading material is selected together* ( $r = 0.22$ ), and *teachers use a computer* ( $r = 0.16$ ). In addition, students’ literacy attitudes were correlated positively with a scale score for all the literacy activities, though the magnitude was relatively weak ( $r = 0.10$ ).

In the second questionnaire, five correlations were statistically significant. The activities that correlated most strongly with students’ literacy attitudes were *students read self-selected material* ( $r = 0.47$ ), *student read silent* ( $r = 0.37$ ) and *students recommend to each other books to read* ( $r = 0.16$ ). The scale score for all the literacy activities was again positively related to students’ literacy attitudes ( $r = 0.12$ ).

As *students read self-selected material* had the strongest correlation with literacy attitudes, we examined students' responses to a forced choice open question that required students to explain how and why they selected their reading materials in order to explore further what types of self-selected materials appealed to the students. The examples below indicated consistently the importance of autonomy in choices:

- (1) If the book interests me.
- (2) It should be funny and exciting.
- (3) A good story including exciting happenings.
- (4) If the book has a good plot.
- (5) I choose by the cover and the name.
- (6) Usually I flip the book awhile and ponder whether I would read it.
- (7) I read the back cover.
- (8) Based on pictures.
- (9) Non-fiction and history books.
- (10) I choose books about horses.
- (11) Genre.
- (12) I do not necessarily like books that contain only 100 pages.
- (13) My friends usually recommend me the books they are reading.
- (14) My mum is a heavy reader, and her book likings are like my likings. So she recommends me various books to read.
- (15) My favourite book series or a familiar author.
- (16) If I already know something about the book.
- (17) I wish that the book could escape me from this world.

According to these students, the reading materials should be personally interesting, exciting and funny (1, 2). The story, the plot and the content were also repeatedly mentioned as reasons for their choices of reading (3, 4). Many students made choices for their reading based on the text on the back cover, the pictures or by skimming the text (5, 6, 7, 8). Some responses suggest that students had certain specific reading preferences such as a favourite genre (9, 10, 11) and book length (12). Additional reasons for reading were recommendations from a friend or a family member (13, 14) and familiarity with the book or the author (15, 16). There were also some individual responses implicating that reading is a good way to relax or even escape from unpleasant experiences (17).

### ***4.3 Literacy Activities Outside of School***

Descriptive statistics of "*frequency of literacy activities outside of school*" are presented in Appendix B. In the present sample, the scale was reliable for both the first ( $\alpha = 0.89$ ) and the second questionnaires ( $\alpha = 0.86$ ). The average frequencies

of all the print-based literacy activities have decreased during the pilot period. Instead, the mean frequencies of watching and taking pictures, watching and making videos, chatting, using social media and using online encyclopaedias have increased. The activity that increased most was chatting (an increase of 17.6%). The activity that decreased most was writing fiction (a decrease of 8.3%). It seems that students’ digital literacies are multiplying at the expense of print-based literacies. It is notable that these digital literacies include not only pictorial literacies but also electronic print literacies. However, the changes in the average frequencies were rather small.

Correlations between students’ literacy attitudes and the frequency of literacy activities outside of school are presented in Table 5. In the first questionnaire, the activity that correlated most strongly with students’ literacy attitudes was reading fiction ( $r = 0.64$ ). In general, the activities related to use of technology correlated negatively with the literacy attitudes. Interestingly, playing computer or console games was the activity that correlated most negatively with students’ literacy attitudes ( $r = -0.31$ ).

**Table 5** Correlations of the literacy attitude scale score with frequency of literacy activity

Activity outside of school	Literacy attitudes (first questionnaire)	Literacy attitudes (second questionnaire)
Reading fiction	0.64**	0.75**
Reading non-fiction	0.19**	0.17**
Reading magazines	0.18**	0.33**
Reading comics	0.17**	0.24**
Writing fiction	0.28**	0.34**
Writing non-fiction	0.14*	0.15*
Watching pictures	0.07	0.11
Watching videos	-0.28**	-0.34**
Listening to audiobooks	0.21**	0.19**
Playing computer or console games	-0.31**	-0.35**
Playing internet games	-0.13*	-0.21**
Playing board games	0.28**	0.31**
Chatting	-0.26**	-0.05
Using social media	-0.29**	-0.32**
Using email	-0.22**	-0.23**
Scale score: diversity of reading print	0.37**	0.45**
Diversity of reading digital texts	-0.25**	-0.19**
Diversity of reading print and digital texts	-0.11	-0.06

\* $p < 0.05$ , \*\*  $p < 0.001$

**Table 6** Correlations of the literacy attitude scale score with frequency of literacy activity by boys and girls

Activity outside of school	Boys' literacy attitudes (first questionnaire)	Boys' literacy attitudes (second questionnaire)	Girls' literacy attitudes (first questionnaire)	Girls' literacy attitudes (second questionnaire)
Reading fiction	0.58**	0.69**	0.59**	0.68**
Reading non-fiction	0.23**	0.34**	0.23**	0.07
Reading magazines	0.20*	0.34**	0.18*	0.26**
Reading comics	0.36**	0.38**	0.17*	0.27**
Writing fiction	0.20*	0.25**	0.32**	0.38**
Writing non-fiction	0.15	0.29**	0.12	0.06
Watching pictures	0.07	0.24**	-0.02	-0.11
Watching videos	-0.28**	-0.16	-0.13	-0.35**
Listening to audiobooks	0.18*	0.22**	0.22**	0.15
Playing computer or console games	-0.20*	-0.17	-0.15	-0.15
Playing internet games	-0.19*	-0.17	-0.01	-0.02
Playing board games	0.31**	0.43**	0.17	0.17
Chatting	-0.17	-0.13	-0.23**	-0.02
Using social media	-0.21*	-0.33**	-0.26**	-0.24**
Using email	-0.28**	-0.24**	-0.08	-0.14
Scale score: diversity of reading print	0.40**	0.52**	0.36**	0.34**
Diversity of reading digital texts	-0.18*	-0.05	-0.15	-0.13
Diversity of reading print and digital texts	-0.03	0.04	-0.14	-0.023

\* $p < 0.05$ , \*\* $p < 0.001$

In the second questionnaire, the activity that correlated most strongly with students' literacy attitude was reading fiction ( $r = 0.75$ ). Once again, online activities correlated negatively with the literacy attitudes. One involved watching videos ( $r = -0.34$ ), and the others included playing computer or console games ( $r = -0.35$ ) and playing internet games ( $r = -0.21$ ). However, playing board games correlated positively with literacy attitudes ( $r = 0.31$ ).

We also investigated correlations of boys' and girls' reported frequency of literacy activities outside of school with their literacy attitudes. Table 6 presents the results.

There were differences in correlations between students' literacy attitudes and their literacy activities by gender. The activity that correlated most strongly with the literacy attitudes in the first and the second questionnaires across both gender was reading fiction (boys'  $r = 0.69$ , girls'  $r = 0.68$ ). Also reading magazines, reading comics and writing fiction correlated positively with both boys' and girls' literacy

attitudes. Reading non-fiction correlated positively with both boys’ and girls’ literacy attitudes in the first questionnaire. In the second questionnaire, girls’ literacy attitudes no longer correlated with reading non-fiction, while boys’ literacy attitudes remained strongly related to the reading of non-fiction. Interestingly, there was no longer negative correlation between literacy attitudes and playing computer or console games when boys’ and girls’ responses were analysed separately. In addition, using email correlated negatively and playing board games and watching pictures correlated positively with literacy attitudes for boys but not for girls.

#### 4.4 Reasons to Read More

In the first questionnaire, there was a multiple choice question *What would make you read more?* Students ( $N = 270$ ) were able to choose multiple alternatives. Students’ responses to the question are presented in Table 7.

Almost half (49.6%) reported that they would read more if they had more spare time. The second most supported reason was *If somebody told me about good books* (43.0%), and the third *If libraries were located nearer to my house* (38.5%). Almost as often mentioned (35.2%) was *If I knew what I like to read*. According to the students, parents (14.8%) and teachers (12.6%) would have a greater impact on students’ reading than their friends (9.3%). Almost one in five (18.9%) insisted that *Nothing* could make them read more.

In addition to reasons predefined for them in the questionnaire, 14.4% of the students mentioned several other reasons. A representative selection of their responses is presented below. Many were associated with the reasons *If somebody told me about good books* and *If I knew what I like to read*, implying that students would like to know something about their text or books in advance (responses 18, 19, 20). Some students yearned for more books of certain genre or from a specific book series (21, 22, 23). Some responses indicated that students’ hobbies take all of their spare time or interest (24, 25, 26, 27), leaving limited time for reading.

**Table 7** Students’ reasons to read more

What would make you read more?	Percentage
If I had more spare time	49.6
If books were cheaper	26.7
If libraries were located nearer to my house	38.5
If somebody told me about good books	43.0
If my friends read more	9.3
If I knew what I like to read	35.2
If the libraries had better repertories	32.6
If the teacher encouraged to read more	12.6
If my parents encouraged to read more	14.8
Some other reason, what?	14.4
Nothing	18.9

A few responses concerned about extrinsic reasons for reading (28, 29), availability of reading materials (30, 31) and a facilitative reading environment (32, 33). Some responses implied that it was not possible to read more than they already read (34, 35).

- (18) If I knew about the plot in advance.
- (19) If I knew that the book is exciting and if I knew what kind of a story it tells.
- (20) I don't know good books.
- (21) More Harry Potters.
- (22) If there were more baking books.
- (23) If more books were published in a book series that I read.
- (24) I have workouts every day so reading is not any common entertainment for me.
- (25) If there were more days in a week. My hobbies take about 5 days a week.
- (26) If had more time after my hobbies.
- (27) If I did not have a computer.
- (28) I would like my parents to tell me what is desirable to read.
- (29) If I got an award of 100 read books.
- (30) If we visited in the library more often.
- (31) If we had more books in my house.
- (32) If my brother stopped annoying me!
- (33) Silence.
- (34) Since I was a small child I have always loved reading♥♥♥♥♥♥♥♥
- (35) I already read the maximum amount.

According to students' responses, a lack of time for reading is an increasing problem not only for adults, but also for children. Many kinds of activities and hobbies besides school work are competing for students' attention and time. In addition, a large number of students hoped to know about texts and books before reading to get into written worlds. Also physical environments may make them read either more or less, depending on facilities. Nevertheless, the reasons for reading are various and, in general, they suggest that students hold positive attitudes for reading. There is still potential to assist students to read more despite the competitive time demands of varying school and non-school engagements.

#### ***4.5 Visiting the Library***

We were also interested in the role of libraries in enhancing students' literacy motivation. Table 8 shows the correlations between students' literacy attitudes and their reported frequencies of library visits. In the first questionnaire, a strong correlation was found between literacy attitudes and visiting the library with parents ( $r = 0.34$ ). Interestingly, there was no correlation between the literacy attitudes and visiting the library with the class.

**Table 8** Frequency of visiting the library

With whom do you visit the library?	First questionnaire			Second questionnaire		
	Total	Boys	Girls	Total	Boys	Girls
With my parents	0.34**	0.33**	0.23**	0.32**	0.37**	0.17*
Alone	0.15*	0.10	0.09	0.24**	0.14	0.13
With my friends	0.17**	0.04	0.13	0.23**	0.03	0.12
With my class	0.08	0.08	0.13	0.06	0.14	0.06
With a relative or another familiar adult	0.26**	0.20**	0.15	0.25**	0.35**	0.10

\* $p < 0.05$ , \*\* $p < 0.001$

In the second questionnaire, the correlations were quite similar. Again, the correlation between literacy attitudes and visiting the library with parents remained strong ( $r = 0.32$ ). Visiting the library with other adults was strongly related to boys' literacy attitudes, while no significant correlation was found with girls'. In addition, correlations between students' literacy attitudes and visiting the library alone and with friends strengthened during the pilot phase. This suggests that independence may be an important area of research for understanding children's reading behaviours outside of school.

## 5 Discussion

A shared goal in the Joy of Reading programme for teachers, librarians and parents was to increase students' motivation to engage in reading and to increase students' enjoyment of various literacy activities. The purpose of this study was to examine the effect of reading activities during the pilot phase of the programme. We were interested in changes in students' literacy attitudes and what activities in and out of school were related to positive literacy attitudes. Furthermore, we investigated whether there were any differences between boys and girls relating to their literacy attitudes and the type of reading activities they engaged in during the pilot programme.

Our main finding from this exploratory investigation is that while students' literacy attitudes remained fairly stable during the pilot phase of the programme, students' desire to read also remained strong; almost 70% of all the respondents indicated that their desire to read has increased during the pilot phase. It is worth noting that students answered the second questionnaire when the programme was just past its midpoint. Therefore, the results can be considered as suggestive because changes take time and further time in the programme may have further extended the positive outcomes recorded.

Our second finding was that the literacy attitudes were strongly related to three activities during lessons: silent reading, self-selected reading material and recommending books to each other. The finding is aligned with theories and studies which highlight the importance of students' choice and collaboration to students'

motivation and engagement (e.g. Guthrie & Wigfield, 2000; Ivey & Johnston, 2013; Turner and Paris, 1995). Students who are allowed to choose their reading materials are more motivated to read. With choices, students have authority over decisions concerning their own reading. In this way, reading becomes more personally meaningful. In addition, the reading activities that support students' cognitive engagement are likely to be motivating (Yair, 2000).

In addition, our findings confirm earlier research by Hutchison, Woodward & Colwell (2016) that students have many kinds of literacies that they engage in out-of-school settings. It is likely that these literacies within informal learning environments may affect students' literacy attitudes more than those experienced in the school context. Building on existing out-of-school literacies can be a meaningful way for teachers and parents to enhance students' positive reading identities.

With the help of our third question, we aimed to find out whether there were any differences between the girls' and boys' literacy attitudes. Our findings show that the girls' attitudes were more positive than boys', which has been a perpetual finding in literacy research (e.g. Brozo et al., 2014; Guthrie & Wigfield, 2000). Consistent with the finding by Lau (2014), girls' literacy attitudes were fairly stable during the pilot programme, whereas boys' literacy attitudes decreased slightly. In addition, there were several measurable differences in the consumption and production frequencies between boys and girls, such as reading non-fiction, which was positively correlated with boys' literacy attitudes but not girls'. Another notable gender difference was that, contrary to girls', boys' literacy attitudes correlated with the frequency of visiting library with parents and other familiar adults. This may imply that boys need more interaction to get motivated to read.

Interestingly, the frequency of playing digital games was negatively correlated with students' literacy attitudes. However, there was no significant correlation when boys' and girls' responses were analysed separately. Likewise, playing board games was not correlated with girls' literacy attitudes. Instead, there was a rather strong correlation between boys' attitudes and playing board games. Hence, it seems that although boys' attitudes were not as positive as girls', liking digital games does not prevent boys liking reading.

These findings suggest that children's personal interest is important and may be gender-dependent. The importance of personal interest was demonstrated again in students' responses to the question of how they choose reading materials. These responses also exposed something about students' concepts about literacies: the concepts were still very narrow, counting in mainly alphabetic print literacy, read in fiction books.

While this study shows possible relations between students' literacy attitudes and frequencies of some in-school and out-of-school literacy activities, its limitations include an unstandardised programme of short duration conducted with a rather small sample group. Van Steensel, McElvany, Kurvers, & Herppich, (2011) implemented a meta-analysis of family literacy programmes and found that the overall effects of the programmes are small. Accordingly, the effects of this programme seem to be rather small but did offer some initial insights into how reading



motivation can be promoted. It should be noted that the programme was ongoing and our results were based on the programme’s first year of activities only.

A strength of this programme was its bottom-up approach, which allowed the practices and attempts to promote students’ literacy attitudes and engagement to be initiated by schools and their local community partners. In this sense, the practices and focal interest on literacy motivation varied from school to school. In addition, the nature of motivation and literacy attitudes are multidimensional, and our findings might have been different if we had examined the attitudes using different dimensions such as challenge, curiosity, involvement and importance (see Wigfield, 1997). Also, the lengthy nature of the questionnaires may have affected respondents’ capacity to maintain concentration, especially for the younger students.

A follow-up study is necessary to examine the stability of the changes reported here. In fact, such a study has already commenced. Furthermore, teachers’ and librarians’ views need to be configured into the story that the data have to tell. While the current study was descriptive and exploratory in nature, the findings provided an empirical foundation for developing and testing research hypotheses about reading motivation and activities that promote its development using additional qualitative and quantitative data that we are currently collecting from the programme.

## 6 Conclusions

It seems that the more students are allowed to read silently in their lessons, the better their literacy attitudes. Many students responded that they would like to have more time to read during the schooldays. Fundamentally, dealing with time management is dealing with management of values. It is about how much we appreciate certain factors or activities in our lives and what content areas teachers choose to emphasise in school.

The lack of time does not only affect the amount of reading but also the quality of choices related to the reading materials. Students reported that even if they have time for independent reading they would rather choose easy and short texts to read as this would enable them to stop whenever needed for other classroom activities of higher importance. In response, teachers should explain why literacies are important for school work and generally for future life. More importantly, teacher should create facilitative conditions, including time set aside for reading, enabling students to become completely immersed in reading, hence striving for the ultimate state of flow (Csikszentmihalyi, 1990), which, in turn, may promote real attitudinal changes towards reading for enjoyment.

Students need to share their literacy experiences and recommend texts and other materials to each other, which help students who find it difficult to make a choice about what to read. Teachers view shared literacy experiences as beneficial as they provide opportunities for students to share relevant background knowledge in order

to engage in reading. Even the act of selecting a text is a preparatory stage towards such engagement.

In order to encourage students to read more, we need to show them entry points to reading materials, for example through recommendations, book talks, sharing and other social literacy activities. These are important ways that schools and public libraries share and utilise each other's expertise to promote reading and reading engagement; the public and school librarians have knowledge about materials, and the teachers are acquainted with many kinds of pedagogical methods. Indeed, librarians and teachers should collaborate to enable students make full use of these professionals' potential in opening up the world of fact and fiction.

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# Reading Motivation and Strategy Use of Hong Kong Students: The Role of Reading Instruction in Chinese Language Classes

Kit-ling Lau

**Abstract** In recent years, students from Chinese societies have demonstrated high levels of reading performance in large-scale international assessments. While reading research highlights the importance of cognitive and motivational factors in students' reading development, the findings of PISA 2009 indicated that Chinese students generally had higher reading motivation coupled with poorer awareness and use of reading strategies when compared with peers in other OECD countries. Based on several studies conducted in Hong Kong Chinese language classes, I discuss in this chapter: (1) Hong Kong students' motivation and strategy use in Chinese reading; (2) the effects of Chinese reading instruction on students' reading motivation and strategy use; (3) possibilities and challenges for changing the reading instruction in Chinese classes to enhance students' reading development. As most reading instruction studies focus on English reading, studies on Chinese reading instruction and its relation to students' reading motivation and strategy use should shed light on Western-based reading theories' applicability in the Chinese context. In general, findings of these studies indicated that, similar to English reading studies, reading motivation and strategy use affect Hong Kong students' Chinese reading proficiency and that reading instruction in Chinese language classes plays an important role in enhancing or inhibiting students' motivation and strategy use. While strategy instruction and self-regulated learning (SRL)-based instruction have been increasingly advocated in Hong Kong, teaching and learning approaches in Chinese language classes are not easily changed due to the specific nature of Chinese reading instruction and Confucian heritage. In the last section of this paper, suggestions for facilitating changes in Chinese reading instruction are discussed.

**Keywords** Chinese reading instruction · Reading motivation · Strategy use · Hong Kong students

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## 1 The Paradox of Chinese Learners

Both cognitive and motivational factors play an important role in facilitating reading development. Good readers are always portrayed as highly motivated and active readers who can efficiently employ different reading strategies to facilitate the reading process and enhance reading performance (Hilden & Pressley, 2007). The importance of strategy use and motivation is also highlighted in the reading assessment framework of the Programme of International Student Assessment (PISA), in which reading literacy is defined as ‘understanding, using, reflecting on and engaging with written texts, in order to achieve one’s goals, to develop one’s knowledge and potential, and to participate in society’ (OECD, 2009, p. 23). Previous studies have provided consistent support in relation to the positive effect that students’ awareness and use of effective cognitive and metacognitive strategies has on higher-order reading processes. (e.g., Baker, 2005; Eriksson, 2000; Paris, Lipson, & Wixson, 1994; Pressley & Afflerbach, 1995). Since the 1990s, reading research increasingly has recognised the importance of motivational factors. Good and poor readers are different not only in their cognitive competence, but also in their self-efficacy, attitudes, interest, and value on reading (e.g., McGeown, Norgate, & Warhurst, 2012; van Kraayenoord & Schneider, 1999; Wigfield, 1997).

In recent years, Chinese students have clearly demonstrated their strong academic performance in large-scale international assessments. The superior academic achievement of these students has aroused researchers’ interest in the paradox of Chinese learners stereotyping as passive and rote learners performing more strongly than their Western counterparts (Ho, 2009; Morrison, 2006). For example, in PISA 2009 with reading as a major assessment domain, Shanghai and Hong Kong respectively ranked first and fourth among the 65 participating countries and regions. The findings from the PISA 2009 student questionnaire, however, indicated that although students from different Chinese societies consistently showed a high level of reading enjoyment, they used relatively fewer reading strategies and had a lower metacognitive level than students from other OECD countries (see Table 1). These findings were consistent with the stereotyped impression of Chinese students but contradicted postulations that both reading motivation and strategy use are essential for effective reading comprehension.

Hong Kong is a major city in China. Over 90% of its citizens are Chinese with Confucian heritage. Hong Kong has experienced Western influence as a result of its status as an international city as well as its history as a former British colony. While the teaching and learning approach in Hong Kong Chinese language classes has been quite traditional in the past, many Western educational theories have been introduced to the Chinese language curriculum since major curriculum reform in 2001, providing an opportunity to examine how Eastern research has attended to the applicability of Western educational theories to Chinese reading instruction. Under this background, I conducted a series of studies aiming to shed light on the paradox of Chinese learners as outlined previously, as well as to provide directions for improving reading pedagogy to develop students’ reading competence and motivation effectively.

**Table 1** Index means for reading engagement, learning strategies, metacognition, teaching, and classroom climate measures of the four Chinese regions that participated in PISA 2009

Index mean	Hong Kong	Shanghai	Taipei	Macao
<i>Reading engagement</i>				
Reading enjoyment	0.32	0.57	0.39	0.08
Reading diversity	0.46	0.43	0.49	0.17
Online reading	0.38	-0.35	-0.19	-0.02
<i>Learning strategies</i>				
Memorization	0.13	-0.07	-0.31	-0.16
Elaboration	0.00	0.16	0.12	-0.09
Control	-0.14	-0.28	-0.39	-0.53
<i>Metacognition</i>				
Understanding and remembering	-0.20	0.14	-0.13	-0.10
Summarizing	-0.53	0.06	-0.40	-0.28
<i>Teaching and classroom climate</i>				
Disciplinary climate	0.37	0.45	0.09	0.11
Teacher stimulation	-0.03	0.14	-0.04	-0.23
Structuring and scaffolding	-0.18	-0.12	-0.05	-0.50

## 2 Theoretical Foundation of the Studies

In this chapter, the results of my numerous studies are reviewed to discuss whether motivation and reading strategy use are important to Chinese reading, and to what extent as well as how the reading instruction in Chinese language classes affects Hong Kong students' reading motivation, strategy use, and reading comprehension. These studies were informed by three related fields of research, namely cognitive strategy instruction (CSI) model, reading engagement theory, and self-regulated learning (SRL) theory.

Cognitive theory has played a dominating role in reading research since the 1970s. Studies comparing expert and novice readers have revealed that one of their major differences is their metacognitive awareness and ability to use effective strategies to facilitate their reading process (Baker, 2005; Brown, 2002; Eriksson, 2000; Paris et al., 1994; Pressley & Afflerbach, 1995). Inspired by these studies, researchers have extracted many useful strategies, such as summarising, predicting, questioning, clarifying, identifying main ideas and drawing inferences, to help students with poor reading ability to read in a strategic way. Many intervention programmes under the CSI model have been developed to enhance students' reading comprehension through direct strategy instruction, and the importance of reading strategy use in reading development has been consistently supported by the effectiveness of these programmes (Deshler & Schumaker, 1993; Gersten, Fuchs, Williams, & Baker, 2001; Palincsar & Brown, 1984; Pressley, El-Dinary, Wharton-McDonald, & Brown, 1998; Slavin, Lake, Cheung, & Davis, 2009).



Studies on students with reading difficulties have revealed that many students not only suffer from cognitive deficiencies but also have various motivational difficulties, such as poor self-efficacy, negative attitudes towards reading, lack of reading interest, and maladaptive attribution (Chapman & Tunmer, 2002; Eccles & Wigfield, 1995; McGeown et al., 2012; Shell, Colvin, & Bruning, 1995; van Kraayenoord & Schneider, 1999). Guthrie and Wigfield (2000) have proposed an engagement model of reading that incorporates both cognitive and motivational factors to understand the development of reading comprehension. According to this model, engaged readers are those who can coordinate their strategy and knowledge within a community of literacy to fulfil their personal goals, desires, and intentions. In a series of studies conducted by Guthrie, Wigfield and colleagues (Guthrie & Alao, 1997; Guthrie & Wigfield, 2000; Guthrie, Wigfield, & Vonsecker, 2000; Guthrie et al., 1999; Wigfield, 1997), reading motivation was found to have both direct and indirect effects on students' reading comprehension performance, mediated by other reading-related factors, such as strategy use, reading frequency, reading amount and breadth of reading activities.

SRL is viewed widely as a crucial element of successful learning (Pintrich & Zusho, 2002). While the conceptualisation of SRL varies in different theoretical perspectives, definitions of SRL commonly comprise elements of strategy, metacognition and motivation. Self-regulated learners are always described as metacognitively guided, self-efficacious, intrinsically motivated and strategic in their application of a repertoire of effective strategies to optimise their learning process, (Horner & Shwery, 2002; Perry, 1998; Perry, Hutchinson, & Thauberger, 2007; Pintrich & Zusho, 2002; Winne & Perry, 2000; Zimmerman, 2000). The concept of SRL provides a more comprehensive framework for investigating students' reading development.

According to the social cognitive model of self-regulation, environmental and personal processes interact bidirectionally to shape students' learning behaviours (Pintrich & Zusho, 2002; Schunk & Ertmer, 2000). In recent SRL and reading research, contextual factors have been studied to investigate how teachers' instructional practices influence students' learning behaviours and motivation (Lombaerts, Engels, & van Braak, 2009; Paris & Paris, 2001). My studies on the relationship between reading instruction and SRL were mainly based on the studies of Perry and her colleagues conducted in language classrooms (Perry, 1998; Perry, Phillips, & Hutchinson, 2006; Perry & VandeKamp, 2000; Perry, VandeKamp, Mercer, & Nordby, 2002; Perry et al., 2007). Based on the findings of their studies, they have identified a list of major classroom features that promote or impede SRL in language learning, including the nature of tasks, autonomy/choice, control over challenge, instrumental support from the teacher and peers, non-threatening evaluation, and opportunities to self-evaluate. I have reorganised these features into four main conceptual categories to form a 'TSAE' framework for systematically examining reading instruction in Chinese language classes. 'T' refers to the nature of instructional task, which includes using direct strategy instruction, open and authentic tasks to enhance students' reading ability and learning motivation. 'S' represents the instrumental support a student receives from the teacher and peers.

'A' characterises the degree of autonomy that students have in controlling their own learning. 'E' refers to mastery-oriented evaluation practices and opportunities for students to conduct self- and peer-evaluations.

### 3 Reading Motivation and Strategy Use of Hong Kong Students

Following the typical reading strategy research design, I started investigating the reading problems Hong Kong students experience by comparing the differences between good and poor Chinese readers' strategy use and reading motivation. The first study (Lau & Chan, 2003a) was conducted with 159 grade seven students using various quantitative measures, including a standardised reading comprehension test, a reading strategy test, and a motivation questionnaire. Findings indicated significant differences between good and poor readers on their performance for all reading strategy types. Poor readers were less capable in identifying main ideas, recognising text structure, summarising main ideas, detecting/solving reading problems, and inferring implicit meanings in Chinese texts. Among various reading motivation types, good and poor readers differed in their self-efficacy and intrinsic motivation. All these findings were consistent with Western studies (e.g., Baker, 2005; Brown, 2002; Paris et al., 1994; McGeown et al., 2012; Wigfield, 1997), suggesting that both motivation and strategy use are as essential for Chinese readers to obtain good reading performance as they are to their peers in Western instructional settings.

A subsequent study using think-aloud measures and metacognitive interviews was conducted with a small group of grade seven students ( $N = 8$ ) to investigate Chinese readers' actual strategy use and motivation during their reading process (Lau, 2006). Think-aloud is a common method used in reading strategy research to provide both product data and process report when directly accessing people's underlining sophisticated cognitive processes (Afflerbach & Cho, 2009; Pressley & Afflerbach, 1995). Consistent with Pressley and Afflerbach's (1995) description of a 'constructively responsive reading' model, which they had derived from studies using think-aloud method, my protocol analyses revealed that good Chinese readers, rather than their poorly performing peers, were more aware of the text title and reading goals as well as being more skilful at identifying keywords, constructing main ideas, activating prior knowledge, making comparisons and inferences, generating elaboration, monitoring reading processes, and resolving reading problems. In contrast, most poor readers simply read the texts word by word without using any strategies.

Regarding students' reading motivation, no significant differences existed between good and poor readers' self-efficacy. All participants, regardless of their actual reading ability, said they were not good at reading, reflecting that they did not have confidence in their reading abilities. Nonetheless, there was striking motivational difference between good and poor readers when it came to their reading goals. The goals of good readers were mainly intrinsic (e.g., they enjoyed

reading, liked interesting books, or reading for leisure). However, most poor readers said they disliked reading and read mainly due to their teachers' demands or for test preparation. These findings therefore suggest that intrinsic motivation is the main motivation distinguishing good Chinese from poor Chinese readers.

Recent studies with larger sample sizes have consistently confirmed that reading motivation and strategy use play significant roles in Hong Kong students' reading comprehension. Based on the SRL theoretical framework, a mixed-method study was conducted with 1121 grade 10 Hong Kong students to explore the relationship between the reading instruction in Chinese language classes and students' reading motivation, strategy use, and reading comprehension (Lau, 2012). From self-reported questionnaires, students demonstrated a high level of intrinsic motivation in reading, but low confidence and very few reading strategies. Classroom observations further indicated that students were attentive and well disciplined. However, they tended to rely on teachers' guidance rather than on playing an active role in class. Consistent with the two previous studies, students' use of comprehension and self-regulated strategies, their self-efficacy and intrinsic motivation related positively to their reading comprehension. However, when their achievement levels were included in the path analysis, only intrinsic motivation persisted as a significant effect on reading comprehension.

These findings were similar to Hong Kong students' PISA 2009 performance. Hong Kong students had a very high mean score on the reading enjoyment index. However, they obtained negative mean scores on measures of the self-regulated control strategy and for the two metacognition indices. When student background and school factors were used as control in the hierarchical linear modelling (HLM), reading enjoyment had the strongest effect on Hong Kong students' reading performance among all motivation and strategy indices (Lau & Ho, 2016), again highlighting that intrinsic motivation plays the most important role in Chinese students' reading performance.

#### **4 Chinese Reading Instruction and Its Impacts on Hong Kong Students' Reading Motivation and Strategy Use**

The characteristics of Chinese learners are closely related to the learning environment of Chinese classrooms. Influenced by Confucian Heritage Culture (CHC), Chinese classes are always described as teacher-centred and authoritarian. Instructional practices in traditional Chinese classes focus mainly on knowledge transmission and drilling for external examinations. Teachers are considered authorities and superior figures while students tend to play passive roles in the classroom (Gow, Balla, Dember, & Hau, 1996; Ho, 2009; Ho, Pang, & Chan, 2001). Although Western educational theories, such as learner-centred instruction, self-regulation learning and cooperative learning, have increasingly influenced Chinese societies in recent years, the CHC-influenced instructional approach is still very common in current Chinese educational settings.

The packed curriculum and highly competitive examination system in many Chinese societies can exacerbate the influence of this traditional approach on Chinese teachers' daily practices (Biggs, 1996; Pong & Chow, 2002; Morrison, 2006). With this cultural background and traditional text-based pedagogy, reading instruction in Chinese language classes is quite different from that of Western classrooms. The main purpose of traditional text-based instruction is to ensure students fully understand a prescribed list of texts. Chinese language teachers usually spend a lot of time explaining the background information, vocabulary, content, and rhetorical use of the texts on the list, believing that students will develop their reading ability indirectly through intensive recitation of the texts (Ho, 1999; Tse et al., 1995). Under the old curriculum, prior to the 2000/2001 education reform, strategy instruction was seldom observed in Chinese language classes (Lai, 1995; Lau, 2001). Students habitually memorise standard answers provided by textbooks or their teachers in order to cope with examinations. To many, this kind of instructional approach may seem ill-conceived if the teaching objective is, at least in part, to enhance students' reading motivation and strategy use.

Due to a large-scale curriculum reform in Hong Kong in 2001, the Chinese language curriculum has adopted a competence-based and student-centred approach. Prescribed texts are no longer provided in the curriculum guide. Furthermore, instead of using didactic methods to explain texts in detail, teachers are now required to develop students' independent reading skills using a more student-centred pedagogy. The teaching of reading strategies is also included as a core component in the curriculum guide (HKCDC, 2001). Studies of Hong Kong teachers' acceptance and implementation of the new curriculum, however, have revealed great variation among teachers (Lau, 2007; Wong, 2005). While some Chinese language teachers demonstrated obvious changes in their instructional approach, others continued to use the traditional approach when teaching the new curriculum. During this transitional period, I conducted studies in two different research areas, motivational decline and SRL, in order to explore the relationship between Chinese reading instruction and Hong Kong students' reading motivation and strategy use.

According to achievement motivation theories, the kind of instructional environment students experience is likely to shape their motivation. If students perceive their learning environment as more mastery-orientated, they are more likely to maintain a higher level of intrinsic motivation in learning (Ames & Archer, 1988; Anderman & Midgley, 1997; Corpus, McClintic-Gibert, & Hayenga, 2009; Greene, Miller, Crowson, Duke, & Akey, 2004; Pintrich, Roeser, & DeGroot, 1994). As students progress through the upper grades, they are increasingly exposed to performance-oriented environments which may play a significant role in the sharp deterioration in their motivation (Eccles et al., 1993; Gottfried, Fleming, & Gottfried, 2001; Guthrie, 2003; Urdan & Midgley, 2003; Wigfield, Eccles, & Pintrich, 1996).

To check this possibility for Hong Kong students, I conducted two survey studies on whether they also experience this motivational decline. The first one was conducted on a large sample of 1146 students from 19 secondary schools to compare the perception of reading instruction and reading motivation between

junior and senior secondary students (Lau, 2009). Findings indicated that a perceived mastery-oriented reading instruction was positively related to Hong Kong students' reading motivation. Consistent with Western studies, senior secondary students not only had significantly poorer motivation compared to junior secondary students in all reading motivation types, but also perceived the reading instruction in their Chinese language class as less mastery-oriented. These findings suggest that although Chinese students generally were positively motivated to learn, motivational decline is common where classrooms are less mastery-oriented.

The close relation between reading instruction and Hong Kong students' motivational change was confirmed further in a recent longitudinal study (Lau, 2016) based on two-wave data collected from 695 secondary students at the beginning and end of an academic year. Findings indicated that students' perception of reading instruction remained a strong and positive predictor of their intrinsic motivation after controlling the effects of their prior motivation, grade and achievement levels. In contrast to the common phenomenon of motivational decline, an unexpected increase in students' intrinsic motivation was seen at the end of the year. This positive motivational change was accomplished with an increase of students' perceived mastery-goal structure related to their reading instruction. Since all of the participants' teachers were taking a course on reading instruction when the study was conducted, it is possible that these teachers applied newly-learned principles and instructional strategies in class, and if so, that this had resulted in positive changes in students' perceived reading instruction and intrinsic motivation. These findings and the possible pedagogical shift connection are encouraging if indeed the provision of professional development for teachers, focused on the mastery-oriented reading instruction, has the potential to arrest, or even reverse, students' motivational decline.

Using SRL theories, my recent studies broadened the scope of investigation to include both motivational and cognitive aspects to understand the effects of Chinese reading instruction on Hong Kong students' reading development. Based on the studies on SRL and reading research (e.g., Housand & Reis, 2008; Lombaerts, Engels, & van Braak, 2009; Perry, 1998; Perry & Rahim, 2011; Perry & VandeKamp, 2000; Perry et al., 2002; Pintrich et al., 1994; Schunk & Zimmerman, 1997; Turner, 1995), various classroom instructional features that facilitate students' SRL development in reading were organised into the aforementioned 'TSAE' framework. The TSAE framework was applied in the mixed-method study mentioned in the previous section (Lau, 2012). Findings from the questionnaire data collected from 1121 grade 10 students indicated that they perceived a moderate to high degree of 'T' and 'S' but a relatively low degree of 'A' and 'E' in their Chinese language classes. Classroom observations from the focus classes further revealed that the high instrumental support level was mainly provided by teachers. While the nature of task and evaluation practices in some classes were consistent with the principles of SRL-based instruction, with an increased emphasis on skill-based instruction and the adoption of more interesting learning materials, activities, and formative assessments, teachers continued to play a dominant role in class. The observational data revealed that cooperative learning, independent reading activities

as well as self- and peer-evaluation were rare in most classes. These findings were similar to PISA 2009 results where Hong Kong students perceived a very positive disciplinary climate in their reading classes but reported that they received very little scaffolding and stimulation of engagement from their teachers. This kind of authoritarian instructional approach was consistent across all four Chinese cities involved in PISA 2009 (see Table 1), suggesting that traditional CHC still has substantial influence on current Chinese teaching practices.

There are some noteworthy cultural implications when examining the relationship between various instructional variables and Hong Kong students' SRL. While findings generally supported the positive impact of SRL-based instruction on most learning-related variables, some instructional practices were more beneficial to students' learning than others. Among the four major principles of SRL-based instruction, instrumental support showed the strongest positive correlation with students' strategy use, intrinsic motivation, and reading performance. In contrast, although the degree of student autonomy had a positive correlation with students' strategy use, it also related positively to their negative reading behaviours and negatively related to their reading performance. Classroom observations and student interviews further confirmed and explained the importance of teacher support and the potential issue of student autonomy in Chinese language classes. Sufficient and skilful teacher support was crucial to establish students' learning foundations and to maintain their self-confidence and intrinsic motivation, especially when they are faced difficulties or progressed to high-level learning. In contrast, involving students in autonomous activities without sufficient teacher scaffolding was, in some classes, found to result in disciplinary problems or misinterpretation of the reading texts. Moreover, although the degree of student autonomy was low in most classes, both teachers and students we had interviewed felt satisfied with the class's authority structure.

## **5 Possibility and Challenges for Incorporating Reading Strategy Instruction and SRL-Based Instruction into Chinese Reading Instruction**

Understanding the positive and negative correlations between different instructional practices in Chinese language classes and Hong Kong students' reading motivation and strategy use provides useful direction in investigating ways to improve the reading instruction. The current context of curriculum change is also good opportunity to introduce Chinese teachers to new pedagogy. Given data (Lau, 2006; Lau & Chan, 2003a) that so many Hong Kong students lack the essential awareness and ability to effectively use various reading strategies, I have developed a Chinese strategy instruction (CSI) programme that adapts CSI programmes from Western studies (e.g., Deshler & Schumaker, 1993; Guthrie & Alao, 1997; Palincsar & Brown, 1984; Paris & Paris, 2001; Pressley et al., 1998) to the Chinese language

curriculum. As a first step, I checked the effectiveness of the CSI programme in a quasi-experimental study (Lau & Chan, 2007) conducted with a small group of low-achieving grade seven students (22 students in the experimental group and three control groups). The findings indicated that those in the experimental group made superior gains in comprehension performance, had more knowledge of strategy use, used more strategies while reading, and showed a more positive attitude toward reading instruction than their peers who received traditional instruction. Moreover, their improvements on strategy use and reading comprehension were maintained four months after the programme ended. However, the programme failed to significantly affect students' reading motivation.

The CSI programme later was implemented in a second and larger study (Lau & Chan, 2003b), which had 1220 grade seven participants with different achievement levels from six schools. Teachers were trained to deliver the programme as one of the modules in the formal Chinese language curriculum. The findings were consistent with the first study. They supported strategy instruction as being effective in the enhancement of students' strategy use and comprehension, regardless of their prior achievement levels. Teachers also had positive attitudes toward strategy instruction. They found the principles of strategy instruction were well-matched with the current curriculum, which made it easier to integrate the new approach into their classes. However, similar to the first study's findings, no significant change was found in students' reading motivation. Although motivational elements were integrated into the programme, teachers tended to deliver strategy instruction in a teacher-centred and drilling approach, and failed to use the interactive activities designed in the programme package.

Next, upon drawing on the experiences of implementing strategy instruction in Chinese language classes, I adopted a teacher-researcher collaborative approach, along with the TSAE framework, to support teachers to design and implement their own school-based programme aimed at supporting students to be self-regulated readers (Lau, 2013). In recent years, the problem of translating research-based instruction into classroom practice has aroused researchers' attention to the important role teachers play in implementing reforms and innovations (Anderson & Roit, 1993; Englert & Tarrant, 1995; Fullan, 1993; Hilden & Pressley, 2007; Inos & Quigley, 1995; Lombaerts et al., 2009). Different from the traditional top-down approach, the collaborative approach involves teachers as skilled professionals working closely with researchers in a learning community (Englert & Tarrant, 1995; Gersten, Vaughn, Deshler, & Schiller, 1997; Mariage & Garmon, 2003; Richardson & Placier, 2001). Teachers collaborating in programme design, implementation and reflection can develop ownership of the innovative instruction as well as deeper and personal understandings of abstract theoretical principles underpinning what researchers bring as their part of the learning community. Moreover, the TSAE framework also served as a balanced instructional approach to simultaneously develop students' reading motivation, strategy use, and metacognition when compared with the CSI programme, where greater emphasis had been on strategy teaching.

A total of 31 Chinese language teachers and their grade 10 students from six Hong Kong secondary schools participated in this collaborative project Initially,

teachers attended four professional training workshops, which explained the basic tenets of SRL, the major features of a high SRL-based classroom environment as well as the general characteristics of self-regulated learners. Concrete examples of lesson plans were also introduced. During the workshops, teachers had frequent opportunities to discuss how to apply the TSAE framework's principles in their own school-based SRL programmes. After the workshops, each school was required to select and design one to two modules in their school-based SRL programmes. During the project, I worked closely with teachers in regular collaborative meetings to support their instructional design and evaluation. Multiple measures, including classroom observations, teacher and student interviews as well as questionnaires were utilised to assess the extent teachers applied the SRL principles in their teaching and the impact it had on students' learning.

Findings of this study indicated that teachers generally had positive attitudes towards the SRL-based instruction. Most agreed that it had been effective in enhancing their students' reading ability and motivation. Pre- and post-test comparisons indicated both teachers and students perceived a higher degree of SRL-based instruction in their Chinese language classes. Students also showed a significant improvement in their strategy use, motivation, and reading performance by the end of the project. Among the four major principles of SRL-based instruction, both quantitative and qualitative data revealed that teachers' instructional changes occurred mainly in 'T' and 'S'. Rather than continuing to use teacher-centred lectures to explain the textbooks' content, more teachers integrated strategy instruction into their classes; teachers also used more interesting reading and multimedia materials to supplement textbooks, and designed various activities and discussions to develop students' independent reading skills during the implementation of their school-based programmes. Concerning the principles of 'A' and 'E', teachers increased opportunities for student participation, but seldom adopted student-directed activities and evaluation. These findings were similar to my previous study on current instructional practices of Chinese language teachers (Lau, 2012). This suggests that while curriculum reform and support from researchers can motivate teachers to experiment with innovative instruction, the Confucian heritage and traditional teaching approach continues to have substantial influence over teachers' instructional practices. It seemed simpler for Chinese teachers to incorporate principles emphasising teachers' role in supporting students' learning rather than those emphasising student-directed learning.

## **6 Conclusion: Suggestions for Facilitating Changes in Chinese Reading Instruction**

By using various relevant theories, I have conducted several studies to explore the role and effect of reading instruction on Hong Kong students' motivation and strategy use. Due to differences between the Chinese and alphabetic orthographic



systems, most research on Chinese reading focused on exploring the differences between Chinese and English reading at decoding and lexical levels. Researchers generally have agreed that higher-level comprehension processes should operate in a similar way in Chinese as in other languages (Liu, 1986; McBride-Chang et al., 2010). Findings of my studies, as outlined above, support the cross-cultural application of motivation and cognitive strategy theories in Chinese reading comprehension. Similar to the findings in English reading studies, reading motivation, strategy use, and metacognition also play a significant role in Chinese students' reading comprehension performance (Lau, 2006, 2012; Lau & Chan, 2003a, 2007; Lau & Ho, 2016).

At the same time, some cultural implications revealed in these studies should be noted. Specifically, intrinsic motivation has consistently been rated highest among different reading motivation types by Hong Kong students, and its effect on student reading performance is greater than other motivation, strategy use, and metacognition variables (Lau, 2006, 2012; Lau & Ho, 2016). This suggests that intrinsic motivation is a main source for energising Chinese student to become more involved in reading activities and in striving for better reading performance. When compared with their Western counterparts, Hong Kong students have relatively little knowledge about, and less frequently use, comprehension and metacognitive strategies to monitor their reading processes. These characteristics of Hong Kong students are consistent with the typical impression that Chinese learners generally have high achievement motivation and positive attitudes towards learning (Rogers, 1998; Salili, 1996; Stevenson, 1993), but possess a lack effective learning strategies (Ho et al., 2001; Littlewood, 1999; Watkins, Regni, & Astilla, 1991).

When discussing the paradox of Chinese learners, Morrison (2006) suggested that Chinese students' high performance might be a result of their extreme studiousness, which compensates for their lack of effective learning strategies. Findings from my studies support the possibility of this postulation. Hong Kong students' common insufficiencies of knowledge and use of strategy (Lau, 2012) may explain why strategy use and metacognition have proven, to date, to be less important than intrinsic motivation in affecting their reading performance. It should be noted, however, that these cognitive and metacognitive factors are also critical in distinguishing good and poor Chinese readers (Lau, 2006; Lau & Chan, 2003a). In any case, it seems that Chinese students now are paying a high price for their high performance. This conjecture leads to the important question of whether we can help Chinese students maintain their reading performance outcomes while also supporting them to learn in a manner which is more effective and more conducive to positive health outcomes.

Investigations on the relationship between Chinese reading instruction and students' reading development revealed a more complicated picture than those studies which only involved student performance. The general pattern of the relationships between reading instruction and Hong Kong students' reading motivation, strategy use and reading comprehension revealed in my studies supports the applicability of achievement motivation and SRL theories to the Chinese context. Similar to the findings of Western studies, a mastery-oriented classroom

environment can foster Hong Kong students' intrinsic motivation in reading (Lau, 2009; 2016) and most instructional principles derived from the SRL theories are positively related to Hong Kong students' reading motivation and strategy use (Lau, 2012). On the other hand, as influenced by Confucian heritage (Gow et al., 1996; Ho, 2009; Ho et al., 2001) and traditional knowledge-based curriculum (Ho, 1999; Tse et al., 1995), Chinese language teachers continue to assume great responsibility and authority in class. Despite the curriculum reform in Hong Kong, students still rely heavily on their teachers' guidance rather than engaging in actively learning while employing various strategies to self-regulate their reading process. Therefore, students' insufficient knowledge and employment of reading strategies may be attributed to the lack of exposure to direct strategy instruction, a persistent and counterproductive feature of the learning environment which has hindered the development of independent reading abilities in the past.

Given this teaching and learning approach, it is not surprising to find that teacher support appears to be the most important instructional practice among the four major principles of SRL-based instruction in facilitating Hong Kong students' learning. While high-quality teacher support can be an important means of transmitting self-regulatory skills in the initial stage of SRL (Schunk & Zimmerman, 1997), a drawback of teacher-centred instruction is clearly demonstrated in Hong Kong students' relatively low self-efficacy and infrequent use of cognitive and metacognitive strategies (Lau, 2012; Lau & Chan, 2003a; Lau & Ho, 2016). However, the negative relations between autonomy structure and students' reading behaviours and performance (Lau, 2012) suggest that providing Hong Kong students with autonomous reading activities needs wider supplementation if it is to be effective in developing their independent reading abilities. Indeed, most Chinese teachers and students are so accustomed to teachers' traditional role as an 'authoritative leader' with students' acting as 'passive recipients', that such non-supplemented provision might thwart the intended goal. Teachers may see such a move as challenging deeply entrenched and unchallengeable epistemologies and classroom authority structures leading to reservations in providing students with a higher degree of freedom. Students may also lack confidence to learn independently without teacher support. Therefore, it is an important issue for the future development of Chinese reading instruction to balance teacher support and student-directed learning in growing productive learning ethos (Perry, 1998; Wolters & Pintrich, 1998).

The findings from my two collaborative projects (Lau, 2013; Lau & Chan, 2003b) showed that teachers responded positively towards incorporating SRL elements in reading instruction, which can be attributed to three important reasons.

First, the massive 2001 curriculum reform in Hong Kong has provided a good opportunity to encourage or compel teachers to make changes (Avalos, 2011; Fullan, 1993; Inos & Quigley, 1995), with both reading strategy and SRL being key concepts in the current Chinese language curriculum (HKCDC, 2001). School leaders and teachers generally regard participation in collaborative projects as an opportunity to receive external support for implementing the new curriculum.

Second, teachers appreciate reassurance as to the effectiveness of the practices that they are being asked to implement. The teachers' view of the evidence, either for or against the practices, will heavily impact whether they will accept and continue to support the innovation (Avalos, 2011; Broaddus & Bloodgood, 1999; Gersten & Dimino, 2001; Gersten et al., 1997; Pressley, Schuder, Bergman, & El-Dinary, 1992). According to the findings of my two studies, most teachers were satisfied that strategy instruction and SRL-based instruction would improve their students' reading ability. Teachers indicated that, in terms of the 'reality principle', as long as the instructional practice would yield benefits for their students' learning, they were willing to adopt it, regardless of whether it was rooted in traditional CHC or within Western theoretical frameworks. Teachers indicated that, in terms of the 'reality principle', as long as the instructional practice would yield benefits for their students' learning, they were willing to adopt it, regardless of whether it was rooted in traditional CHC or within Western theoretical frameworks.

Third, Hong Kong teachers have heavy workloads and are generally reluctant to spend additional time designing new materials and lesson plans. Therefore, the pre-designed nature of the CSI programme was well-received as it removed any such time requirement. Even when teachers were required to develop their own school-based programmes rather than adopt the pre-designed package, the collaborative environment for doing so was appreciated as had been found elsewhere (Gersten et al., 1997; Gregoire, 2003; Mariage & Garmon, 2003; Pressley & El-Dinary, 1997).

Teacher change is not always a straightforward process. The positive factors identified in my previous studies have provided useful insights for the facilitation of instructional change in Hong Kong Chinese language classes. During this long-term change process, it is important for researchers and school administrators to provide sufficient and regular support to teachers, assisting them to experiment with, make reflections on, and adjustments to the new instructional techniques (Butler & Schnellert, 2012; Gersten & Dimino, 2001; Pressley & El-Dinary, 1997). The collaborative efforts of researchers, administrators and teachers should allow for a more feasible instructional approach to be developed, one that will develop Chinese students' reading abilities and motivation in a healthier and more effective manner.

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# ‘Reading Was like My Nightmare but Now It’s My Thing’: A Narrative of Growth and Change of an Australian Indigenous Student

Gina Blackberry and Clarence Ng

**Abstract** It is well known that Australian Indigenous children, like many other Indigenous children from around the world, statistically perform less well in meeting the minimum reading standards than the general school population. Buried beneath the performance data are children who bring to their schooling unique experiences that shape and underpin their readiness and willingness to learn. Rarely are stories told that do not perpetuate the dominant discourse of failure, but this is one of them. Adopting a person-in-context perspective, this chapter presents a descriptive account of an Indigenous Australian student and the environmental factors that supported her remarkable improvement in reading and, in turn, her ability to identify as a reader. Wherever possible, the student’s voice has been given priority to tell her narrative of change and thus permits an emic understanding of the significance the student–teacher relationship had in supporting her reading growth and the development of her self-esteem and identity as a reader.

**Keywords** Reading achievement · Reading motivation · Indigenous student · Reading context · Teacher support

Empirical evidence consistently reports Indigenous people from around the world having significantly lower literacy skills than non-Indigenous people. Illiteracy is also more common among Indigenous people (Hanemann, 2005), including Australia’s Indigenous children. De Bortoli and Thomson (2010) reported that Indigenous Australian students had significantly lower levels of interest in reading and reading engagement than their non-Indigenous counterparts. However, there is limited Australian evidence about effective school-based factors that can be manipulated to increase student engagement and create an effective learning environment to engage Indigenous students to read with motivation (Lamb & Rice, 2008; Ockenden, 2014). So when an Indigenous student told us, ‘reading was like my nightmare so much so I used to fake I was sick. Now reading is my thing’,

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her reflections necessitated digging deeper in order to ascertain the factors that led to her identifying as a reader at school. The research questions in this study were why the student had changed her attitude to reading and what had contributed to this change.

The theoretical perspective in this study is labelled as person-in-context. Rooted in the sociocultural theories inspired by the work of Vygotsky, this perspective situates students' learning behaviours and processes within embedded social, cultural and historical contexts (Turner & Meyer, 2000). From this particular perspective, Indigenous students' personal interests, goals and other important cognitive enablers for reading are understood and interpreted within their immediate and embedded contexts (Nolen, 2007; Oldfather, 2002). It is important to make sense of Indigenous students' motivation to read and their reading behaviours in the light of the various contextual and interactive factors that come into play and contribute to their formation. Using a person-in-context perspective, our chapter presents one student's story of change. It accounts for influences derived from classroom and out-of-school reading contexts, together with consideration of the impact of social interactions with teachers, peers and family members might have on the student's reading attitudes and behaviours. Aligning with this perspective, multiple data collection methods including both qualitative and quantitative were combined to produce a rich empirical foundation to understand and verify the student's change story.

This chapter first situates the reading underperformance of Australia's Indigenous children within national and international testing frameworks. This is followed by a discussion of factors contributing to Indigenous underachievement and a review of selected research initiatives that have reported success in promoting learning and engagement among Indigenous students. Finally, the student's case highlighting her reading development as well as her cognitive and affective changes is presented. All the stakeholders in this case have been de-identified, and the pseudonym Lisa has been used for the Indigenous student.

## **1 Situating Lisa's Story in National and International Testing Contexts**

The significance of Lisa's story lies in the fact that we rarely hear good news stories about Indigenous children and their successes in education. Far more common is the discourse of deficit, failure and underachievement. Despite living in 'the lucky country', Wolgemuth and colleagues (2013) noted that Australia's Indigenous children are far less likely than the general Australian student population to meet minimum reading standards. Many Indigenous students have exceedingly poor educational outcomes (Kaufmann, 2003). Results derived from large scale tests such as National Assessment Program—Literacy and Numeracy (NAPLAN) and Programme for International Student Assessment (PISA) (PISA, 2012) support these claims.

The most recent NAPLAN data from 2016 for students in years three, five and seven reported that Indigenous students' mean scale scores for reading were substantially lower than the mean scale score for reading for non-Indigenous students. Data from the 2012 PISA paper-based assessment of reading literacy also showed that Indigenous students performed significantly lower than non-Indigenous students and that Indigenous youth are being left behind (Dreise & Thomson, 2011). A report highlighting Australian students' performance in the PISA test by Thomson, De Bortoli, and Buckley (2012) indicated that the average difference between Indigenous and non-Indigenous students was 87 score points which equates to two and a half years of schooling.

The literature on Indigenous education has identified a variety of factors that have contributed to Indigenous students' underachievement. These include: geolocation of the student (Prior, 2013; Yeung, Craven, & Ali, 2013), truancy (Prior, 2013), continuity of teachers and pedagogical practices (Kenyon, Sercombe, Black, Lhuede, O'Meara, & White, 2001), unskilled teaching (Kenyon et al., 2001; Prior, 2013), health problems including middle ear infections (Bennet & Lancaster, 2013), inability of school to address minority and cultural diversity (Ogbu, 1992), and a variety of teacher factors (Bennet & Lancaster, 2013; Hattie, 2003, 2009; Marzano, Walters, & McNulty, 2005; Robinson, 2007; Rowe, 2003). Obviously, the issue of underachievement among Indigenous students is complex and a host of influential factors related to Indigenous students' personal, familial, school and physical contexts come into play. A review of Indigenous education in New South Wales (NSW) (New South Wales Department of Education and Training & New South Wales Aboriginal Education Consultative Group Incorporated, 2004) argued that social, cultural, economic, environmental and health factors often intricately work together, contributing to students' underperformance at school. This begs a systematic approach to explore the interrelationships between these influential factors and to understand how they operate at an individual level.

## **2 Factors that Support Indigenous Students' Engagement and Learning**

There are many assertions made about school and classroom conditions that need to exist to support Indigenous students' engagement and learning, but few are backed by empirical evidence connecting the initiative to positive gains in students' literacy levels or learning engagement (Lamb & Rice, 2008; Prior, 2013). Below, a selected set of empirical studies relevant to the current investigation on Lisa's change story is reviewed with a view to locate important factors for promoting learning engagement among Indigenous students and for developing an empirical base to discuss the results derived from the longitudinal case study reported in this chapter.

Lamb and Rice's (2008) review of the literature on increasing students' engagement and school retention identified a range strategies and programmes aimed at increasing engagement and school completion for students at risk.

Although not solely focused on Indigenous students' engagement, the meta-analysis indicated that the most effective schools are those with a supportive school culture, school-level strategies and student-focussed strategies and that 'schools are most effective in addressing issues of student engagement and retention when all three areas are addressed' (p. 14). More specifically, for Indigenous students, cultural acknowledgement, targeted and explicit teaching, and skill development and participatory decision-making were noted as supporting engagement. Aligning with the work of Lamb and Rice (2008), systematic efforts were made to explore the influences of support during school reading programmes, specifically those targeting individual students like Lisa in promoting engagement in reading.

An important teacher factor that should have positive effects on Indigenous students' reading engagement and performance is classroom practices and discourses that function to engage students. In their mixed methods study, Munns, Martin, and Craven (2008) found that pedagogies that fostered substantive student engagement encouraged cognitive, affective and procedural responses from students. Based on data gathered from 32 highly motivated and engaged Indigenous students from 'exemplary' urban and rural primary schools in NSW, they found that these students worked with a mastery orientation rather than with a competitive orientation. This finding suggests further research be conducted to investigate the potential motivational effects of a mastery oriented classroom among disaffected Indigenous students. Furthermore, the authors found that classroom pedagogies and discourses 'carry either engaging or disengaging messages' (Munns et al., 2008, p. 99) and that those underachieving Indigenous students 'appeared to be continually on the receiving end of messages that pointed to their lack of ability and their restricted voice in classroom pedagogical spaces' (Munns et al., 2008, p. 102). A major oversight in this study was that underachieving and unmotivated students were not interviewed; thus, their voices were silenced. The current study specifically addressed this imbalance by seeking out the voice of an underperforming Indigenous student in an effort to understand the aspects of teachers' behaviours and communications that may impact Indigenous students' learning to read in school.

Another significant teacher factor that may contribute to Indigenous students' reading engagement and improvement is the positive impact of caring student-teacher relationships on engagement for students from minority groups. A mixed methods, two-year long study of caring teacher practices in multiethnic mathematics classrooms in New Zealand (Averill, 2012) described specific caring teacher behaviours and practices and illustrated how they could be mapped to Durie's (1998) *whare tapa wha* model for health and well-being. The study indicated that caring teacher practices are not confined to consideration of students' cognitive and affective characteristics but also include teachers' deliberate attention to students' spiritual and physical elements of well-being and an understanding of familial and social circumstances that constrain or enable students to learn. Furthermore, the study provided much needed empirical evidence supporting the critical role of the student-teacher relationship in promoting Indigenous students to learn. In particular, it was found that students who had deeply caring teachers exhibited high levels

of engagement and student-initiated interactions while students in the less caring teachers' classes were more likely to exhibit 'off-task, disruptive, unresponsive, and challenging behaviour, and negative body language (such as turning away from the teacher)' (p. 121). Despite the specifics of mathematical and New Zealand contexts, this study forms an empirical foundation for analysing the impact of teachers' behaviours on Indigenous students' learning to read in Australia. We need to know more about the salient features of student-teacher relationships that support engagement and whether they are constant or highly nuanced and influenced by context.

This literature review points to the need for a systematic investigation designed to explicate the influences of a host of factors and their interrelationship in order to understand Indigenous students' attitudes towards reading longitudinally. The qualitative findings in the current study will complement the extant literature on Indigenous students' underachievement. The inclusion of student voice enables a closer look at the issue of underachievement and disengagement by situating students and their learning attitudes and behaviours within relevant contexts and over time. The review of empirical studies that investigated factors capable of promoting learning and achievement for Indigenous students provides an empirical foundation for analysing the longitudinal case study and draws our attention to positive influences originated from a supportive school learning environment, caring teachers and engaging classroom practices.

Our current understanding of Indigenous students' underachievement is mostly derived from, and built on, the results of large-scale national and international testing which highlight the achievement gaps between Indigenous and non-Indigenous students without offering viable explanations for their formation and development. Qualitative and longitudinal studies focusing on individual Indigenous students and their interaction with significant others within school and out-of-school contexts are essential for developing a better understanding of the nature of the achievement gaps identified in repeated rounds of testing results. In addition, such investigations are needed in the light of some notable inconsistencies in findings about reading performance and behaviours among Indigenous students. For example, De Bortoli and Thomson (2010) in their report on Australian students' performance in PISA testing noted that Indigenous students showed significantly lower levels of interest and engagement in reading than did their non-Indigenous peers. In contrast to this finding, their report indicated that the PISA surveys conducted during the same period found that Indigenous and non-Indigenous students were not significantly different from each other in terms of their effort, persistence, learning preference, learning styles, attitudes towards school, experiences of relationships with teachers and disciplinary climate of the classroom. An immediate question based on these non-significant findings is what has contributed to Indigenous students' low levels of reading interest and engagement. These non-significant findings derived from large-scale studies are not consistent with accumulating empirical evidence suggesting that Indigenous and non-Indigenous students engage in learning in different ways. For example, a number of quantitative studies indicate that Indigenous students often have lower academic self-concept

than their non-Indigenous counterparts (Bodkin-Andrews, Ha, Craven, & Yeung, 2010; Craven & Marsh, 2004; Prior, 2013). In response, there is a need to compare findings across different quantitative studies in order to verify our understanding of Indigenous students' underachievement and their learning problems. More importantly, systematic investigations using a variety of research methods that take into account a host of complex factors within embedded contexts where Indigenous students engage in reading and other forms of learning in- and out-of-school are required for a better understanding of Indigenous students' learning problems, and in particular, their lack of interest in reading and strategies for re-engagement.

### 3 Method

Lisa's case is drawn from a three-year longitudinal, mixed methods study investigating reading engagement and disengagement among low socioeconomic and Indigenous students funded by the Australian Research Council (ARC). Disadvantaged students from low socioeconomic (SES) areas and/or Indigenous students who were reported by their teachers to be disengaged readers were recruited to participate in the study. Lisa identified as Indigenous, attended school in a low SES area and, in addition to being disengaged, her Year 5 teacher reported her reading age was approximately six years behind her chronological age.

Over the course of three years, qualitative and systematic classroom observations were made of Lisa and other students in the study as they participated in a range of reading contexts including silent, guided and independent group reading. In addition, Lisa and the other students participated in four semi-structured interviews annually and completed two questionnaires on a biannual basis. Lisa's interview responses and her engagement behaviours were triangulated with teacher interviews, Lisa's responses to the surveys, her end of year school reports, NAPLAN test results and a range of formative reading test results including PAT-R and Probe. In developing this case study on Lisa, the interviews were taken as the main data source while the data derived from observations and surveys were used to complement, verify and extend the findings based on the interviews. Further effort to verify Lisa's story was made by presenting her case to different teachers whom she had worked with in the school. Overall, the aim of the study was to understand why Lisa had changed her reading attitudes.

Lisa joined this project when she was in Year 5 and was nominated by her teacher as a persistently disengaged reader with poor reading achievement. In Year 5, Lisa was assessed as six years below her chronological reading age. In Year 6, the Progressive Achievement Tests in Reading (PAT-R) at the end of the academic year showed that Lisa's reading age had jumped from six years to her chronological age of 12. While her capacity as a reader had improved, our classroom observations conducted when Lisa was in Year 6 showed that Lisa was frequently non-compliant when asked to read. She preferred to talk back to the teacher or talk with her friends.

One-to-one conversations with Lisa permitted an emic perspective of her behaviour and provided a better understanding of her new reader identity and how it was shaped by important influences both in- and out-of-school contexts.

Lisa's narrative of change unfolded during her final year at primary school (Year 7) in Logan City, Queensland. During our conversations, she highlighted the importance of the relationship between her classroom teacher, Miss Barb Redman, and herself, and the significant role the teacher played in developing her confidence and self-efficacy as a reader in a public domain. In addition, Lisa identified several other critical players that supported her transition from non-reader to reader at school. Wherever possible, the narrative has been constructed using Lisa's words, thereby supporting the student voice and emic perspective. Lisa's words have been italicised.

## 4 Lisa's Story of Change

### 4.1 *The Change*

I found it boring and stupid that reading was even made! Reading was like my nightmare so much so I used to fake I was sick. Only last year I was reading at an age six to seven. How sad. I cried...because I was so low and it was really embarrassing. Then I went up to (age) 11 to 12 and now I'm at 12 to 13 (reading age according to Probe testing). Now people actually believe I can do it. People didn't really believe before that I could really read before this.

Lisa was clearly very proud of her improved reading ability by the end of Year 6. In Year 5 she perceived reading at school as boring and she considered that reading 'little kids books like *Cat in the Hat*' was too easy. Nevertheless, she indicated that about half the time in Year 5 she found the texts given to her at school hard to understand. This interview response contradicted her reports of reading *Harry Potter* books and *Lord of the Rings* at home. Lisa's poor results in NAPLAN (band three) and Probe testing (six years below her chronological age) in Year 5 indicated an anomaly between her reading ability at home and at school. An interesting point in the interview excerpt is that Lisa mentioned that there were people who did not believe that she could read. While it was unclear who these people were, Lisa's reading and her attitude to reading were influenced by a group of people who were not supportive of her reading in school.

In the first interview in Year 7, she smiled and talked animatedly about the factors in her environment that she perceived as having a positive impact on her willingness to read at school and her perceptions of herself as a reader.

I started to care more about my grades because it was really upsetting me that I always had bad grades and I knew I could read properly and I was good at comprehending and stuff.... so then I decided to do what I was supposed to do and learn better, concentrate on what the teacher was saying and stuff and that's how I became a good reader....

Lisa's change was verified by the survey questionnaires that she completed during the three-year study. In Year 5, Lisa perceived reading in class was usually boring and strongly agreed that it was hard for her. She indicated about half the time she wanted to quit reading. In Year 7, Lisa indicated that the reading material was sometimes boring and sometimes hard but that she never wanted to give up and always wanted to spend more time on reading. Improvements across a range of tests also supported the change.

Lisa's Year 6 English results were an E grade for semester one and a D grade for semester two. The E grade indicated that she had extremely little knowledge and understanding of concepts, facts and procedures and application of processes covered in the English-language curriculum while the D grade pointed to limited knowledge development in these language areas. She was classified as achieving at a band three level based on her performance in the NAPLAN assessment of reading and writing. In addition, Probe reading comprehension assessment indicated Lisa had a reading age of 11 years and six months. While Lisa's Year 7 English results remained the same as the previous year (an E in semester one and a D in semester two) her reading achievement in Year 7 improved. Her reading performance on NAPLAN moved up to band five and her reading age on the Probe test increased to 12 years and five months.

Lisa's change story was not just about improved reading performance. Lisa developed new reading attitudes congruent to her reader identity. Before the change, Lisa used to avoid reading by pretending. In the excerpt below, she explained how she had disengaged from this type of avoidance behaviours since her change in reading performance. She attributed it to her confidence in reading.

I can avoid reading if I'm fake reading but then I get caught red-handed because I get asked the questions! But I don't really think....I haven't even fake read since before I went up levels. Maybe it's because I've got more confidence in myself that I can do it and I'm not shameful [embarrassed].

## 4.2 *The Barriers*

Lisa's comment about knowing she could read 'properly' was intriguing. It begs a question about why Lisa had chosen not to demonstrate she could read at school. As she explained:

I didn't concentrate before and listen to the teacher because I felt that I was really, really cool and my friends were in the low group as well so that's another reason I went there. I wanted to be with all my friends and I was too modest and also I get distracted really easily.

It appears that group membership and her own inability to ignore peer distractions were the main reasons for her reading difficulties. It is probable that her friends in Year 5 were the people who did not believe she could read. Observations of Lisa working in group reading situations revealed that she frequently acted out,



interacted inappropriately with other students, called out during the reading and constantly moved and fidgeted. However, as the peer membership broke down and her peers told Lisa that she was 'weird', she began to see the need to do what she 'always knew' she could do—read well.

I always knew I could read but I just didn't want to. Then my friends started being mean to me a lot so then I decided well why am I still here if they're mean to me. Probe is coming up so let's change all that.

Nevertheless, the change process was not without barriers. Her determination to do well in reading met with an immediate problem—reading anxiety.

I get very nervous when I have to read and especially in front of other people. I can only do it [read] in front of people I don't like. I can't do it in front of people I do know because sometimes I stutter because I get really nervous.

In addition, Lisa spoke of several frustrations about reading at school that may, in part, explain her former reluctance and inability to show her capabilities as a reader. She was particularly cognisant of the optimal classroom and affective conditions which allowed her to concentrate and read.

I like quiet reading but some people read out loud in quiet reading and it distracts me. I'm one of those kids that need absolute quiet. I can concentrate when something good has happened and when I'm relaxed and I'm not angry, and people are nice and quiet because I really cannot work in a loud environment even I'm loud! But if I'm not relaxed I feel like I can't do this, I'm not good at this, why should I even try.

During the interviews over three years, Lisa frequently spoke of reading as being something she considered to be a private, almost intimate, affair. At home, Lisa explained her favourite places for reading were her bed or her cubby house in the back yard. Both locations were private and offered her the chance to escape both physically and mentally. Lisa's responses to the survey questionnaires consistently revealed these preferences for reading at home. Aligning with Lisa's consideration of reading as a 'private' activity, her reading preference at school was silent reading. In the interview excerpt below, Lisa talked about her reading at home, the book collection that she had acquired over time, and her treatment of reading as something personal that she wanted to hide from other people.

I read a lot at home. I've got two cupboards full of books. I get them from the op shop for 25 cents each, especially if they're chapter books. I've been doing it forever because I didn't read at school. I only read at home. I don't like telling people about it [what she's read] because it's sort of my place to relax and be with myself and it's something that I like to keep to myself.

She also indicated answering questions about texts was often frustrating because she wanted to share her knowledge with her peers and, in her eagerness to do so, would get into trouble for calling out the answer. At other times, when comprehension questions had to be written, she would have difficulty concentrating and finishing the task because she was tired. Nevertheless, she explained that an important reason for

her tiredness was that she had read at home the night before, and explained that ‘sometimes I avoid reading at school because I’m tired. About 40% of the time I’m tired because I read books in the night and stuff’.

### 4.3 *The Support*

Miss Redman was Lisa’s classroom teacher for two years (Year 6 and Year 7). Over that time, she came to understand Lisa’s profound anxiety related to public reading. Observations showed that she endeavoured to reduce the pressure by speaking calmly and encouraging Lisa to have a go, even if she only read a sentence. In the interview excerpt below, Lisa talked about how Miss Redman showed her support and helped her to overcome reading anxiety.

(My classroom teacher) says everybody should participate [reading aloud] but when it’s me she understands because usually I have a bit of trouble reading aloud to people. She says, “Do you want to read today Lisa?” and I usually say “no” so I read along with them and sometimes out loud with them but very quietly. But I don’t get nervous with my teacher. I can connect with her. She’s my bezzie (best friend). She makes me feel okay about reading out loud. She’s had a big role in helping me show I can read. She’s been in class with me for two years and it’s like when I come to school I leave my mum and I come to my mum at school. She’s always so supportive of me and she listens to me all the time and she talks to me more than my mum does so she is like a mother to me and it feels normal.

Our records of classroom observations corroborate Lisa’s comments of a nurturing and supportive student–teacher relationship. For example, Miss Redman used a combination of humour and irony to encourage Lisa to persist with reading. She frequently genuinely praised Lisa’s efforts but also expressed firm and clear expectation for goals and achievement in reading.

She tells me I can do it and that if I put my mind to it I can do anything and she makes me feel happy and good so I do it. She says she’s proud of me. After Probe testing she said, “well done Lisa....okay now do your work!”

In addition to the encouragement and praise, Miss Redman directed Lisa’s use of reading strategies, monitored her off-task behaviours and redirected her attention when Lisa’s focus drifted. Miss Redman was cognisant of Lisa’s tendency to be easily distracted and consequently she monitored her work output and gently encouraged her back to the task at hand. ‘She says to me “Lisa, I think we need to have a little chat. Now in reading I’ve noticed you’re a bit side-tracked.”’. Most notably the teacher used a sense of humour to redirect Lisa’s behaviour and it is likely that this strategy worked because it appealed to Lisa’s gregarious and fun-loving nature.

Lisa’s connection with Miss Redman was not shared with the other teachers who took her for literacy rotations. In the interview excerpt below, Lisa talked about her disruptive relationship with a teacher who led the literacy rotation period. From Lisa’s perspective, her poor relationship with Ms Wood was attributed to the teacher’s failure to allow Lisa to read at her own pace, which upset her.

I've worked out which teachers I like and don't like. Ms Woods, my group reading teacher, she burns. She gets angry with me because I call out because I know the answers. I call out because I like to get in first with the answers and she never asks me.

Here, Lisa is clearly able to articulate the teacher-driven conditions that frustrate and/or stress her. Again, our observations of the literacy rotation periods supported Lisa's comments. Although the teacher had reasonably good instructional skills, Lisa disliked that she 'doesn't really make us feel interested before we read because she makes everything sound really boring'. Nor did the teacher demonstrate any understanding of Lisa's need to orally share her understanding of texts with the group or keeping her on task. Consequently, Lisa was often verbally rebuked for talking and becoming distracted. Lisa's reported relationship with two different teachers suggests that the relationship between teacher and disengaged student can either act as a powerful vehicle to support and sustain change, or work to further alienate and disengage students.

#### ***4.4 Additional School Support***

Lisa's network of support extended beyond the classroom. In Year 7, she was moved to a higher-level reading group and selected to read to English as a Second Language (ESL) students at the school. Lisa was very proud of this achievement because it was proof that she was a reader and she frequently raised it during conversations. More importantly, Lisa was nominated to participate in a new initiative: reading to the residents at a nearby retirement village.

I got chosen, because I was the only one who moved up six levels in half a year, to go to the old people's home and read to them. I loved that. They are a bit smelly though; some of them have funny perfume! I feel very, very excited because Miss said that I'll have more opportunities to read to people now.

Reading to the residents was the brainchild of Mr. George, one of the teachers at Lisa's school. He indicated that the school considered it was important to recognise and acknowledge the achievements of those students who may not necessarily perform at the top level, but who were applying themselves and making improvements. The initiative was well received by both the residents and the students, although there were some obstacles to arranging visits.

Reading to the elderly bought an unexpected benefit for Lisa—an increase in confidence in reading aloud to others. In the excerpt below, Lisa shared how she had learnt to regulate her reading and overcome reading anxiety associated with reading aloud in public.

I can do it [read] in front of people I don't like...I can't do it [read] in front of people I do know because sometimes I stutter because I get really nervous. Sometimes I'm reading and then I skip two whole lines. I'm like, "I missed it – sorry" so I quickly go back and then I read it all over again.

For Lisa, being chosen to read to the elderly residents at the retirement village added another level of public validation beyond her successful reading in front of her peers at assembly. The opportunity also afforded her the opportunity to practise public reading skills in front of an unfamiliar audience who, unlike her peers, were non-judgmental and appreciative, which in turn made the experience relatively non-threatening and permitted success.

Lisa's participation in the initiative was a demonstrable way of proving to her former literacy rotation teachers and peers that she was capable of reading. 'I want to prove them [the people who don't think I can read] wrong and show how smart I am because I moved up like 6 reading levels.' However, she explained that proving to others she can read was not the primary motivation for her reading engagement. Her intrinsic motivation was far more powerful: 'I do it for myself. I want to make myself proud of me'. She explained that she was not yet proud of herself, but she was proud of her results in the Probe reading test.

#### ***4.5 Support Beyond School***

Beyond the school environment, Lisa shared that her father, stepmother and biological mother consistently encouraged her to read but mostly for extrinsic reasons such as getting a good job when she leaves school. In mid-2012, a change in her family situation provided additional motivation for Lisa to alter how she engaged in school and, more specifically, in reading. Lisa started living with her biological mother and wanted to please her. Lisa considered that 'doing good at school' was a strategy to keep her mother happy.

I started living with my mum and she told me if I didn't keep on going to school and doing really good at school I'd get taken off her and stuff and thinking about losing my mum because I lost her two times [before] because she had to go to hospital, so thinking about losing her again was really, really scary so I decided to start doing the best I could. I felt as if it was my responsibility to become more responsible and grow up from my little kiddie ways and start doing things for mum like helping her by doing good at school.

Although Lisa's mother was illiterate, she told Lisa that reading was an important skill. Despite not reading with her daughter or discussing what Lisa had read, Lisa's mother explicitly reinforced messages about the value of reading with statements that make Lisa proud of her reading achievements.

Mum said, "If you read, you'll be really smart. Smarter than anyone I know." She said I was a dumb idiot and [now] she's like "and now my baby's a reader" and I go "mum I've always been a reader I just [didn't] want to read." I never wanted to read. It makes me feel like my mum's proud of me. I don't want to achieve anything to make anybody proud of me. I just want to achieve it to make myself proud of me.

The support Lisa received from her mother with reading was not confined to verbal reinforcement. Lisa's mother physically supported her by taking her to second-hand shops to purchase pre-loved books and visiting local community

libraries. In the excerpt below, Lisa explained how her mother brought her to the library where she engaged in her solitary pursuit of reading.

I'd go [to the library] three times a week after school. I like to go to the ones that my friends aren't at so I don't get embarrassed. Mum drops me off at the library. I go on the computer, do some work and read some books. Books are my thing. I don't like mum invading my privacy with books and she doesn't like to read. On a scale of one to ten I like going I'd say about eight, most of the time.

#### ***4.6 Verifying Reader Identity***

When asked what the most powerful influence had been in shaping her identity as a reader, Lisa's reply was definitive.

Barb. Barb. She encourages me, she loves me, she tells me that she cares about me, she's like a mum that I can tell anything to except my report card because she already knows! Next year I'm going to visit her every day because I love her.

Lisa's assertions support the body of the literature testifying to the significant impact of student–teacher relationships on student learning, engagement and achievement (e.g. Averill, 2012; Eccles, 2004). Barb also argued for the importance of the relational factor in supporting Lisa's reading improvements. She indicated they both knew each other very well as a result of being together for Years 6 and 7.

I think it's about establishing a good relationship with all the students – even the 'difficult' ones. Being aware of where they're coming from, any issues at home and just supporting them in any way that I can. In the beginning, Lisa was a bit rough around the edges but listening to what she had to say and supporting her no matter what really helped. It was about being available and showing an interest in Lisa. Being positive and promoting a sense of belief in Lisa's abilities and setting attainable goals also really helped. It was important to keep it real and not try to stifle her into something she wasn't. We worked a lot on developing a sense of self-worth and attempting new things without being worried about 'failing'. Lisa enjoyed reading but she wasn't confident – a self-esteem thing – so that was the focus, enjoyment and having a go.

Although Lisa has already moved to high school, the extent of Miss Redman's impact and influence on Lisa can perhaps be best summarised by the regular weekly after-school visits Lisa made to see her former teacher. The profound impact she had on Lisa has clearly transcended their classroom teacher/student relationship. Whether the changes in Lisa's reading practices are sustained is a matter for future follow-up.

## 5 Discussion

This study sought to identify why one Indigenous student had changed her attitude to reading in school and the factors that supported this change. The data collected from Lisa's case indicated that the change was influenced by her membership of two contrasting social contexts. Initially, Lisa's reading behaviours and attitudes were congruent to the values, beliefs about reading and Lisa's capabilities as a reader that was held by her reading group peers. However, as Lisa became cognisant of her peers' negative feelings towards her, her reading behaviours and attitudes shifted to align with parental and teacher values and beliefs about reading. Although Lisa considered reading 'personal' and insisted that she improved her reading because of her own choice, her radical change in reading cannot be understood sufficiently without situating it within its social context and the influences derived from its members. In short, relational factors in these social contexts played a significant role in her decision to read or not to read in school.

In Year 5, Lisa hid her reading ability and interest in order to stay close to her school peers who neither valued reading nor considered Lisa a reader. As a group member, Lisa acted in concert with her peers who distracted each other during reading periods. Nevertheless, Lisa talked of contrasting reading behaviours, including reading novels and keeping her own book collection at home, where she could freely pursue her reading interest. These contradictory reading behaviours and attitudes are consistent with Fordham and Ogbu's (1986) description of American black students' conscious act of hiding their real learning motivation in order to sustain their peer group membership. Avoiding the accusation of 'acting white' and maintaining the African American collective identity were the motive for African American students' decision to hide their learning motivation. In Lisa's case, however, the fear of 'acting white' might not have been present and the impact of a collective identity of being an Indigenous student was unclear. Nevertheless, peer influence has clearly played a significant role in Lisa's disengaged reading behaviours observed in Year 5 and in Lisa's decision to hide her real interest in reading. Some studies have shown that where peers make fun of academic achievement and effort, students' reading achievement can decline (Johnson, 2000). Lisa was not immune from her peers' negative influences. Her disengaged reading behaviours in Year 5 were reflective of her relationship with a group of peers who did not value reading. An interesting finding in this study was that Lisa deliberately hid her real reading interest in order to stay with her school peers. It would be of interest to know whether many Indigenous students hide their real reading pursuit when facing peer pressure or influence. This is a worthwhile research question needing further investigation.

Detaching from her peers in Year 6, Lisa's reading behaviours and attitudes changed radically. With support and assistance from her teacher, she was able to overcome her reading anxiety and build up her confidence in reading. This case highlighted how the unwavering support and trust Lisa received from her classroom teacher, together with affirmations and a discourse of expectation, improvement and

praise, allowed Lisa to overcome the embarrassment she associated with her public reading performances. The support and trust also enabled her to develop the confidence to show her ability as a reader at school and during her participation in the outreach reading programme at the home for the elderly. Lisa's case of change is illustrative of how school-level (e.g. school programmes on reading to ESL students and elderly people) and student-focussed supports (e.g. encouragement from her teacher) can work together in effecting change in students' reading behaviours (Lamb & Rice, 2008). Consistent with studies highlighting the importance of the student-teacher relationship (e.g. Averill, 2012), Lisa's class teacher has played a significant role in providing personalised support based on her understanding of Lisa's reading strengths and weaknesses and offering of care. More importantly, the class teacher has taken a mastery orientation in her interaction with Lisa and insisted that she could learn to read and read better. As found in the study by Munns et al. (2008), Lisa responded positively to her teacher's call for mastery learning in reading. Lisa's parents supported the explicit messages she received at school about the importance of reading and her mother acted as an enabler by providing access to books and libraries. She also communicated how proud she was that her daughter was a reader, despite being illiterate herself. Further research needs to investigate ways that Indigenous parents can support their children in reading, irrespective of their literacy levels. In short, the synergistic provision of consistent, positive and value-laden messages and support from significant adults in Lisa's life, in both the school and home contexts, may have worked to constrain the distracting influence of peers in the classroom and improve her reading outcomes.

This longitudinal case study clearly shows that there were two social groups that exerted major influences successively on Lisa's reading behaviours during the research period. Her changes in reading engagement and achievement were tied to the values and beliefs held about reading by the groups, together with the group's perceptions of Lisa's reading capability. An interesting point about Lisa's case is the simultaneous presence of these two social contexts in which their key members hold contrasting orientations to reading. This speaks of the importance of offering constant support to Indigenous students' reading engagement despite the possibility that they may not respond. In Lisa's case, she responded actively to the support from her teacher once she had made the decision to leave her peer group and read. One limitation in this study is that we have not been able to ascertain the point of transference when Lisa began to act on her teacher's and mother's messages and started identifying as a reader at school.

Lisa's powerful assertions about her teacher's role in supporting her change in identity as a reader suggest the significance of relational support was considerable for her, but more cases are needed to determine the types and benefits of relational support for other Indigenous students. Furthermore, the sustained relational support Lisa benefited from over a two-year period is not the norm for most Australian students. It is understood that sustainable change occurs over time with support.

This begs the question: is the standard contact time of one year sufficient for teachers to positively impact students' engagement with reading? Further examination of the benefits of extended relational contact with teachers that Indigenous students have an affinity for is also warranted.

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# Engaging Children in Reading Activity through Collaboration in a Japanese Elementary School: An Activity-Theoretical Case Study

Katsuhiro Yamazumi

**Abstract** In Japanese schools today, efforts to improve teaching and to promote reading involve educators designing and implementing unit-based instruction that will engage children in coherent and purposeful reading activities for problem-solving. This chapter focuses on activity-based reading instruction and strategies to create an engaging context for promoting greater reading engagement and aspiration in a Japanese elementary school. This new form of learning activity is conceptualised using the framework of cultural-historical activity theory. The theory highlights ideas and tools for transforming activities and expanding participants' agency. In order to determine whether classroom interaction and collaboration can help children in developing reading motivation and engagement, this chapter analyses promising activity-based reading instruction in a Japanese municipal elementary school. In particular, this chapter examines the impact of the Japanese school culture of instruction on the school's collective activity system. It is an instructional culture wherein children actively participate as they learn to read productively while being assisted by their teachers to work towards deeper reading engagement and higher levels of aspiration.

**Keywords** Activity-based reading instruction • Reading motivation and engagement • Activity theory • Expansive learning • Japanese elementary school

## 1 Introduction

Recently, the national curriculum standards in Japan, known as the Courses of Study, emphasised certain core concerns requiring attention if the nation is to improve teaching and learning in its schools. Of these, the most critical is that in order to develop solid academic capabilities, such as thinking, judgment, expression, and problem-solving, it is necessary to balance the acquisition of fundamental knowledge and skills with their application. It is considered that reading instruction

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in Japanese language classes should enhance children's willingness to read while also encouraging them to read positively in everyday life (Ministry of Education, Culture, Sports, Science and Technology, 2008, p. 104). At the same time, the Courses of Study recommends that reading instruction conducted in Japanese language classes should relate to reading instruction across other subjects with links also to the school library context. In this way, improving the teaching and promoting the learning of reading in Japanese schools nowadays are focused on educators' designing and implementing unit-based instruction to engage children in coherent and purposeful reading activities to enhance their problem-solving skills. This directly contrasts the tenets of discrete teaching in which children must endure "a series of more or less disconnected though systematically repeated learning actions" (Engeström, 1987, p. 104) such as daily assignments.

However, such activity-based learning of reading causes serious motivational issues for children as it requires them to function at a higher level to meet increasingly complex and ambiguous cognitive demands. Instruction to engage children in purposeful reading activities involves not only cognitive process, but also requires a focus on socio-emotional, motivational, and personal concerns (Ng & Bartlett, 2013; Ng, Bartlett, Chester, & Kersland, 2013; Ng, Bartlett, & Wyatt-Smith, 2013). Classroom engagement refers to children's attitudes that both precede and promote learning, therefore indicating that peer relations and patterns of collaboration in the classroom are critical for encouraging children's engagement in academic tasks (Ladd, 2013; Webb, 2013). In such classroom collaboration, agency over learning is transferred from teacher to child (Elmore, 2005). Such collaboration is also linked with supportive instructional discourses for the transference of responsibility for learning (Turner et al., 2002).

In this chapter, I have focused on activity-based reading instruction and the creation of an engaging context for the promotion of greater reading engagement and aspiration in a Japanese elementary school. This is considered a new form of collaborative learning activity that can bridge the gap between cognitive functioning and self-regulatory social, motivational, and affective contributors (Bandura, 1993). This new form of learning activity is conceptualised within the framework of *cultural-historical activity theory* (Engeström, 1987, 2008; Leont'ev, 1978; Sannino, Daniels, & Gutiérrez, 2009; Sannino & Ellis, 2013). Activity theory offers a conceptual framework that views the *object-oriented collective activity system* as the basic unit for the analysis of human practices and development. It also focuses on ideas and tools for transforming activity and expanding the agency of participants (Yamazumi, 2009).

To determine whether classroom interaction and collaboration help children develop reading motivation and engagement, in this chapter I analyse the promising activity-based reading instructional practices at Gifu Municipal Nagara Elementary School in Gifu City, Gifu Prefecture, Japan. The data used in this chapter were obtained through ethnographic research conducted on the pedagogical practices of this municipal elementary school's carefully designed learning activities. In this chapter, the findings from the ethnographic research are analysed using the activity theory framework. Specifically, I have focused on distinguishing the classroom as a

collective activity system of children and teachers who exercise collaborative agency by engaging in purposeful reading activities for problem-solving. Stated differently, this chapter addresses the following question that highlights a key issue relevant to exercising children's agency over high-order learning in reading instruction in Japanese language classes: *What kind of participatory learning activity can provide children with opportunities to expand their agency in learning coherent and purposeful reading activities for problem-solving?* This research question aligns with the Japanese government's current focus on promoting reading engagement and improving reading outcomes using a cross-curricular approach. Additionally, drawing on the notion of teaching as a cultural activity (Cave, 2007; Stigler & Hiebert, 1999), I examine the impact of the Japanese school's instructional culture on the collective activity system of the whole school, an instructional culture where children actively participate to become productive readers. Teachers support students to work towards a deeper level of reading engagement and to hold higher levels of aspiration. The current study is significant in that the reported data and findings were derived from a naturally evolving case of an effective school whose historical development can be traced back to the post-WWII period. In presenting this case, I advance an argument that effective practices for reading instruction can be located at the school level, an argument that often escapes the attention of politicians and policy makers who are predominantly focused on delivering new initiatives using a top-down approach.

## **2 An Activity-Theoretical Approach to Agency and Engagement in Reading in Schools**

### ***2.1 Reform of Reading Instruction in Japan***

In recent years, reform in reading instruction for children at Japanese schools has taken into account major issues revealed in the Programme for International Student Assessment (PISA) survey first implemented by the OECD in 2003, with instruction progressing towards the enhancement of *reading literacy*, as conceived by the PISA model. This model defines reading literacy as follows: "Reading literacy is understanding, using and reflecting on written texts, in order to achieve one's goals, to develop one's knowledge and potential and to participate in society" (OECD, 2003, p. 108).

The PISA survey, based on this definition, showed that Japanese students' reading literacy score results have slumped. While children's academic performances at Japanese schools did not differ statistically from those of their peers in top-performing countries in regards to mathematics literacy, science literacy, or problem-solving, they had fallen to around the Organisation for Economic Co-operation and Development (OECD) average for reading literacy.

The Reading Literacy Improvement Programme announced by the Ministry of Education, Culture, Sports, Science and Technology in 2005 was intended to

implement reform reflecting the intention that all schools would undertake improved instructional methods by focusing on Japanese language in each subject as well as in the Period for Integrated Studies classes. Instructional methods were directed towards three main objectives, with the specific intent to:

- (1) increase reading literacy through comprehending and assessing textbook materials;
- (2) enhance students' ability to write their own thoughts based on textbook materials; and,
- (3) increase opportunities for students to express and write down their own opinions and read various texts and materials.

However, this new programme was no more than the official or intended curriculum (Cuban, 2013) in which reformers and policy makers within the Ministry wanted to change the focus of reading instruction in schools to one which promoted the type of reading literacy proposed by PISA. As Cuban (2013) pointed out, the official or intended curriculum is the first layer of the curriculum infrastructure and thus “only the initial link in the structural policy-to-practice chain of intended-taught-learned-tested curricula” (p. 52). Since such an intended curriculum is the outer layer of multiple internal layers, it is certain to be differentiated from that which is taught by teachers, learned by students, and tested. Therefore, the problem of this intended reform is to adopt and respond to the challenge which was, in Richard Elmore's (2002b) words, that schools know “how to change” but do not “know what to do at the level of practice...What schools do not know how to do is to improve, to engage in sustained and continuous progress towards a performance goal over time” (p. 8). This is the essential reason as to why top-down reforms for new curricula are fated to repeated failures and “hardly alter fundamentally how schools have operated for decades” (Cuban, 2013, p. 49).

In the following subsections, I draw on the activity theory framework as a solution. I am optimistic that this framework positions schools and teachers to know what to do at the level of practice if they are to provide children with opportunities of high-order learning to better meet the complex and ambiguous cognitive demands in relation to reading literacy in the new curricula.

## ***2.2 Activity Theory, the Activity System Model, and the Motivational Sphere in Schooling***

Engeström (1987), a leading activity theorist, developed a systemic model, as shown in Fig. 1, for understanding the concept of human activity. This is a collective activity system model that holds that a *subject's* collective activity is motivated by, and oriented towards, *objects*; these objects are in turn mediated by *instruments, community, rules, and the division of labour*. The activity that activity theory tries to grasp is not one of discrete *individual actions* intended to accomplish

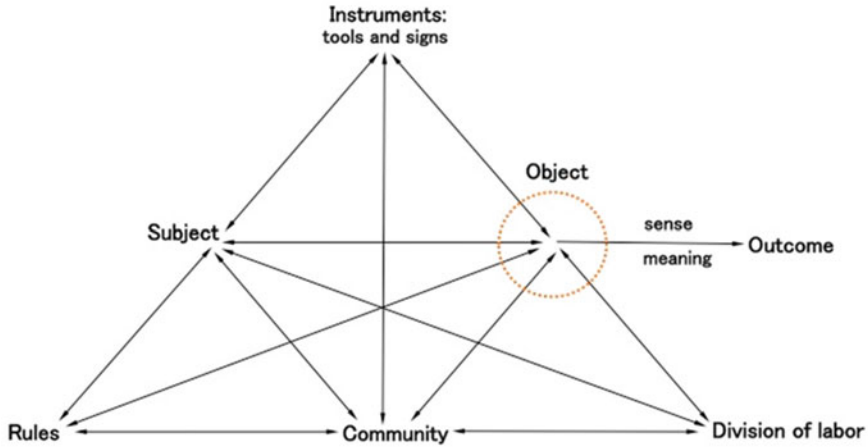


Fig. 1 Model of a collective activity system (Engeström, 1987, p. 78)

a goal over the short term, but rather a *collective activity* that shares an “object” and investigates it over the long period of time. As in the activity system model mediated by “instruments” (cultural artefacts such as tools and signs, words and symbols, concepts and models, ideas and visions, and technology, etc.), it is activity that evolves historically and is motivated towards the object. At the same time, at the deep layer of the social infrastructure, activity is also mediated by essential components such as the “rules” of participation, the specific “community”, and the “division of labour” among participants.

The model clearly shows that human cognition, learning, emotion, and volition are socio-historical processes that occur in the context of a culturally mediated activity system and that the human mind and consciousness are situated and distributed in an activity system. That is, human learning occurs through collective activity and involves not only learning within the activity system but also learning about the activity system. Therefore, the model of activity system “makes visible the context of the educational processes under investigation” (Engeström, 2016, p. vii). Teaching and learning should be measured as a systemic formation within these components which are interconnected and embodied each other in a specific form.

While they do not model the system of teaching as a graphic representation, Stigler and Hiebert (1998) asserted that teaching is a *system*:

Teaching systems, like other complex systems, are composed of elements that interact and reinforce one another; the whole is greater than the sum of the parts. One immediate implication of this fact is that it will be difficult, if not impossible, to improve teaching by changing individual elements or features. (p. 5)

Based on its systemic nature, teaching can be seen as a *cultural activity* that is highly stable over time and difficult to change, as are various kinds of cultural activities in a specific society. As a system of cultural activity, teaching is multiply

determined. In other words, the value of individual features (whether they are good or bad) “depends on how they connect to others and fit into the lesson” (Stigler & Hiebert, 1999, p. 75). Furthermore, teaching is “embedded in a wider culture, often in ways not readily apparent to members of the culture” (Stigler & Hiebert, 1998, p. 5). For these two reasons, that is, systemic and cultural influences, teaching can be very difficult to perceive, manage, and transform.

In activity-theoretical terms, teacher and student activities in schools are usually divided into two discrete and compartmentalised activity systems: the teacher’s teaching and student’s school-going activities. More often than not, the object of the student’s school-going and teacher’s teaching activities differ. While both may involve “the same curricular contents, textbooks and computer programs”, (Engeström, 2009a, p. 24), the motive and meaning attached to them vary greatly.

In this analysis, student and teacher activities are distinguished based on their different objects, which provide the individual with a determined direction of activity. In his explanation of the general structure of activity, Leont’ev (1978) asserted that an activity’s “object” defines its true motive. Behind activity there should always be a need. Thus, “the concept of activity is necessarily connected with the concept of motive. Activity does not exist without a motive” (p. 62). Moreover, motives cannot be taught or controlled and must be cultivated and nurtured through “organising people’s lives” (Engeström, 2008, p. 87).

As Engeström (2008) argued, in the field of school reform it is important for motivational spheres not to exist at the macro-level of the formal school system, nor at the micro-level of teaching content/methods, but rather in a middle layer between them both. He further noted that in attempts at school reform, “the middle-level phenomena of the motivational sphere have been largely neglected”, despite being the “crucial driving force behind the actions of students and teachers” (pp. 86–88).

The aforementioned middle level can be characterised as comprising the following school life features and processes: grading/testing practices, patterning/punctuation of time, use of textbooks (not just their contents), bounding and use of the physical space, student grouping, discipline and control patterns, connections to the world beyond the school, and interactions between teachers and between parents (Engeström, 2008). Curriculum studies frequently refer to this middle level as the *hidden curriculum*, a term coined by Philip Jackson in 1968. Jackson (1968) asserted that the hidden curriculum is a distinctive feature of classroom life, which “each student (and teacher) must master if he is to make his way satisfactorily through the school” (pp. 33–34). This is in stark contrast with the academic demands and outcomes explicitly stated within official curricula, which have traditionally drawn the most attention. Students’ studying the hidden curriculum can correspond with Bateson’s (1972) concept of *deuteron-learning*, or “learning to learn” in conjunction with *proto-learning*, a type of by-product of the learning process. Bauman (2001) maintains that it is during deuteron-learning, and rarely through the conscious control of appointed or self-proclaimed educators, that “objects of educational action acquire skills incomparably more important for their future life than even the most carefully preselected bits and pieces of knowledge”, which are eventually combined to form “written or uncontrived curricula” (p. 124).



Dewey's (1938) concept of *collateral learning* mirrors the ideas embodied in the hidden curriculum. Among other similarities, collateral learning focuses on the difference between the curriculum learned by students and the intended or taught curriculum promoted by policymakers, professionals, and teachers (see Cuban, 2013, pp. 50–52). Dewey also emphasised the great value of collateral learning for students' futures as an element encompassing the hidden curriculum:

Collateral learning in the way of formation of enduring attitudes, of likes and dislikes, may be and often is much more important than the spelling lesson or lesson in geography or history that is learned. For these attitudes are fundamentally what count in the future. The most important attitude that can be formed is that of desire to go on learning. (Dewey, 1938, p. 48)

These kinds of enduring habits and attitudes are formed based on the middle-level phenomena of the motivational sphere in schooling. This is because the middle-level features and processes are of decisive importance in the sense and identity-building of schoolwork, the experience of what it means to be a student or a teacher, and thus in the formation of motivation among them (Engeström, 2008). Consequently, in fostering attitudes such as a desire to continue learning, educators should look for, or create, school lives in which children are expected and entitled to act with agency regarding identity formation and sense making, thus allowing them to be subjects of a whole learning activity system, not merely of separate learning actions.

For example, Aidarova (1982) proposed an experimental programme for elementary students studying Russian language that went beyond traditional constraining practices whereby children simply learn how to correctly complete assignments. Aidarova advocated a learning activity whereby children assume the role of teachers, becoming responsible for the formulation of problems, selection of materials for their solutions, and the evaluation of results to “approach learning creatively and show initiative as if learning were a personal cause” (p. 161). Moreover, she professed that this approach promotes independence, activity, and interest in children and further suggested that learners can create their own textbooks. In the experimental practice, first graders, with teacher assistance, created textbooks in which they recorded the main results of their investigations. Learning in this context was eventful, since the children and their teacher transcended the boundaries of their assigned tasks, thereby collaboratively constructing an expanded, shared object for a joint learning activity that replaced the textbook as a dominant object.

### ***2.3 Agency and Expansive Learning at the Activity-System Level***

Activity theory is an intervention methodology that facilitates and supports innovative collaborative learning by practitioners. It focuses on learning and development that emerge within an institutional context of practical activities that are

culturally and historically mediated within a society. Lev Vygotsky's cultural-historical theory of human development is a classic, radical source for building activity theory. One of the main themes in his developmental theory on human action and practice is "a new problem associated with volition or freedom in human activity and consciousness" (Vygotsky, 1987, p. 349). This problem—free will—refers to investigating agency as subject potentialities and positions in human activity. It is of great significance to recognise that the unique features of Vygotsky's approach to human freedom are always connected with mediation by culturally powerful signs, tools, and artefacts, such as scientific concepts (see Daniels, 2001, p. 104). From the perspective of activity theory, agency is seen as the subject potentialities and positions of the externalised creation of new tools and forms of activity with which humans transform both their outer and inner worlds and thus master their own lives and futures (see Engeström, 1991, 2006).

In this way, since agency means "the ability to construct and transform independently one's own life activity" (Davydov, Slobodchikov, & Tsukerman, 2003, p. 63), it is transformational and future-oriented. Virkkunen (2006) called this *transformative agency* and defined it as, "breaking away from the given frame of action and taking the initiative to transform it" (p. 49). Similarly, Emirbayer and Mische (1998) conceptualised agency as "a temporally embedded process of social engagement, [not only] informed by the past...but also oriented toward the future... [and] the present" (p. 962).

How, then, can the activity-theoretical view be applied to research on the emergence of children's transformative agency in pedagogical practice? Greeno and Engeström (2014, p. 128) maintained that activity theory offers a framework for analysing system-level activity and learning. This approach entails studying instances in which the learning unit exceeds a single person, such as a dyad, group, classroom, community, or individual person working with objects and technological systems. These levels of analysis require implementing higher-level learning systems as activity systems. Therefore, someone utilising the activity theory framework can focus on how people learn by engaging in activities with these systems, such as in problem-solving or by creating something. It is possible also to investigate classroom activities in which students are afforded a different form of agency, authority, and accountability—an impossible feat within the discourse limitations of Initiation-Response-Evaluation (IRE) interchanges (Mehan, 1979).

As stated in the previous subsection, Engeström's activity system model reveals the multiple mediational structure of human activity, including "less visible social mediators of activity" (Engeström, 2008, p. 27), such as rules, community, and the division of labour. These activity system components function as the above-mentioned hidden curriculum; the rules of practice constrain and facilitate participation, thus shaping ways in which system members interact with each other. Similarly, division of labour delegates responsibilities for different aspects of activity among participants in a community of practice (Greeno & Engeström, 2014). Thus, analysis at the activity-system level can explain differences in classroom activities, specifically highlighting "which individuals and groups are entitled and expected to understand concepts and contribute to discourse involving

conceptual explanations or justifications of actions or meanings of concepts and methods” (Greeno & van de Sande, 2007, p. 12).

For instance, Dewey and Dewey (1915) advocated progressive education principles to encourage various American schools to create educational practices according to their contemporary social circumstances, allowing pupils “a greater amount of freedom than is usually thought compatible with the necessary discipline of a schoolroom” (p. 132). In the activity-theoretical view, a pedagogical practice whose activity-system is based on progressive education principles should encourage students to be productively engaged in a “whole system of learning activity” (Engeström, 1987, p. 103) rather than in disconnected and fragmentary learning actions. As Noddings (2014) asserts, this sort of activity system should involve “help[ing] students create their own learning objectives” (p. 17). Moreover, according to Greeno and van de Sande (2007), students participating in the system would ideally be endowed with greater agency, since *conceptual* and *disciplinary agency* can be discerned. In other words, disciplinary agency entails “following accepted procedures and terminology with authority vested in the discipline so that a positive contribution depends only on its correspondence with established procedures” (p. 12). Furthermore,

[a]cting with conceptual agency involves selection, adaptation, and critical judgment about the appropriateness, utility, relevance, and meaning of alternative understandings, strategies, concepts and methods in a domain of activity so that a positive contribution can result in choosing or adapting a method for use in solving a problem or better understanding a problem or concept (p. 12).

In this way, by fostering conceptual agency, the activity-theoretical approach can integrate explanations for exercising children’s agency in their learning at both the activity system and individual cognitive levels. From the perspective of activity theory, an important mechanism in changing the current practice is for the subjects to “expand” their understanding of the object within the activity system. That is to say, the current practice can be changed when the practitioners themselves create a form of learning to “expand” the object of the activity. This type of learning that transforms the existing activity can be referred to as *expansive learning*, in accordance with Engeström (1987).

Expansive learning is creative learning of what is not yet there. “In other words, the learners construct a new object and concept for their collective activity, and implement this new object and concept in practice” (Engeström & Sannino, 2010, p. 2). That is, learners involved in and affected by the process of learning take the initiative to re-forged the objects of their own current work, namely their practices, goals, and understanding of *why* they do things the way they do. This can lead to newly emerging forms and patterns of activity. In instructional practices, it is possible to say that children’s expansive learning means the joint creation of an activity system of learning among peers and in collaboration with their teachers.

In the next section, ethnographic research data collected from collaborative learning activities in reading instruction at Gifu Municipal Nagara Elementary School are analysed. This analysis illustrates the argument that expansive learning

involves transformative reading practices that both students and teachers share for achieving a new object within classroom activity systems in this specific school.

### 3 Transforming the Learning Activity of Reading in a Japanese Elementary School

#### 3.1 *Nagara Elementary School and the Characteristics of Its Educational Practices*

Gifu Municipal Nagara Elementary School holds a long history of creating and passing down educational curricula that nurture children's independence. Yoshibee Nomura (1896–1986),<sup>1</sup> the teacher representing Japan's Life Education Movement, served as the school's principal during the early post-war period of 1946–1953, along with the faculty created and implemented the “Nagara Plan”, a curriculum based on his ideas of life education. To date, the school has operated under the philosophy of “[e]ducation that sides with the child” as follows:

Our school has consistently advocated and practiced “Education that sides with the child” to this date, to keep moving forward by respecting children as invaluable human beings who strive to live better, believing in their potential, always putting them in the center, and aiming to foster their independence. Regardless of how the trends for the environment and education surrounding children in Japan have changed, we have always tried to focus on the way education should be in order to foster resilient human beings who pull through life in the future society. (Gifu Municipal Nagara Elementary School, 2015, p. 4)

Nomura's philosophy of “[e]ducation that sides with the child”, created together with the teachers of Nagara Elementary School, was one that aspired to transform schools into places where children could, based on mutual trust, proactively create collaborative life activities. Nomura believed that through “self-motivated activity of children” within the “organisation of collaborative self-government” (Nomura, 1933, p. 27), children could themselves create a “system” (Nomura, 1958) to establish a collaborative life with partners with whom they both learn and foster a democratic way of living. He dubbed this method of life education “guidance on living”, focusing on the belief that “guidance on living is equivalent to collaboration”, which is the “first and foremost” principle he “strived to live alongside the children” (Nomura, 1959, p. 79). Nomura sought to “discard his awareness around providing guidance, but instead wanted to provide guidance on living in the form of collaboration”, and implementing classroom activities which allow each child to “participate in the classroom management, conducting joint control over classroom learning” (p. 81). He believed that “guidance on learning” should be based on his principle of “guidance on living”.

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<sup>1</sup>Regarding Nomura's life-education-based experimental educational practices from the 1920s through the 1930s, see Inoue and Muller (2013), pp. 111–113.

From the perspective of activity theory, it can be said that Nagara Elementary School, which uses Nomura's concept and suggestions as its guiding principles, has created educational practices where teachers and children are jointly engaged in the creation of a collaborative activity system of learning based on mutual trust and responsibility. Thus, a learning-focused fellowship has evolved between children and their teachers. Therefore, both parties share mutual authority to produce the activity system of learning, leading to the children's heightened critical and creative agency and authorship over their learning, particularly in terms of their reading engagement.

Elmore (2005) incisively points out that a kind of discrete teaching limits the knowledge available to both the teacher and the student to that which the teacher can control, and thus minimises the level of ambiguity, uncertainty, and cognitive demand in their academic relationships. He further argues that the *transfer of agency* from teacher to student is also minimal in discrete teaching and that learning actions around well-defined tasks situate "knowledge with the teacher and the obligation to learn with the student—knowledge is transferred, agency over learning is not" (p. 282).

Contrariwise, instructional practices at Nagara Elementary School focus on the transference of authority from teacher to student. The more that children are entitled to authority to control their own learning activities in classroom lessons, the more their agency over learning is exercised. Authority and agency correlate closely with each other, so that "[i]n agentic actions, we gain authority and become authors of our lives" (Engeström, 2009b, p. 317), and vice versa. In this way, the educational practice of Nagara Elementary School is focused on promoting children's abilities to recognise for themselves the agency of learning, independently respond to learning, and enhance their sense of responsibility towards learning. Through exercising such agency, children can appropriate their own scaffolds for engaging in expansive learning.

### ***3.2 An Activity-Theoretical Case Study on Reading Instruction at Nagara Elementary School***

What I wish to analyse here is the case of a Japanese language class at Nagara Elementary School, in which the 5th-grade classroom teacher, Goudai Kimura, and his students worked together on the instructional unit covering eight lessons of 45 min in October 2015. This unit used an explanatory text, "Forecasting the weather" as its core teaching material. In what follows, I will take up the 5th lesson from the unit, which took place on 24 October 2015 and analyse and interpret the data arising from my ethnographic research. Mr. Kimura had developed a new form of instructional practice in Japanese language, which emphasises critical reading of explanatory texts based on the child's independence and the fellowship-centred education of Nagara Elementary School.

Mr. Kimura described the principal objectives for the 5th lesson of the unit of his Japanese language class in a lesson plan, as follows:

Through discussions about the intentions and effects of the author's use of the graph 'how many times per annum was more than 50 mm of rain per hour measured,' they will notice that the materials used in the text 'Forecasting the weather' can be viewed both affirmatively and critically. In addition to that, they will take this viewpoint when considering materials of other articles that they have chosen for themselves.

During the lesson, students were first asked "what kind of intent and effect the writer attempted to achieve when using this graph?". In answering this question, students came to see the writers' intentions and the messages they attempted to convey using materials such as graphs and photographs in their explanatory texts, and also through the connections drawn between materials and texts. The graph that children were asked to evaluate in this lesson was the one shown on the right of Fig. 2. Next, after affirmatively discussing the writer's intentions and results, a graph created by Mr. Kimura was presented to the class, as shown on the left in Fig. 2, and the children were asked, "wouldn't this kind of graph be better?". In the concluding stage of the lesson, the teacher asked the students to try to put what they had learned in that lesson into practice; students were asked to think critically about the intentions and effects of linking a graph with the text in an article using the graph that they had independently chosen, and to interact with their class peers.

This way, problem-solving linguistic activities throughout the units (eight lessons in total) were established, which focused on the task of critically reflecting on the intentions and effects of "non-continuous texts" such as charts, graphs, and tables that relate to "continuous texts" such as narration and exposition.<sup>2</sup> These activities include learning through the exchange of independent ideas with the class based on one's own critical readings of the intentions and effects of "non-continuous texts", using articles and texts that one personally finds interesting.

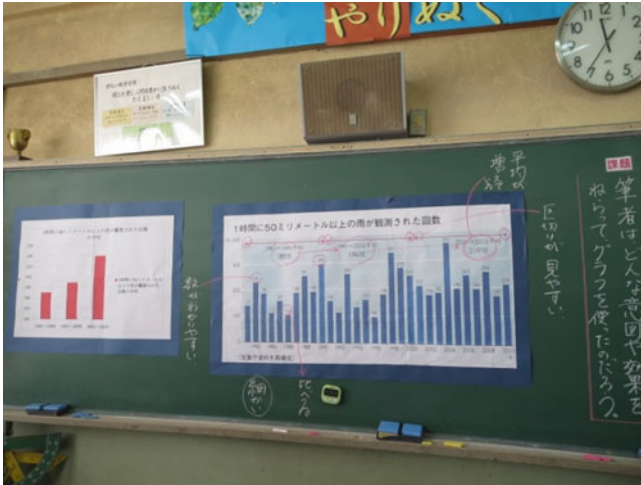
Below, I analyse the extent to which Mr. Kimura and his students collaborated to create critical reading activities in an agentive manner from three points of view: transferring agency to the children, setting up a challenging phase for children and engaging them in critical reading, and tutoring each child to come up with his or her own ideas.

### 3.2.1 Transferring Agency to Children

Aligned with the framework for analysing system-level activity and learning mentioned in Sect. 2.3, this lesson was structured in a way that increased engagement would allow each child to individually stand on their own scaffolds in the learning process, thereby becoming engaged in a collaborative reading activity

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<sup>2</sup>This distinction between continuous and non-discontinuous texts is at the heart of the OECD/PISA assessment. In the PISA survey, both text formats have been included in reading literacy assessment. See OECD (2003), pp. 109–112.



**Fig. 2** Two different graphs presented in a Japanese language lesson for the purpose of comparing their intentions and effects

with their fellow pupils. The lesson began with the assignment of a complex, high-level learning problem. The question, written in the vertical text of the right-hand square box on the chalkboard shown in Fig. 2 above, “what intentions and effects did the author have in mind when using this graph?” was asked by the teacher at the start of the lesson, following a review of the previously learned material, and reaching an agreement with the children.

In their attempts to compare lessons in which Japanese and American teachers taught similar topics, Stigler, Fernandez, and Yoshida (1996) found notable features of Japanese lessons that could be distinguished from the American ones: “What is perhaps most impressive about the Japanese case is that the inquiry-based or problem-centred tradition of instruction is apparently widespread and not restricted to a few illustrative cases” (p. 149). From the viewpoint of teaching as a cultural activity, one may say that Japanese teachers hold common beliefs about what teaching is like and share a “cultural script” that is a mental version of the teaching patterns (Stigler & Hiebert, 1999, p. 85). It is part of their beliefs and cultural scripts to place students’ thinking and talking at the centre of the lessons. As Stigler et al. (1996) illuminate, the following differences between Japanese and American lessons stem from them.

... Japanese lessons almost always begin with a single problem, the solution to which becomes the focus of the entire lesson. This concentration on a single problem lends coherence to the lesson, and allows a thorough explanation of the problem. Students in American lessons work many more problems than do their Japanese counterparts, and come to emphasise quantity rather than quality of solutions. (p. 161)

Similarly, in the fifth-grade Japanese language lesson at Nagara Elementary School, children were asked first to evaluate what was “good about” a graph used in

the teaching materials as an exercise in affirmative and critical thinking, prompting them to form an individual point of view. Posing this kind of question asks each child for their own independent thoughts and interpretations, and in that sense, impels them to unpack ambiguity and uncertainty. Children's responses to this can be widely diverse, based on their individual understanding and life experiences. For example, a student's own independent reasoning is illuminated in the underlined part of his answer shown in Excerpt 1.<sup>3</sup>

*Excerpt 1*

**Ren:** I think that the good thing about this graph is that the averages from 2001 to 2010 are shown one by one, and because they are separated out this way, when referred to in the text as “the ten years since 2001,” you can clearly see each year since 2001 separately, so in this graph here, that separation is a good thing.

In this way, the type of questions that asks children for their independent thinking transfer the agency for learning in the lesson from the teacher to the children, which may consequently induce greater student agency. If whole-class instruction in the form of a question and answer (Q&A) session takes the typical IRE style (Mehan, 1979), there is an inherent risk of low-achieving children being negatively evaluated for their participation on classroom tasks (Kelly & Turner, 2009, p. 1684). The low-level academic tasks, such as questions that extract facts from a piece of writing in Japanese language classes, focus only on eliciting a correct answer from the children in response to the teacher's questions. The goal of this typical whole-class mode of instruction is to transmit a specific, unequivocally correct response to the children and evaluate their understanding of it as so defined. By contrast, an evaluation question such as “what is good about” a graph used in teaching materials, as asked by Mr. Kimura in the fifth-grade Japanese language lesson at Nagara Elementary School, can provoke independent thought and reflection. The critical point in the whole-class instruction is that this kind of teacher question that supports engagement in dialogue based on the student's own independent thoughts and interpretation can postpone evaluation of the merit of a student's response and reduce the risk of negative evaluations. Drawing on the activity system model noted in Sect. 2.2 in the analysis of the classroom lesson for the fifth-graders of Nagara Elementary School, it is possible to identify an important link between *object* and *instruments*, that is, between the complex, high-level learning problem and the instructional form of asking a question to support independent thinking in the activity system of learning in the classroom.

The children in this class adopted a conversational style while speaking, as shown in Fig. 3, moving between the front, back, left, and right of the classroom, and standing to face their classmates. Their classmates also turned to face the speaker, moving their bodies to hear their remarks. Along with these face-to-face interactions, the listeners would nod or make “mm-hmm” sounds, and when an utterance ended, would raise their hands while muttering “I agree”, “It's added on”,

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<sup>3</sup>All names of children in all excerpts in this chapter are pseudonyms.





**Fig. 3** Title for this image

“It’s connected”, or “I think differently”, and would respond to the speaker. This style could be observed in all classes and grades of Nagara Elementary School and is one of the coherent characteristics of the learning activity system in lessons.

These mutterings of children are closely related to their inner status of understanding, namely of whether they have been persuaded by their peers’ ideas or are following the development of thoughts. Stigler et al. (1996) consider such *check status* questions posed to Japanese teachers to be aimed at peeking into the children’s minds, monitoring what everyone else is thinking or doing, and provoking long and drawn-out classroom discussions, for example: *Who had the same thinking? Anything to add to this way of thinking? Did anybody else use another way?* (Green, 2014, pp. 119–120; Stigler et al, 1996, pp. 165–166). Through their large-scale video study of teaching, Stigler et al. (1996) found that American teachers did not use check status questions. However, it should be noted that in Nagara Elementary School’s classrooms, check status questions are conducted not by the teachers but instead are posed by the children.

Classroom discourse that is characterised in this way leads to a powerful form of student engagement in learning in Nagara Elementary School’s lessons. For example, the following remarks by the children continue on from the opinion expressed in Excerpt 1. (The *-san* suffix is a polite term of address in Japanese.)

*Excerpt 2*

**Fuuta:** I pretty much, I mean it’s not written in the text, but the good thing about this chart is that in the annual bar graph you can see that it rapidly increased over 200 times after 1981–1990, and you can also see that in this chart, so I think that this chart is good.

**Class:** mm-hmm.

**Teacher:** I see. Now, in this part here, it says that you're seeing every year.

**Shou:** Yes.

**Teacher:** Yes, anything else?

**Sakura:** I have something to add.

**Misaki:** I have something to add from Ren-san's connection.

**Rin:** I have something to add on to Fuuta-san's opinion.

**Shou:** Yes.

**Teacher:** Rin-san?

**Rin:** Yes. I connected it to Fuuta-san, and where Fuuta-san says that it was over 200 times, I asked how much it increased by, but even in the text where it says "on average this occurred more than 200 times a year," although it's an average, and this is pretty much written there, so I think this graph is good for conveying that.

**Class:** mm-hmm.

**Shou:** Yes.

**Teacher:** I see. So it's because it's an average.

Here, we can see that through this kind of classroom discourse, the children start, one by one, by finding their scaffolds, presenting their independent thoughts to the class, and thereby independently creating mutually-interconnected, collaborative learning activities, while also achieving collaboration with the support and reinforcement of the teacher.

### 3.2.2 Setting up an Challenging Phase for Children to Engage Them in Critical Reading

In the teachers' design of lessons at Nagara Elementary School, a *challenging phase* for children is set up around the middle of a lesson period. This pattern of teaching has been generated through the whole-school research activity of Nagara Elementary School. It can present the opportunity to transfer agency over learning from teachers to children, as noted in Sect. 3.2.1. The school explains it as follows:

We aim to have each child become aware of his or her own improvement in all lessons. In terms of the learning process, we believe children become aware of their own improvement by going through a process of defining a focused task (understanding of the task) and pursuing continuous questioning. Becoming aware of their own improvement occurs at the end of continuous questioning inquiry.

We believe that all lessons must have a challenging phase in order for children to become aware of their own improvement. Inquiry by children reaches a challenging phase at least once during the process. The time of hitting a deadlock is when the sense of needing to further pursue the problem spreads among the children and the entire class becomes tense. When that happens, children thoroughly examine their own inquiry and put everything they have learned into thinking while incorporating the opinions and ideas of others. In this way, they gain new ways of perceiving and thinking in order to overcome the roadblock. Those who overcome the deadlock realize their own improvement and wholeheartedly experience the joy of accomplishment as well as the fun that is inherent in the essence of the subject. Children who have experienced this joy and fun are further motivated to learn and become agentive by learning purposefully. (Gifu Municipal Nagara Elementary School, 2015, pp. 5–6)

In this manner, teachers at Nagara Elementary School believe that it is essentially valuable to give rise to a struggle within each child to solve a few challenging problems in a lesson. These teachers' beliefs can be seen as *instruments* within an activity system of teaching and learning to mediate the design and implementation of instructional practices. Stigler and Hiebert (1998) reveal teachers' beliefs that mediate their production of instructional activities in schools to have a cultural nature and thus to be fundamentally different from culture to culture, for example, between Japanese and American teachers. According to them, Japanese teachers believe that "[f]rustration and confusion are taken to be a natural part of the process because each person must struggle with a situation or problem first in order to make sense of the information he or she hears later" (p. 3). In contrast, they argue that US teachers have the following different beliefs: teachers are "responsible for shaping the task into pieces that are manageable for most students, providing all the information needed to complete the task, and assigning plenty of practice" (p. 3). This belief is grounded in "a strong American tradition in behaviorist psychology, a psychology that addresses, most directly, issues of skill learning" (p. 6).

As stated above, in Mr. Kimura's lesson, a challenging phase was set up in which the children tackled a higher-level challenging problem that involved affirmatively and critically viewing the intents and effects of the use of materials (non-continuous texts) in explanatory texts. This was accomplished by comparing the graph "how many times per annum was more than 50 mm of rain per hour measured?" from the teaching text, "Forecasting the weather" in the fifth-grade Japanese language textbook with that created by the teacher. The latter showed how many decennial average times from 1981 to 2010 more than 50 mm of rain per hour was measured (see Fig. 2).

With the critical question, "although you all like that graph, isn't it the case that this graph is better?" as a prompt, children engaged in a three minute discussion in a small group together with three or four neighbours, after which they interactively expressed their views in the plenary, as shown in Excerpt 3. When they talked, they did not stand by their seats but came to the blackboard where the two graphs were put up. Facing their peers, they articulated their views by pointing out various places in the graphs. In Excerpt 3, the graph the speaker was pointing at while talking is indicated in brackets.

*Excerpt 3*

**Teacher:** Keita-san?

**Keita:** Yes. I think this author's graph (on the right) is better. The **reason** is that this graph (on the left) shows clearly it is going up gradually, this graph (on the right) shows where the number is not increasing but this graph (on the left) shows only that it is gradually going up. While it is going up in this graph (on the left), there are some small numbers in this graph (on the right). Because these details are lost, the graph with detailed figures is better.

**Class:** Hummmm. Yes!

**A few:** I agree.

**Teacher:** Exactly.

**Rin:** My view is the same but my **reason** is different.

**Teacher:** Rin-san?

**Rin:** Yes. I think this author's graph (on the right) is better. The **reason** is that the one by you, our teacher (on the left), only shows the average but this one (on the right) shows the average and the original figures. So I think this author's graph (on the right) is better.

**Class:** mm-hmm.

**A few:** I agree.

**Teacher:** What do you mean by "original figures"?

**A few:** Original?

**Yuto:** Original figures are the number of times it rained during the year.

**Shunsuke:** It means within the year.

[Rin comes up to the blackboard again, and looks at the teacher. She makes eye contact as if asking for permission to speak.]

**Teacher:** OK, go ahead.

**Rin:** The numbers before taking an average.

**Taiga:** For each year.

**Rin:** The total number for a year.

**Teacher:** Ah, I see. You mean because of these total numbers per year, we can work out the average in the first place?

**Kodai:** Yeah, probably.

**Teacher:** So you think this is better. It is better to have this.

**A few:** Yes, yes.

**Teacher:** No one likes this one, then?

**Yuto:** But it is easy to understand.

**Teacher:** Oh, many thanks. Comfort me!

**Yuto:** There are things which are clearer in our teacher's graph. This graph (on the right) is very detailed but this one (on the left) shows an overall view. Because it gives an overall view, the graph shows how much at the end; of course this one (on the right) shows it, too. But this one (on the left) is a graph and therefore I think our teacher's is better to compare.

**Arata:** Compare what?

**Yuto:** Rather than comparing, I think our teacher's shows more clearly how much it has increased in ten years.

**Teacher:** Ah, I see. I see, I see. You are saying you can see immediately that it is increasing in this one.

In this way, children stated their critical views and interpretations throughout the challenging phase of the lesson, using a common pattern of utterances starting with "the reason is...", which has been emphasised throughout the excerpt using bold and underlining. The students were prompted by the question asking them to compare the two graphs, examining the strength of each. Throughout this phase, children were supported through the critical thinking lesson which emphasised higher order thinking by way of a concrete-focused task. That is to say, in activity-theoretical terms, such a means of promoting critical thinking can be seen as an *instrument* of this activity system of learning.

In addition, as shown in Excerpt 3, the collective inquiry in this class consisted of different views freely expressed by the children, and in this sense, the basis of the discussion is to respect each other's views and interpretations. At Nagara Elementary School, it is customary when the teacher addresses a child or when the children address each other to add the honorific "-san" in Japanese after the given name, regardless of the grade or class. This most likely relates to the habit of mutual

recognition and respect. Nodding and murmurs such as “Hummm”, “I agree”, “I think differently”, or “Yes, yes”, which are uttered voluntarily without the teacher’s prompt, clearly show the establishment of a responsive and empathetic relationship among the children. In other words, establishing this kind of relationship constitutes the activity *rule* of the class, which can be seen as an essential component of the activity system. The teacher who facilitates whole-class interactions is also shown to be empathetic to, and supportive of, the children throughout the lesson, as seen in his responses to the children’s utterances such as “Ah, I see”, “Oh, many thanks”, or “Ah, I see. I see, I see”. In this way, the teacher and the children are creating a *community* of learners, which is another component of the activity system, based on mutual respect, trust, and responsibility.

### 3.2.3 Tutoring for Each Child to Gain His or Her Own Ideas

As described before, the *object* of the instructional activity at Nagara Elementary School focuses not on the teacher’s step-by-step transmission-centred teaching of predefined, fixed knowledge and skills, but on each child becoming aware of his or her own improvement. In the same way, Mr. Kimura’s instructional unit “Learning by ‘Forecasting the weather’” aimed at developing each child’s own ideas about the intentions and effects of materials such as graphs, photographs, and tables in relation to the an article that each of the children had chosen him/herself. They were thereby able to apply what they had learned through a previous critical reading in this instructional unit, after the lesson with the challenging phase analysed in Sect. 3.2.2. The specific focus of the unit, and each of its lessons within Nagara Elementary School’s instructional practices, enables individual transformation through the exchange of ideas, which results from engaging in independent thinking among peers.

The focus on individual transformation is seen also in the fact that lessons in Nagara Elementary School always contain *individual inquiry* and *small group learning*, which are given considerable weight. In Japan, tutoring for each child given in a whole-class instruction, as shown in Fig. 4, is called *in-between desks guidance*. During in-between desks guidance, the teacher individually supports each child or each small group in their problem-solving tasks.

In the lesson by Mr. Kimura, approximately eight minutes of the total class time of 45 min were allocated to individual inquiry of the learning task that had been set earlier. Furthermore, approximately three minutes were dedicated to a small-group discussion in the challenging phase, while another five minutes were estimated to be allowed for the conclusion phase where the children engaged with individual work and engaged in critical thinking about the intentions and effects of linking a graph with the text in an article using the graph that they had each independently chosen. About 36% of the lesson time was devoted to independent thinking and expression as described above, and the teacher’s in-between desks guidance was used in order to interact with individual children during this time. For example, Excerpt 4 presents the teacher’s utterance after the first individual inquiry. This



**Fig. 4** Name for figure

shows what kind of individual support was provided during the in-between desks guidance. Here, the teacher's use of the phrase "could not connect" refers to the activity in which the children were asked to connect sentences in the teaching text and the graph by drawing a line in order to understand the graph's intentions and effects.

*Excerpt 4*

**Teacher:** OK, put down your pencil for the moment. I have seen how you are doing. Some managed to write a lot and some could not draw a line. Well, it is not "could not draw a line," it is "could not connect." Still, many managed by working with me. All right, now, please tell me what is good about this graph, what you have found in the graph.

As shown above, during in-between desks guidance, the teacher walks around the classroom with a red pen, checking each child's progress in problem-solving by looking at his/her notebook. The teacher gives advice to each child, engages in a discussion and writes comments on their notebooks. "Still, many managed by working with me" means that the children managed to complete the task of problem-solving with the advice from the teacher given during in-between desks guidance. Also, the following teacher's prompt to children to talk after a small-group discussion in the challenging phase shows that he uses the outcomes of in-between desks guidance in organising plenary discussions.

*Excerpt 5*

**Teacher:** You were talking about it just now, Ren-san. In a group of four. As usual, Ren-san was really passionately saying something. [Laughter from several children.] Then, you Ren-san, said, "Well, this is this and that is that. What you want to say is this," didn't you? You did.

**Ren:** Ah, yes.

**Teacher:** What were you saying?

As is clear from the above, teachers at Nagara Elementary School do not only individually encourage children who are trying to solve problems through in-between desks guidance, but also examine and understand each child's thoughts

and record them as needed. They coordinate and organise discussions among their classes as a whole while responding to each child's individual status. Therefore, by providing careful tutoring during the in-between desks guidance phase, which is considered a powerful instrument of the activity system of instructional practice, students are challenged to create their own ideas and expressions, while being respected, encouraged, and supported. Independent ideas are, therefore, prerequisites for children to actively participate in collaborative and creative class reading activities. However, in order to join the collaborative activities, they first need to have their own independent thoughts. Only by having their own ideas can they socialise with others and contribute to collaborative activities.

## 4 Conclusion

The activity-theoretical approach to instructional practices in schools allows consideration of what activity system children participate in, which is the context for their learning. It goes beyond the unit of analysis limited to the boundary of individual cognition and behaviour, and attempts to assess how children learn on a higher level, from the perspective of the activity system.

In other words, activity theory focuses on the questions, "*What are the collective activities children participate in?*" and "*How do they participate in those activities?*" Activity theory is structured around capturing children's learning on a higher, activity-system level rather than on an individual level. Therefore, the framework of activity theory is built around the dynamic influence of children's agency over learning and its impact on an individual's cognitive-emotional level. This is not derived from individual, internal factors, but associated with various structural factors at a system level, such as *object*, *instruments* (such as tools and symbols), *community*, *rules*, and *division of labour*. From this perspective, it can be said that a given instructional practice is concretely created by the organic, reciprocal, and internal coherence between the various components making up the system. Conversely, the practice of instruction is for teachers and children to work together to create a *system for learning*.

As I have revealed in this chapter through the analysis of specific examples, in the case of reading instruction in Japanese language at Nagara Elementary School, implementing effective reading lessons involves using a responsive, sympathetic, and supportive discourse type as an *instrument*. They are thus designed to encourage children to generate critical thinking while they actively interact with their peers and create *rules* of collaborative activity for learning together. In other words, it is impossible to promote children's critical thinking without such *rules* as a basis, because thinking critically requires openness and tolerance towards varied perspectives and viewpoints as a precondition. Creating classroom lessons where children collaboratively learn by agentic interaction with their peers has become an essential feature in implementing instructional practices for Mr. Kimura as well as for Nagara Elementary School in general. Therefore, this form of reading

**Table 1** Activity system of reading instruction at Nagara Elementary School

Subject	Children as agents of independent critical thinking Teachers as collaborators with the children
Instruments	Patterns and cultural scripts of instruction and beliefs about teaching and learning that provide children with opportunities for critical and independent thinking Supportive types of classroom discourse Tutoring for each child to gain his or her own ideas
Object	Challenging and becoming aware of one's own improvement
Rules	Transferring agency to children and respect for the each other's independence Mutual trust Building fellowship
Community	Community of learners
Division of labour	Each child's role, scaffolding, and responsibility Collaboration between teachers and children

instruction aims at implementing the following activity system of learning (Table 1), where children are provided with an opportunity and encouragement to become agents of independent critical thinking.

In connection with Elmore's (2005) notion of *reciprocity of accountability*, it is clear in this kind of activity system of learning that teachers do not merely require children to actively engage with them in the social activity of learning, but also to accept agency over learning. Elmore (2002a) suggests that there is a relationship between performance and capacity, and thus between accountability on the part of the student and assurance by the teacher of the student's capacity. Elmore (2002a) explains the principle as follows:

Accountability must be a reciprocal process. For every increment of performance I demand from you, I have an equal responsibility to provide you with the capacity to meet that expectation. Likewise, for every investment you make in my skill and knowledge, I have a reciprocal responsibility to demonstrate some new increment in performance. This is the principle of 'reciprocity of accountability for capacity.' (p. 5)

When teachers give children the opportunity to act accountably, one can characterise this as a teaching act that builds the capacity of the children. Such shifting of the locus of agency and accountability from the teacher to the children is indispensable for promoting children's engagement in activities that lead to learning and exercising agency over their own learning processes.

As considered above, Nagara Elementary School aims to transform the activity system of teaching and learning in reading into one that enhances children's engagement in the reading activity through collaboration between the teachers and the children based on reciprocity of accountability. Drawing on the framework of activity theory and as described in the analysis of this chapter, the key to such an expansion is to discern in what way teachers and children are proactively aware of points such as what reading comprehension is, and, why it is learned. This is because



the activity system of learning can be transformed when it is based on a new awareness and agentic engagement over the object of such learning. Moreover, agency over learning is defined by such transformative capabilities.

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# The Potential for Better Outcomes of Looking at What Our Language Tells Us about What We Do When We Read

**Brendan Bartlett**

**Abstract** My recount in this chapter is of research and practice that illustrate the nature and teaching of top-level structuring, a procedure that underpins several topical twenty-first century higher-order learning skills. Top-level structuring is a procedural strategy that has its genesis in knowledge of how ideas interrelate in a communication such as a piece of text. The gist of representing top-level structuring as a source for better reading outcomes is that knowing how language works organisationally and using that knowledge will lead students to a simple, yet viable and productive consideration of how to make sense of and explain what they remember, forget, understand and are befuddled by when reading. There are core patterns that model such organisation in written and oral text, and these have logical structural form and utility in relation to strategic functioning. Children become better readers, for example, when they have a better sense of how reading works—and insights gained through knowing about text structure and about themselves as deconstructors and constructors of texts hold potential for powerful contributions to their ongoing improvement. When educators have this knowledge and observe its effect, then teaching others to be better readers and strategic communicators takes a significant turn. It focuses on improving reading by supporting students to understand more about how language is at work when they are reading and to provide action learning aimed at viewing themselves as improving readers.

**Keywords** Top-level structuring · Top-level structure · Improved reading · Action learning

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## 1 Introduction

Where does language theory intersect with teaching and learning to improve what children know and do about their reading? Would it be in students' best interests if they knew? And if we want them to know, do we know how to provide appropriate learning opportunities for them to do so? These are questions that turn the attention of teachers, parents, researchers and theorists to how best to conceptualise the tools of trade that all actors have on the stages of education and training. The position developed throughout the chapter is that "core patterns" of structured meaning in text are a source material of great potential for improving reading outcomes and for progressing achievement in dealing with current issues of concern in reading instruction and reading research.

This position fits within theorisation of language as discourse (McCarthy & Carter, 2014) and of reading comprehension as information acquisition (Kinsch & Vipond, 2014). Essentially, the notion that an author's thoughts and ideas come together as meaningful and interrelated propositions of text-borne information carries both structural and content assumptions—specifically, that semantic coherence assembles in a text's content (depicting what its thoughts and ideas are) and is established through the cohesion of the assembly (depicting how the ideas and thoughts have assembled into clustered chunks within it). However, making sense of that text involves processes additional to those used by its author in its construction. Readers also have their roles to play and in this chapter I assert that checking on "the cohesion of the assembly" in an informed and strategic way will address a major challenge readers have in knowing what an author intended as main idea. I have called the process of checking, "top-level structuring" (Bartlett, 1978, 2010). It involves anticipating specific types of possible core patterns of information as the clustered chunks in a text, sorting the identified chunks into hierarchical levels of importance on the basis of a "this goes with that" patterned arrangement of the chunks—and highlighting what is at the top level of the hierarchy as the text's main idea.

"Core patterns" in language have been called different things across time. Aristotle (Rapp, 2010) spoke of them as *topoi*—patterns that were either general or specific and through which persuasive argument could be built and key propositions linked to outcomes—such as enjoyment and utility. More recently, Barwashi (2016) reflected on the role of core patterns—describing them as rhetorical and linguistic habitats for, and habits of, perceiving and acting. Many years ago, my doctoral supervisor spoke of them as "top-level structures", frames of content to which all other content and relationships were linked. She showed how Cornell freshmen, who reproduced them when freely recalling long passages of text, significantly remembered more content over a longer period than classmates who did not (Meyer, 1975).

I wondered what would happen if the "Did Not-ers" were shown how to be as strategically adept with text structure as their classmates—and wrote my dissertation (Bartlett, 1978) on that issue. My work then, and much of it ever since, has been in exploring how knowledge of structural patterning in language transforms

thinking and action to build capacity to learn. For my purposes in this chapter, students' strategic knowledge of structural patterning in text is the target of what I believe educators can teach with considerable confidence in helping students unlock an openness to knowing more about how reading works, how they themselves work as readers—and how they can learn to improve the thinking and outcomes of that work. Such pedagogy will be to scaffold opportunities for students to enjoy and profit from the agency and operation of their metacognition about the functions of language as a communicative enterprise—it will be about teaching “top-level structuring”.

## 2 Literature Review

When readers set out to find main ideas, or to have a basis for believing they have captured an author's intended message, or for responding critically or creatively to a text, they need to know what to do to argue their case. This appears to be especially important when they are transitioning as learners. Examples of such transitions are when students are learning how to learn from texts, and when they are engaging with texts in a new genre or range of genre, and when rediscovering how to read for enjoyment. Studies in academic settings (Bartlett, 2012, 1978; Bohn-Gettler & Kendeou, 2014; Carnahan and Williamson, 2013; Hirose, 2014; Ng, Bartlett, Chester & Kersland, 2013; Meyer, 1975; Meyer et al., 2002; Schwartz, Mendoza, & Meyer, 2013) and workplace contexts (Bartlett, 2008; Meyer, Young & Bartlett, 2014) tell us that “top-level structuring” is one way to act skilfully on such good intentions.

Top-level structuring is a strategically procedural action used to highlight the major structural element of what is generated or encountered in a language event such as a written text, or to resuscitate it when a text is encountered that is non-cohesive (Bartlett, 1978, 2010; Bartlett, Barton & Turner, 1988). For ardent top-level structurers, the objective of engaging a text by finding its “top-level structure” is to establish or re-establish at its most striking level the connection between the text's ideas, and, how they fit together. What happens when such a connection is made is very significant as shown in a meta-analysis of 45 studies recently reported by Herbert, Bohaty, Nelson, and Brown (2016). Their meta-analysis examined studies involving students in grades 2–12 to determine evidence on the effects of text structure instruction on the expository reading comprehension of students. Their findings across these studies were that text structure instruction improves expository reading comprehension. They also identified two moderators of that outcome that increased effect sizes—teaching more text structures (rather than concentrating on only one), and including writing in the instruction. Text structure instruction also was effective across each of three levels of transfer represented in various of the studies—maintenance, untaught text structures and general reading comprehension, although Herbert et al. (2016) reported that the maintenance effects were small and lacked consistency. Students

taught about text structure generally make the connection between ideas and the way they are organised as text in durable and generalisable ways.

Meyer's (1975) pioneering work with Cornell students showed that when readers make this connection they benefit with better memory, not only of the main idea contained at the top level of the text structure, but also of information at all other levels of its structure. The strength of this effect was highlighted when Meyer, Brandt and Bluth (1980) concluded after testing various predictors of reading comprehension and memory, that readers' performance in reproducing the top-level structure from a text was more powerful in influencing these outcomes than alternative variables such as readers' reading comprehension ability, vocabulary level, gender, or reading age.

As part of top-level structuring pedagogy (Bartlett, 1978; Bartlett et al., 1988; Meyer, Young & Bartlett, 2014), readers typically are mentored in predicting text features with instruction centred on anticipating that texts are likely to have a main idea that has four properties. Each of these properties is explained and modelled by teachers, and workshopped with students as tools for constructing their own texts and as features to guide their reading.

The first of the properties is that a text's main idea has both content and structural characteristics—it will be an idea in which components are patterned together in a specific and identifiable way. Second, the "pattern" will, in all likelihood, be one of a small set of very common types found by researchers (Bartlett, 1978; Meyer, 1975, Meyer & Ray, 2011), some or all of which are likely to be present elsewhere throughout the text. Third, there will be particular signal words and formats that will help identify each of the common patterns. Fourth, the "pattern" that frames the idea will subsume all other patterns and information in the text's content. The common patterns that I have used in my interventions following Meyer (1975) are:

- (1) List—ideas grouped as an ordered or non-ordered set
- (2) Comparison—ideas scaffolded within a comparative framework
- (3) Cause and Effect—ideas clustered around effect(s) and cause(s)
- (4) Problem/Solution—ideas clustered around a predicament(s) (for example, problem, question, issue) and a response(s) (for example, solution, answer, reaction)

Reading a text involves clustering and layering its content and making a decision on which of the four types above is the pattern of best fit as the text's macrostructure, that is, which is the one that superordinates all others. Thus, top-level structuring is a form of interaction with a text where readers anticipate, sort, hierarchically arrange and make decisions about textual cohesion. It is a critical reading perspective where ideational content is seen for both its substantive and interrelational properties. It is a strategic and logical platform for productive memory, comprehension and evaluative outcomes from reading and one from which readers have a basis for explaining their performance process and rationalising its outcome (Bartlett, 1978, 2010). They will remember more of what they

have read, remember it for longer, and, remember more information from each of the levels of a text's importance structure (Meyer, 1975).

Related studies (Bohaty et al., 2015; Carnahan & Williamson, 2013; Ghafarpour, Dehaghani, & Mahmoodi, 2013) have shown that top-level structuring appears accessible and helpful for a wide range of students. For example, Carnahan and Williamson (2013) found that instruction in the compare-contrast text pattern was effective in establishing a top-level structuring approach to reading science texts for students with autism spectrum disorder. The procedure resulted in greater recall measured by comparing students' identified idea units with those of the text and in better comprehension. In a delayed test of the maintenance of these two outcomes, the better comprehension of the text was sustained despite some loss in the number of idea units retrieved. Earlier, Bartlett and Briese (1981) had made a similar observation with 26 adolescent students ( $M = 14.12$  years;  $SD = 1.14$ ) with mild intellectual impairments ( $IQ - M = 70.3$ ;  $SD = 8.07$ ) in senior classes of a school for children and youth with special needs. The majority of these students did not write and their reading levels were low (Gap Test: 14 scored at seven years four months—eight years 11 months; six were above this range and six were below the floor level). As participants in the study they had responded well to intensive training in top-level structuring with outcomes of better organised oral composition and greater oral recall on immediate and delayed assessment of short texts read to them by a researcher.

Both studies are promising preliminary work. Carnahan and Williamson's (2013) single-subject reversal design yielded exploratory information that students with autism spectrum disorder were responsive to top-level structuring pedagogy and benefitted sustainably as shown in measures of memory and comprehension of reading material. The measure used to assess memory was to have participants create Venn diagrams which they used to record what they remembered of the text's information. Units were then checked against those idea units identified from the test passage by the researchers. However, without allocation of score for matches of relations between and within idea chunks across participants' recall and the stimulus text, the memory measure is incomplete. It had not captured recall of the cohesive ties in the content, possibly because the instructional focus had been on comparison structures only. However, even with this concentration, recognition of inter-clausal and intra-clausal comparative relationships (Fillmore, 2014; Grimes, 1975; Halliday & Hasan, 1976; Humphrey, Droga, & Feez, 2012) following instruction conceivably would have increased the quantum of items recalled on post-test measures. If it did not, then the researchers would have needed a different theorisation of the demonstrated improvement. Bartlett and Briese's (1981) research had applied a measure of all relations in what their participants recalled as evidence of treatment fidelity and to determine the organisational basis of participants' responses. There were positive outcomes in both cases. All 26 students had pretest performances with no discernible use of top-level structuring. Thirteen shifted to a level where usage was recognisable on an immediate post-test a day following instruction of one hour per day over four days. The improvement was sustained on a delayed post-test, one week later. Nonetheless, and aside from the test-condition



variation, the small number of participants involved and the absence of a control group were significant limitations of this study.

An additional area where top-level structuring instruction appears productive is in enhancing the memory of students who have English as a Second Language (ESL) and comprehension of expository texts. Schwartz, Mendoza and Meyer (2013) examined whether university second language learners of English, by learning top-level structuring [named in their work as the text structure strategy], would improve their reading comprehension and recall of second language texts. They also tested for transfer of the strategy to the participants' native language, Spanish, finding positive results in both inquiries. When recalling information from texts, whether in English or Spanish, participants shifted the focus of an underlining strategy from a larger quantum of undifferentiated words at pretest to a smaller quantum with selective pinpointing of signal words at post-test.

The Schwartz et al. (2013) finding offers possible explanation for a report of Japanese research (Hirose, 2014) from which top-level structuring was tested as a possible solution for difficulties experienced by many translation students using Yakudoku method. Yakudoku is a traditional translation approach and is based at sentence level. It neither explains nor searches out rhetorical relations beyond the sentence, thus leaving ties between, and across, sentences and paragraphs in extended text unspecified as students using this method move sentence by sentence through translation. This omission disestablishes whole-of-text structure into a sequential collation of sentence-level structures resulting in high likelihood of poor cohesion and coherence in reconstruction of a source text as the target translated text. As a first step in redressing the disparity between sentence-level and whole-of-text approaches with Japanese college students of English translation, Hirose (2014) taught participants from that population about top-level structuring with significant improvement in their subsequent reading comprehension.

Hirose (2014) found that 50% of the study sample used the comparison and problem/solution organisational formats at pretest. This level of natural use with these college students of similar age was less than Meyer's (1975) finding with 60% of her Cornell freshmen and greater than Bartlett's (1978) result (40%) with his younger group of year nine junior high students. Hirose (2014) found those most likely to uptake top-level structuring were college students who had little prior knowledge of it—though there was a strong improvement in reading comprehension across the sample. Some reasoning for Hirose's (2014) finding is provided in Bartlett's (2010, 1978) contention that "natural users" of the strategy who respond to instruction by becoming more conscious of what they are doing also become more consistent and productive as top-level structurers. Thus, the apparent inconsistency between low take-up and high recall possibly reflects a categorisation-performance crossover where in Hirose's (2014) work, "natural users" after instruction were not assessed as having taken up the strategy, but nonetheless, possibly had used it more effectively on the post-test memory measure. It remains to be seen whether Hirose's students who became more reflective and knowledgeable about text structure as a factor in their own reading comprehension also found some means of applying it in their translation practices.

In a further area of application, and one where there appears to be increasing awareness of student need, top-level structuring may be a powerful mediator for students at risk of schooling failure (Ng et al., 2013; Williams et al., 2014). Both Ng et al. (2013) and Williams et al. (2014) conducted intervention studies on top-level structuring that involved three different instructional conditions including a business as usual control. Both studies had proven treatment fidelity and the researchers found statistically significant improvement in literacy performances for those in classes taught top-level structuring.

Williams et al. (2014) working with year two students and specifically on a cause-effect typology in top-level structuring reported that young people in a top-level structuring intervention embedded in a social studies context outperformed those in the business as usual treatment (social studies context only) and a no instruction control on the two dependent variables of sentence construction and reading comprehension. However, the two instructed treatment groups performed equally well on measures of social studies mastery. This suggests that acquisition of the strategy had not influenced children's academic performance in the contextual area in which the strategy had been learned. The key point in this study, nonetheless, is that top-level structuring is a viable instructional objective with young children, albeit that those at risk may need additional time, guidance and experience in becoming mediation effective when using top-level structuring to learn specific substantive content.

Ng et al. (2013) located their study with year five children at risk in a school situated in a low socioeconomic status (SES) metropolitan area. These students learned and used top-level structuring with significant improvement in their reading comprehension. The researchers found additional value for participants in combining both explicitly performance-linked motivational support and strategy instruction in promoting reading.

Bartlett (2012) reported from a follow-up study one year later, that students taught the strategy in the Ng et al. (2013) project had retained it and had a decidedly affective connection with having done so. They valued top-level structuring, they valued having learned about it, and they valued their teachers and school for having provided the opportunity to learn it. Top-level structuring, as these strategists now in year six used it, was a realisation of potential for better outcomes socially, affectively and academically. The high levels of take-up and improved reading comprehension initially and its retention and valuing across the following year suggest that for students from low SES contexts, top-level structuring presents as a teachable, beneficial and robust tool to improve reading. Both teachers and students had identifiable agency in its uptake and development and liked the insights and benefits that studying it had created. Given the widening gap globally in reading attainment levels for those from backgrounds of poverty (Henry, 2015; Lupton & Thomson, 2015; Reardon, 2011; Waldfogel, 2016), and what many consider is a period of particular vulnerability for reading avoidance (Ng, Bartlett, Wyatt-Smith & Wyvill, 2012; Ng, Wyatt-Smith & Bartlett, 2016) and poor reading achievement (Groff, 2014; Rogers, 1983; Rutter & Yule, 1975), this is important potential.

### 3 What Is Top-Level Structuring?

For readers, learning about top-level structuring is about increasing awareness, practicing and sharpening the skills and appreciation of “anticipating, sorting, hierarchically arranging and decision making” in relation to communicative action (Bartlett, 2010). In relation to reading, the strategic purpose of top-level structuring is to construct a rational basis for assertions of knowing an author’s intended main idea. An identified main idea will have been highlighted by the combination of a reader’s anticipation of a discoverable top-level structure, sorting and hierarchically arranging interrelationships among information structured around the core patterns of a text as his/her reading proceeds, making decisions in doing so in order to find the dominant pattern and using that pattern to frame a cohesive, coherent gist-level statement of the text. For readers, such action is a use of knowledge of what semantic frames in texts are likely, of what writers do to signal the ones they use, and, of one’s own agency and know-how about applying this knowledge. It is procedural know-how for constructing and/or reconstructing the main idea portrayed at the most abstracted level of content and structural information of a text.

The theoretical premise that top-level structuring is a viable construct of viable language processing is that meaning in language is (a) structured (Frase, 1969; Frase & Schwatz, 1979; Federiksen, 1975; Grimes, 1975) as well as semantic, (b) dynamic and variable (Fillmore, 1976, 2014; Halliday, 1994, 2003), and, (c) identifiable through the anticipate-sort-arrange-decide process (Bartlett, 1978; Meyer, 1975). To picture this, imagine a lengthy piece of text as a tree in which what we see most effortlessly are its leaves and bark—external things that often change with the seasons. Something of the tree not so easily seen is what holds its leaves and bark together, integrating them into the shape, content and identity of a tree. It is there nonetheless as a sturdy torso, limbs, branches, twigs and veins that stretch all the way from the tree’s bottom-most roots to its treetop and that form inner layers of its being from the wood of its sturdy trunk to each leaf’s miniscule cells. To see these internal characteristics requires an enquiring eye and mindfulness about realising and appreciating the job that these structural features do in giving the tree its appearance, functionality and attractiveness.

In using this metaphor, I have intended for the tree’s leaves and bark to represent the content domain of language. The trunk, branches and root system provide logical structure for that content just as a logical structure is what gives text its texture, a scaffold used by its writer to shape propositions of integrated content from his/her ideas. It is this structural feature of content that brings particular cohesion to a text, a factor that underlies the coherence of propositions in its wording. Writers bring wording and structuring together as a communicative output, drafting and editing the text to build its communicative ease and power. For readers, there is value in doing much the same things.

Like a nicely shaped tree, a well-formed message is usually easy to see and memorable. Combinations of ideas build coherence as each of them interconnects with others combining into idea-sets that interrelate in a hierarchical configuration.

The most highly interrelated idea or idea-set is at the top level of the hierarchical structure. This is the key information or main idea and its positioning at the top of the configuration is important in understanding Meyer’s concept of “top-level structure” which fits the tree metaphor. It is important also in understanding my notion of “top-level structuring” as readers’ action in seeking out the key element of such structure. What is at the top is what really matters—and so does having a strategy for finding it!

Linguistically, top-level structure is a rhetorical predicate, a language-large vehicle such as a comparison, or list, or problem-solution that styles words into a statement of all of a text’s content at its most abstracted level. Smaller idea sets are also structured around rhetorical predicates some of which draw content from across several paragraphs and sentences—each of which, if large enough, will contain its own rhetorical predicates and other grammatical linkers such as predication around verbs (lexical predicates) and case relations (for example, agents, patients, settings).

The hierarchy captures and reveals the relative contributions of other idea sets to the main idea’s sense and to the text’s overall meaning. Higher-located ideas are “higher” because they are more interrelated and hence, they are richer in contribution to overall meaning of the text. Their riches of highly interrelated information mean that they are more supportive of the main idea, and more memorable than those below them. Lower ones provide the basic details and are often, as Meyer (1975) observed, the first things forgotten. Meyer’s research pinpointed clear advantages in memory and comprehension for readers who top-level structure their recall of what they read. Inherent in this finding is the prospect that top-level structuring may be aligned with higher-order skills such as communicating effectively and efficiently as we see in Melanie’s report below (Fig. 1).

Melanie, a year three student at a rural Australian school, wrote the text after her teacher, frustrated with the poor writing and reading performances in term one by children in her composite year three and four class, had taught them about top-level

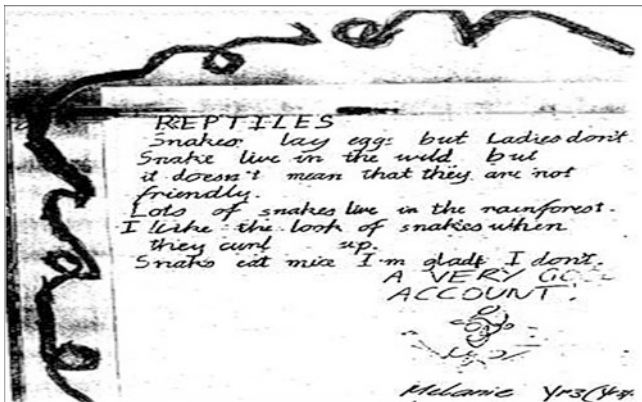


Fig. 1 Melanie’s text, “Reptiles”. (from Bartlett, 2010)

structuring—what it was and how to do it when reading and writing. She then set them a library project to research Australian animals and to write up a brief account of an animal or animal-type using top-level structuring to organise their work.

Melanie has presented engaging content about snakes as reptiles, telling us that they lay eggs, live in the wild, are likable and what they eat. She also added an illustrative snake-like border to enhance her work and to accent her content focus. Her teacher as reader has written an appreciative evaluation. Let us look at how top-level structuring helps to imagine what Melanie did as an organisational thinker and what might underpin her teacher’s opinion of her work.

In addition to her variety and coherence with the text content, Melanie arranged her ideas in a very cohesive way. My representation of this is depicted in Fig. 2.

I saw Melanie’s top-level structuring as a list of four sets of nested comparisons of information about snakes. I appreciated the help she had given her teacher, classmates as well as us, the readers, to imagine her thinking and planning. She has used the title, “Reptiles”, though has not repeated this word in the body of her text with “snakes” dominating the agentive role in her sentences. It would be interesting to ask her about this. The core patterns she chose are built around the verbs “lay”, “live”, “like” and eat”. She used connecting words (conjunctions) like “when” and “but” to do this, each one signalling a comparison of some part of the content in the cluster with what remained [for example, snakes living in the wild (and the ‘in the wild’ linking to ‘the rainforest’)—but this not meaning that they are not friendly]. By the time I reached her last sentence, she had explicitly used “but” twice and here it was again. Well here by inference, elliptically signalling her comparative content and reminding me that I had created the comparison where others might have inferred something very different—for example had they imagined the connection as “and”.

The teacher sent me copies of the classwork on the writing assignment which I shared with several classes of third-year university students in educational psychology and language and literacy courses where “top-level structuring” was a listed study topic. Our task was to anticipate and then diagrammatically show the

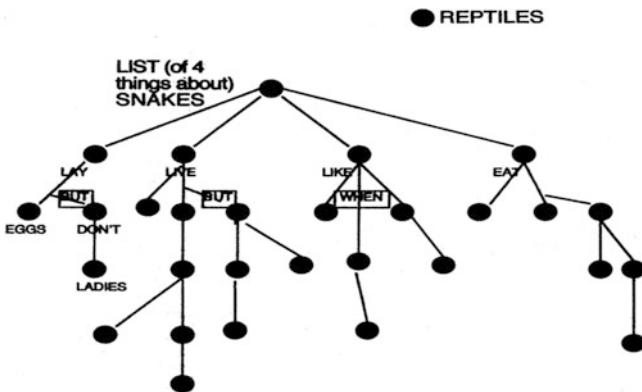


Fig. 2 A map of the structure of Melanie’s text (from Bartlett, 2010)

clusters of information and their interrelationships to see whether these would enable us to identify the main idea in the various works. In most cases, there was general agreement with one or two alternative possibilities that became a source of discussion as the undergraduates spoke to their reasons and listened to those from people with different views. For example, with Melanie's text, many initially considered it as a comparison of features of snakes rather than as a list of four comparisons. None thought of it as a problem solution or a cause-effect configuration, or as a display in a problem-solution format. None saw it as badly organised. All agreed with Melanie's teacher that she had written a good account of her research on snakes. This observation opened discussion about what feedback might be given to the whole class and to specific children about greater use of signalling words and formatting—and about how such feedback might be given.

The university students reflected on their own top-level structuring in analysing the children's texts. This led to discussion about both the ease with which they had been able to see rhetorical predicates in the children's texts and how useful this might be in giving young students constructive feedback on their writing. In relation to the former, *anticipating* provided a "working hypothesis" that there would be a discernible top-level structure. Students had found that in some of the texts, it took longer to confirm or revise initial thoughts of the text's top-level structure than in others. We resolved this by reverting to Meyer's (1975) rationale that if one accepts that the *idea set* to which all other idea sets are most related represents a main message and that this is at the "top" of the "hierarchal structure", then finding "top-level structure" is critical to capturing a writer's key point in a rational way. Being able to explain how the hierarchical arranging proceeded provided that rationale. Successful readers who know about top-level structuring do this—and they can explain what they have done in identifying what content and structural frame are at the top-level of what they have found. My earlier comments about how I came to see Melanie's top-level structuring as "a list of four sets of nested comparisons of information about snakes" exemplifies this. Realising what I was doing in order to be successful as a reader of the source text was another outcome of top-level structuring throughout my reading. So too with the university undergraduates who came to know about "top-level structuring" as procedural action were then able to explain how they had comprehended Melanie's text—as well as what their comprehension was.

This realisation and its explanation are very metacognitive functions (Flavell, 1982; van der Stel & Veenman, 2014). The undergraduates took what they considered to be Melanie's perspective in making their own identifications and then considered the logic of alternatives in coming to a more relativistic view of the certainty of their own judgments. I have said elsewhere (Bartlett, 2010) that knowledge about text structure and how to use it is a metacognitive gift, giving strategists special know-how as communicators. Such strategists look to match decisions on a text's organisation to prediction of it, and then to present the main idea they had found as a structured abstraction of the text's content. For example, if a comparison organisation is identified, the main idea will be a statement of what is being compared. If causal organisation is found, the main idea will be a statement of

what is causing what. A problem and solution organisation will generate a description of what is problematic and what ideas surround a solution or solutions. A list organisation will build into a statement that the main idea is a list of such-and-such elements.

There are many sub-types of these four major rhetorical predicates (Bartlett, 1978; Meyer, Young & Bartlett, 2014) and description as a special form of listing is so prevalent that some theorists (e.g., Meyer et al., 2002) separate it. For me, the four types outlined above capture all of the expository forms that have been part of my studies. However, I have also alerted students to a fifth possibility (“default needed”) that arises from Meyer’s (1975) term for dealing with messy text (Denison, 2016; Roulston & Shelton, 2015)—that is, when content is disjointed and its top-level structure unclear. Typically, evaluation of a text as “messy” follows where there is a lack of cohesion in a writer’s production and uncertain or undetectable overall organisation. The metaphoric tree will seem shapeless. In such cases, agentic strategists who want to press on with reading will impose their own structure. Meyer and Freedle (1984) observed a bonus effect for readers’ memory performances when ideas at the top level of a logical structure are organised as a comparison rather than as any of three other commonly occurring structural systems (list, problem-solution organisation, and causation). This finding increases the range of explanations for why some material is more memorable to now include consideration of how it is structurally organised. It also has implications for pedagogy in guiding students’ agency as writers and learners. Comparison top-level structure would be the organisation of first choice for writers wanting readers to remember more of what is written, and to remember it for longer, and for learners wanting to remember information for critical performance events such as presentations and examinations.

#### **4 Designing Teaching to Create Learning Opportunities about Top-Level Structuring**

My doctoral research (Bartlett, 1978) reported that, following an intensive, hands-on instructional encounter, year nine students operated on newly constructed knowledge of text organisation to become informed and effective “top-level structurers”. They learned what was happening as they explored ideas as propositions, structuring them in Russian Doll-fashion into increasingly superordinate levels—and “going to the top of the tree” to provide what they now would argue to be the gist of spoken and written messages. They also formed opinions on how, and with what effect, others did the same thing.

I had demonstrated to these students how in some model texts that I had provided, message was more clearly signalled than in others. We checked together what meanings they saw in such texts against language-analytic criteria for forming meanings. Few initially knew of any such criteria and their motivation and

participation in learning about anticipating, sorting, hierarchically arranging and decision making as these actions applied in building coherent and cohesive texts remained high across the five hourly sessions made available by the host school. Students brought along their own texts to supplement what I had supplied, and we analysed them together, checking different relations among ideas and on how different words, images or format features such as bullets and numbering, signalled different top-level structures. We isolated and spoke about the work done to build and signal top-level structure that words and word groups such as “Because such and such, then ...”, or “On one hand ..., but on the other ...”, by formatting such as indentation, bullets and numbering depictions of items on a list, and by images such as differences in the facial displays of people to depict questioning attitude or contrasting positions on a topic.

In this way, we built criteria for making and giving meaning through text around two major variables—*signalled structures* (words, formatting and images that signpost structural formats such as list, description, explanation, account, comparison, contrast, equivalence, cause and effect, antecedent and consequent, question and answer, problem and solution), and *level of support* (that is, number of chunks of information that an idea subsumed as indication of its relative importance and that that the one most supported is more likely to be the main idea). Increasingly, students adopted critical stances, describing some of our exercise texts as badly organised when the structural plotting was uncertain and awkward in its depiction—and acknowledging others as coherent, easily analysed and thus well-structured for readers.

We had used environmental texts such as advertisements and brochures as well as extracts from fiction and from classroom textbooks to explore and practice the text analytics involved in recognising and rationalising top-level structure and for creating texts. I modelled the construction of new texts as we drafted responses to homework and classroom tasks. The students practiced with increasingly longer pieces of writing and varied the use of signals intended to telegraph to their readers what organisational scheme they had used at the top-level structure of their writing. We designed ways that students could test whether using the strategy was making any difference to their memory, comprehension and composition, how differences were evident, and under what conditions top-level structuring was most effective.

I built retrieval loops into the sequence of lessons to support those who needed additional or different scaffolding to master the reception (as readers and listeners) and production (as writers and speakers) applications of their strategy. We also talked lots about the goals and process we were using in the teaching and learning encounters and provided feedback and reinforcement for each other throughout. For me as the instructor, the feedback pointed to strengths and weaknesses in my pre-programmed planning and to where immediate and future effort was needed. For students, it helped to confirm successes and to pinpoint how to alert me to their understandings of proximal zones in their changing development.

Knowing about textual features was important, but knowing how to use such knowledge deliberately was a second key target of instruction. Across the series of early lessons students had learned about coherence and its structural signals from



writer and reader perspectives. They now shaped this knowledge into a stepwise plan for reading and reproducing text to indicate what they remembered and understood.

So, the mind plan underpinning strategic action began with knowledge of top-level structure as a construct. It moved to searching for a known structural form by checking an author's text and its signals, or applying one when encountering muddled or poorly organised text. Next, readers dressed the structure they had found with ideas from the text, and then restated the text beginning with its top-level structure. In terms of the earlier metaphor, they were now able to recognise the infrastructure in others' "trees", and to grow and shape their own. Reading and recalling had become a matter of locating top-level structure and using it to roll out remembered ideas in an organised way. In composing through writing, the plan accommodated an additional step to impose a signalled top-level structure as the critical starting step.

We called the implementation of this mind plan, "top-level structuring". Students knew that, by first thinking to top-level structure and then acting planfully on that thought, they were being deliberately strategic. Part of their education had been to test for themselves the effects of using the strategy. They had found that it increased what they remembered and the length of time that they could recall it and that it made for better writing. They also did this with talk, looking at how an oral presentation would be more organised and effective with a deliberate and evident top-level structure. So, they knew at the point of implementation as speaker, listener, writer or reader that their action was highly likely to be beneficial. The method used and results obtained from this study are reported below.

## 5 Method

The study involved 102 year nine students in four intact classes made available by the school that were assigned randomly to experimental and control intervention conditions. The school was in a metropolitan US location in which the local community was predominantly one of white, low-income and middle-income families. Participants were of similar age [ $M = 14.37$  years,  $SD = 0.35$  years (Experimental);  $M = 14.43$  years,  $SD = 0.35$  years (Control) ( $t_{99} = -0.87$   $p < 0.05$ ), gender ratio [20:35 (Experimental); 22: 27 (Control)], and racial background. No significant differences existed on their pretest intelligence as measured by vocabulary score on the Stanford Achievement Test, reading comprehension as measured on the Mesa Reading Proficiency Test (Mesa District, Mesa Public Schools, 1974), grade-point average (GPA) as shown on the school's most recent measure (the previous year's final GPA), or pretest recall determined by a test instrument constructed to measure units of content and relations between and among content items (Bartlett, 1978).

Designed as a quasi-experimental study, repeated measures of participants' free recall and explanations of recall organisation were gathered three days before the intervention, immediately after it, and again three weeks later. Instruments for

obtaining free recall were three written texts derived from a range of sources of year nine textbooks and adjusted as needed to match page-long passages on readability levels, type of top-level structure, number of words, and students’ interest. The three alternatives were counterbalanced across participants and testing times to provide an additional control on possible residual differences, and results assessed for those taught a rationale and procedure for top-level structuring against those taught punctuation across the same instructional interval of one-hour classes in each of five successive days by the same teacher.

## 6 Results

Initially, 45.1% across the whole sample used top-level structuring in recalling their pretest passage. One in four participants operating in this way was able also to account accurately for their behaviour in doing so. This is shown in Table 1 with the 40% distributed across *best users*—those at strategic level one: who structured their recall and provided an accurate description of it, and *good users* (strategic level two) who also had structured their recall, but without providing an accurate description of their structuring. A majority (54.9%) were at the lowest of three levels (strategic level three) where their written performance provided no indication at all of top-level structuring. This differentiated set of performances was consistent across four classes of year nine students, and classes were collapsed into two experimental and control groups as depicted in Table 1. The percentage of strategists across the whole sample at pretest (45.1%) trended developmentally as might have been expected in comparison with the 60% of university freshmen whom Meyer (1975) had reported as strategic.

The relative distributions of “best users” and ‘good users” were similar on the pretest and remained at much the same incidence on the post-tests for those in the control condition. Interestingly, while distributions were relatively consistent for the control group across the three test events, there were considerable changes in which specific individuals in the control condition performed at the highest level. This suggests that while some were capable of producing a “best” or “good” user performance without any instructional intervention, that is, they were “natural

**Table 1** Distribution of strategy use in the free recall performances of year nine students across three tests

Strategic level	Pretest		Post-test immediate		Post-test delayed	
	Exp’tal	Control	Exp’tal	Control	Exp’tal	Control
1 (Use and label TLS)	5	6	40	4	35	4
2 (Use only)	17	18	7	19	5	17
3 (Don’t use)	31	25	6	26	13	28
Total	53	49	53	49	53	49

**Table 2** Free recall performances of year 9 students across three tests

Pre-test means (SD)		Post-test immediate means (SD)		Post-test delayed Means (SD)	
Exp'tal	Control	Exp'tal	Control	Exp'tal	Control
24.4 (13.8)	25.4 (16.6)	57.8 (24.2)	30.2 (19.5)	51.8 (24.0)	30.0 (17.0)

users”, it was not something they did consistently. Only one of the control group students achieved a level one rating on all three occasions, suggesting that the majority of natural users at level one were production inefficient (Flavell, 1982) in that they were not yet producing the strategy in all situations where it was applicable.

The situation was significantly different for those instructed in top-level structuring as shown in Table 1. More participants from the experimental group in tests following the intervention used top-level structuring and told us that they had done so. Forty-seven of the 53 students who had been taught the strategy then used it—most of them at level one—on the immediate post-test. This was a statistically significant change from their pretest performance (Immediate:  $\chi^2(2) = 47.41$ ,  $p < 0.001$ ; Delayed:  $\chi^2(2) = 34.48$ ,  $p < 0.001$ ) and membership at strategic levels one and two for those taught the strategy (students in the experimental group) remained relatively stable on the delayed post-test.

Importantly, being more strategic also associated with better memory performances in reading. Those who had responded so positively to strategy instruction now remembered more than they had done before using the strategy—and twice as much as controls (MS 32, 591.20,  $F(1) = 57.9$ ,  $p < 0.0001$ ) (Table 2).

Thus, “educated” strategists retained over the longer-term both top-level structuring as a strategy in use, and the associated memory benefits.

## 7 Discussion

Learning about top-level structuring as a means of approaching tasks of finding the main idea of a text in explainable and persuasive ways had stuck. Significant numbers of year nine students had become efficient and effective with top-level structuring as a result of its explicit teaching. Most students in the experimental group on the two post-intervention measures accurately described the type of structure they had used to strategically organise their performances. They were remembering much more than they had done before the intervention, and they were reconstructing main idea in terms of the highest placed information in the logical structure of texts they read following the intervention.

The effect of putting into action a procedural knowledge about idea-organisation in text was dramatic in relation to performances of recall and in shifting students towards explanations of what they did in acting strategically as top-level structurers when reading and recalling. Each of these effects was stable across the immediate

and delayed post-tests—and with broader consequences as indicated months later from the English year nine year master at the school:

... My subjective opinion is that the strategies taught had definite carry over into the next unit of study and ultimately throughout the first quarter as those classes taught the strategy had higher grade-point averages than those who did not (Leavenworth Wheeler III, Note 1).

The relative GPA data on a four-point scale for the groups prior to the instruction [experimental ( $M = 2.15$ ;  $SD = 0.67$ ); control ( $M = 2.45$ ;  $SD = 0.80$ )] provided the point of comparison for Wheeler's observation. Furthermore, and in relation to the longevity of students' learning and operation of strategic knowledge, he wrote:

I might add that I have asked, on occasion, for students in the classes having received the specialized training to identify how a paragraph is constructed. I have never found them unable to answer. Conversely, in classes that did not receive the training the performance was sketchy and their attitude was uncertain (Leavenworth Wheeler III, Note 1).

The on-site qualitative commentary from the year master indicates that students benefit when instructed in a context where attention is given not only to the skill involved in being strategic when reading, but also to the language through which to share and further explore a developing competence and confidence with it. Importantly, Wheeler's observation of consistency in students' answering questions about text organisation at paragraph level—and in his own asking of such questions—implies a positive culture developing around such instruction, conceivably a culture conducive to recognising and nurturing affective outcomes alongside the cognitive, metacognitive and academic performance ones.

## 8 Conclusion

Theorisation and research about top-level structuring are recounted in the preceding sections of this chapter with strong suggestion that its teaching and learning are positive moves in education to improve students' reading. Specifically, there is an evidence base for championing it in the interests of helping educators move innovatively and systematically towards that objective.

The evidence base continues to build as research (Albro et al., 2015; Hogenboom et al., 2015; Uddin, Khan & Baur, 2015; Yung, Duh & Matsumoto, 2015) progresses how best to strategically utilise knowledge of top-level structuring to recognise and use the ideas that writers and we ourselves bring to understanding, enjoying, and growing from reading. It is doing so alongside developments such as the Australian National Partnership Agreement for Improving Teacher Quality (COAG, 2012) that provided an initial \$50 million funding for 'World leading professional development and support which will empower principals to better manage their schools to achieve improved student results and higher quality to lead performance improvement at the local level' (p. 9) and The Professional Standards for Teachers (The Standards; Australian Institute for Teaching and School

Leadership, 2011) which ‘makes explicit the elements of high-quality, effective teaching in 21st century schools that will improve educational outcomes for students’ (p. 2). The AITSL framework traverses domains of teachers’ knowledge, practices and professional development and recognises experience as a key dimension. The synergy involved across the three domains may offset concern from some (Hempenstall, 2006; Hornby et al., 2013; Snow 2016) that education as a professional field has been slow to move to an evidence-based model in its operational decisions and that this hesitation is reflected in what teachers know, do and learn in the profession. Hempenstall (2006) had commented:

Teaching has suffered both as a profession in search of community respect, and as a force for improving the social capital of Australia because of its failure to adopt the results of empirical research as the major determinant of its practice. (p. 83)

Twelve years after Hempenstall’s comment, the Standards’ insistence on quality professional development and accessible support for this through the National Partnership Agreement for Improving Teacher Quality opened new opportunities for teaching to be a force for national improvement. In utilising such opportunity, one application might be for teachers and systems to look closely at the findings and nature of evidence supplied in relation to students improving as readers and learners following instruction in top-level structuring.

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**Part IV**  
**Partnership and Intervention**

# Generating Data, Generating Knowledge: Professional Identity and the Strathclyde Literacy Clinic

Sue Ellis, Jane Thomson and Jenny Carey

**Abstract** This chapter describes how student teachers working in the Strathclyde Literacy Clinic ‘translate an experience of the landscape, both its practices and boundaries, into a meaningful moment of service’ (Wenger-Trayner & Wenger-Trayner in *Learning in landscapes of practice: Boundaries, identity and knowledgeability in practice-based learning*. Routledge, London, p. 25, 2015). The Literacy Clinic is a collaborative learning project for student teachers undertaking the four-year Bachelor of Arts programme in Education and Teaching at Strathclyde University. The project is designed to build student teachers’ fluency in real-time teaching responses in ways that provide a strong emotional and social dimension to their learning. They do not follow an externally derived programme of work, but use an innovative assessment tool to collect data about the child’s cultural and social capital, identity as a reader, writer and learner, and cognitive knowledge and skills. Each team uses this to make decisions about the learning mix the child needs. The chapter details how the experience shapes their values, identity, understanding and practices as literacy teachers.

**Keywords** Teacher education · Professional learning · Literacy pedagogy · Literacy teaching · Literacy clinic · Initial teacher education

## 1 Introduction

Assessment and intervention in literacy are complex matters, particularly so when young people experience difficulty in becoming literate. To provide a sustainable and effective literacy learning mix, teachers must skilfully negotiate and balance knowledge paradigms that reflect different perspectives. An informed decision requires professionals to attend to the evidence of the literacy learners in front of them and to external research evidence, policy directives and theoretical models.

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This means negotiating a complex landscape in which literacy teaching content is more than a set of autonomous skills (Luke, Dooley, & Woods, 2010; Smith, 2010). It means balancing cognitive data on learner skills and understanding of how literacy ‘works’ (e.g. Fountas & Pinnell, 2010) with sociocultural data on learners’ wider understandings and experiences of the world and their purposes and practices of literacy (e.g. Kamler & Comber, 2005; Moll & Cammarota, 2010), and with data on learners’ social and emotional identity and how they are positioned by themselves and others as literate beings and literacy learners (e.g. Moss, 2007, 2011).

Using data from such different knowledge communities to make balanced and appropriate judgments about how to intervene in any particular circumstance is not an exact science. The absence of a single, unequivocal way forward has the potential to promote professional and political anxiety but is also integral to professional learning and knowledge. Social theorists Wenger-Trayner & Wenger-Trayner (2015) envisage professional knowledge as a landscape of practices that inform, influence and rub against each other creating tensions and synergies. Professionals develop competence and knowledgeability by aligning and realigning themselves to the practices of their various core communities, negotiating their boundaries, to make sense in a particular implementation context. Professional knowledge develops as individuals understand the knowledge communities that underpin their practice, redefining both the wider landscape of professional practice and their own relationship to it. They envisage how their professional knowledge and abilities might be deployed in new contexts and in new ways and the professional reflection that results from viewing situations from different perspectives generates, new insights, innovations and a sustainable system for professional learning.

Identifying useful activities and ‘boundary objects’ (used here in sense of Wenger, 2008 but for a wider explanation see Star 2010) that could help young professionals do this is an important focus for initial teacher education. In this chapter, we examine how participation in the Strathclyde Literacy Clinic, through its practices of using a rich, complex and flexible set of theoretical perspectives, engaging with diverse data and peer-to-peer collaboration, enables student teachers to develop their literacy knowledge in ways that forge professional identities characterised by creative, adaptive pedagogies and agentic, inquiring habits of mind.

## **2 Background: Literacy Policy and Data Use in Scotland**

In the UK, education is a devolved public service. Scotland has chosen not to implement the centralised curricula, scripted programmes and high-stake testing favoured in England. Instead, Scotland prioritises professional judgement as a central tenet of its teaching and assessment policy. It has a non-statutory curriculum offering broad guidelines for progression rather than prescription, and teachers must put ‘the child at the centre’ with nuanced classroom provision that enables ‘each child or young person to be a successful learner, a confident individual, a

responsible citizen and an effective contributor' (Scottish Executive Education Department [SEED], 2004). This offers Scottish teachers unique affordances to be creative and responsive professionals, but it also makes hard demands, requiring balanced, autonomous and evidence-based decisions so that teaching is tailored to fit individual student groups and the wider communities a school serves.

Independent reports (e.g. Sosu & Ellis, 2014) and national surveys (e.g. Scottish Government, 2015) highlight attainment gaps in Scotland associated with poverty and gender. National survey data show a dip in literacy attainment between 2010 and 2016 as well as a widening gap associated with poverty as pupils move through the school system (Scottish Government, 2015). Although 27 of Scotland's 32 local authorities bought standardised tests from private suppliers to track the literacy progress of pupils (Audit Scotland, 2014, p. 17), it is not clear how these test data are used to generate conversations about teaching and learning and a new National Improvement Framework (NIF) will replace both the standardised tests and the Scottish Survey of Literacy and Numeracy, providing a variety of information on every child to inform local evaluation and planning (Constance, 2015; Scottish Government, 2016). This might lead to system-level improvements but teachers still need to attend to the more immediate and regular observational data that emerge during teaching to ensure responsive and appropriate instruction. Learning to do this is complicated.

### **3 Learning to Become a Literacy Teacher**

Expert professionals appear to enact their knowledge as a seamless 'regime of competence', but Wenger-Trayner & Wenger-Trayner (2015) point out they actually operate across a diverse landscape in which different knowledge flows exert different kinds of pull. Translating an 'experience of the landscape, both its practices and their boundaries, into a meaningful moment of service' (ibid, p. 25) is a complex challenge for student teachers. It requires them to be knowledgeable, enquiring, 'noticing' and responsive. They need to have been socialised to understand, enact and value a range of theoretical perspectives and to envisage themselves as professionals with particular responsibilities, pedagogies, values, agency and relationship to professional knowledge (Phillip & Kunter, 2013). Sachs (2003, p. 135) sums up the challenge as creating a framework in which teachers can construct their own understandings of 'how to be', 'how to act, and 'how to understand'. Overly managerial approaches to literacy may tempt student teachers to adopt reductive frameworks based on a limited range of theoretical perspectives and data. To internalise a complex model of literacy teaching student teachers must align their work with a richly diverse and intricate set of theoretical perspectives and practices around literacy learning. Rich, flexible and innovative ways of thinking about literacy challenge ideological assumptions and prompt further professional learning (Wenger-Trayner & Wenger-Trayner, 2015). As outlined in the

introduction, these data include data about a child's cultural capital, cognitive knowledge and skills, and identity as a learner, reader and writer.

Working across epistemological positions helps student teachers to see exactly what is involved in the complex behaviour we call 'learning to read' and to understand the myriad reasons why one child may experience reading problems where others do not. It helps them become at once more holistic and more analytic about how to intervene, taking account of both the child and the affordances and constraints in the environment to move towards a child-focused, context-sensitive, responsive model of literacy teaching.

Knowledge about literacy theory and development therefore matters. Student teachers need opportunities to navigate and reify theoretical knowledge to develop useful professional insights. Making (and balancing) observational data from different epistemologies and acting on them appropriately in real situations allows student teachers to experience how feels to keep literacy teaching grounded, nuanced, fluent and responsive, and this becomes part of their professional identity. Reification requires student teachers to be positioned to exercise their literacy knowledge in contexts where they have agency to determine priorities, make decisions, to act and to reflect on them.

It is assumed that for student teachers this learning takes place during school placements. However, wider power relations are shaped by the organisational and social context of school placements and there is some evidence that these may not position student teachers to learn this. Hall et al. (2012) found that Irish student teachers were marginalised on placements rather than being the legitimate peripheral participants envisioned by Wenger (2008) and the desire of to 'pass as a teacher' meant they did not position themselves as learners. With no one to help them negotiate meaning or legitimise their agency as learners, they did not see teaching '... in terms of [the pupils'] possible interests, current experiences, aspirations for the future' (Hall et al., 2012, p. 110). Instead they adopted restrictive 'control and management' views of professional competence and narrow 'knowledge and skills' criteria for pupil learning. Jacobs (2014) found North American student teacher placement experiences to be similarly lonely and isolated. She argues for placements to be reconceptualised as a 'borderland space where negotiations can be made more explicit, assumptions can be brought into question and participants ... engage in active negotiation of meanings, rather than assume unchallenged definitions' (p. 177). She suggests providing spaces outside placement for student teachers to engage in supportive, inquiring, collaborative and enabling discussions.

## 4 The Strathclyde Literacy Clinic

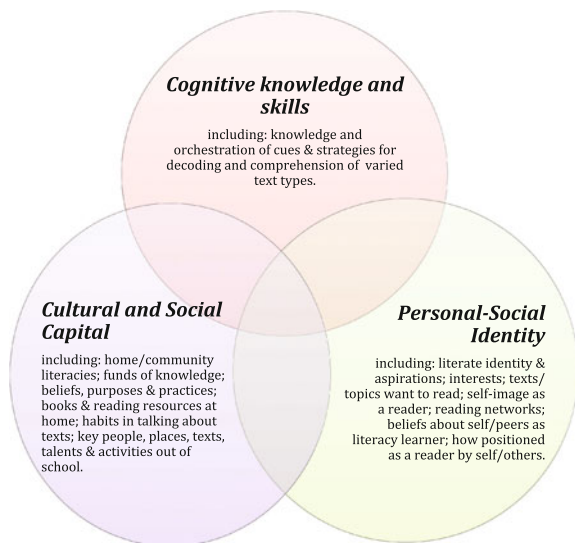
The Strathclyde Literacy Clinic is an example of such a new space. The clinics operate in high-poverty schools in Glasgow, Scotland, and are half-way between a school-based practicum and university learning. Any student teacher on the primary

teaching course at Strathclyde University can volunteer to take part and final-year students may choose to participate for academic credit. Student teachers typically work in the Literacy Clinic for a 10-week block (one semester). About 80 students participate each year, with some volunteering one year and participating for credit the next. The driving philosophy is that primary student teachers should know what it feels like to make a lasting difference to a child’s life by teaching them to read.

The clinic operates with teaching teams that consist of four student teachers who work with one child, usually aged seven to 10 years and from a low-income background, who has struggled to learn to read. Each team member provides a 30-minute, one-to-one, teaching session per week so one student teacher goes on Mondays, another on Tuesdays, a third on Wednesdays and so on. All team members collect observational data about the pupil and the group discuss and agree the best ways forward. They identify those learning priorities likely to give the biggest payoff and the learning mix likely to work. The clinic is impact-focused, with an emphasis on using data from multiple perspectives and on noticing and responding fluently to new information as it emerges during teaching sessions.

After the lesson each student teacher writes brief notes to the rest of the team in a pupil file that is kept in school. These include new observations/data that emerged during teaching, evidence of progress and blocks, as well as hunches and questions. Observations are based on a ‘Three-Circle Venn diagram’ representing different kinds of knowledge domains (see Fig. 1) and might, for example, include observational data about the child’s wider funds of knowledge, experiences of literacy, key people/role models at home, the child’s identity, confidence, literacy aspirations or learning networks (at home or school) and notes about comprehension, fluency, running records, text levels and miscue analyses. They also note thoughts about key

**Fig. 1** The strathclyde assessment model: three knowledge domains as a boundary object



actions and learning priorities. Each team member telephones the next-day's student teacher with a brief update. Teams hold formal and informal meetings to share knowledge and discuss and agree the team's priorities. Support is provided by weekly tutorials where teams discuss data, critical incidents, dilemmas and suggestions with university tutors.

The focus of the Strathclyde Literacy Clinic is on responsive, informed, fluid teaching, judged by its impact on the child, rather than indirectly by the quality of procedural supports and guides to action such as lesson plans or teaching programmes. The student teams continue to build information throughout the teaching period, monitoring and revising priorities as more data emerge. The framework is designed to promote a group dynamic that creates shared knowledge, responsibility and agency, and purposeful, pupil-focused preparation and thought.

The model is expressly *not* designed as a vision of practice that promotes individual, withdrawal teaching as a strategy for classroom intervention. Instead, it presents a space for student teachers to think within and across the theoretical domains of cultural capital, identity, and cognitive knowledge and skills as they apply to the literacy of one child. The 'Three-circle Venn diagram' (see Fig. 1) helps them to do this by prompting them to collect information around these three domains. The child's sociocultural experiences include their funds of knowledge, home literacy practices, key people and experiences outside school. Their identity incorporates their personal and social identity as a learner and as a literate being, and includes their interests, social networks, identity as a reader and how they position themselves and are positioned by others as a literacy learners at home and school. Their cognitive knowledge and skills include all reading skills (e.g. tracking, spoken-to-written correspondences), knowledge of codes of reading, cues, strategies and text level comprehension. As a lightly specified tool to help student teachers notice and broker data from different domains of academic knowledge and to locate themselves, their practices and the pupil in relation to these, it acts as a 'boundary object' (Star, 2010). It is designed to help student teachers collect, share and balance what they know in relation to the child, the resources (in the school, the family and community) and their teaching. In this sense, it is designed to facilitate the process of alignment and negotiation by helping individuals and teams to both deepen their own knowledge of the domains and negotiate across domain boundaries to identify, understand and use productively each reader's influences on learning.

## 5 The Research

This chapter reports interview data from the first two cohorts of student teachers' professional learning in the literacy clinic. All student teachers were invited to participate in research interviews after completing their Clinic experience. Written advice explained that the purpose of the interview was to explore the nature of the student teachers' experiences, what they had learnt and to offer feedback and advice

to the teaching team that would benefit future cohorts. Anonymity was assured and participation would not affect their grade. From those who responded, thirty student volunteers were randomly selected for semi-structured interviews lasting between 25 min and 1 h, with an average interview time of 40 min.

The interviews were conducted by a contract researcher, unknown to the students and all but one of the university teams, who was experienced in qualitative educational research. The time and place were chosen for mutual convenience. All research processes and tools were scrutinised and approved by the university ethics committee. The interviewees gave written consent and had the right to withdraw at any time and all were allocated pseudonyms.

A detailed summary was made of each interview, keeping as close as possible to the students' own words. Interviewees were invited to confirm these as accurate and to add additional information or examples. This ensured that the written accounts were a full and accurate representation of the interviewees' views. The summaries were forwarded to the research team with details of each student teacher's gender, age range, year group, participation mode (volunteer or academic credit) and a self-assessment of their attainment so far on their degree course ('doing well', 'about average' or 'struggling in some areas').

The data were examined by three researchers, two of whom were in the Strathclyde Literacy Clinic teaching team. The analysis was framed by sociocultural concepts of identity, participation, alignment and imagination (Wenger-Trayner et al., 2015). Each researcher read and re-read the interviews separately and categorised responses. They met to discuss their categorisation and then used these to create an analytic hierarchy following the process described by Ritchie, Spencer, and O'Connor (2003).

## **6 Results and Discussion**

The results and discussion presented in this chapter describe the sense that student teachers' made of their experience in the Strathclyde Literacy Clinic, how they constructed ideas about 'how to be', 'how to act' and 'how to understand' (Sachs, 2003, p. 135) their professional role as literacy teachers to enact literacy instruction in new and creative ways.

### ***6.1 Learning 'How to Be': Connecting Lives and Learning***

The interviewees described how the data on cultural capital and identity provided insights into their pupil's lived literacy experience at home and school, and they recognised the discontinuity for many children living in poverty. It led them to construct new ideas about 'how to be' as literacy teachers. For many there was a shift in their understanding of the role that adaptation and advocacy might play in their teaching, and a wider understanding of 'responding to the child'.



Katz (1991) argues that school can be an alien institution for children whose home/community experiences differ from those assumed by teachers, and Heath (1982) and Lareau (2011) show that children suffer long-term disadvantage from the poor match between home/community experiences and school expectations. Few Scottish student teachers have direct experience of poverty, and strong sub-themes emerged around their understandings of what it is like to live with disadvantage and the implications for literacy learning and teaching. The opportunity in the Clinic to focus on one child created empathy, which was harnessed to agency. Georgia, a final-year student teacher was typical in that she had had previous placements in disadvantaged areas but gained new insights into the range of gaps and disadvantages her pupil faced:

Children are so honest - he didn't even realize what he was saying about his home life, but at the same time that was very, very motivating and I wanted to try really hard for him.  
(Georgia, Final year student)

Moll and Cammerota (2010) argue that teachers need to understand, and build from, the bodies of beliefs, ideas, experiences, activities, skills and abilities—the funds of knowledge—that children accumulate in their families and home communities. Seeing literacy from the child's perspective, recognising and working from the child's historical cultural and emotional hinterland to understand what matters, was a common theme in the student teacher interviews. Steve, a year-three student, recognised the importance of attending to these data rather than making assumptions:

You have to have patience, and take into consideration what they are interested in and be prepared for his own attitudes – you can't assume how they will feel about reading ... that's what you work with. (Steve, Third year student)

Esteban-Guitart and Moll (2014) remind us that it is important to assume that children are competent and rational, but that different funds of identity impact on how they participate in the learning environment. Katz (1991) points out that, faced with a big divide between what they know and what they are assumed to know, children may respond by appearing to be uninterested and passive. Ivor, a final-year student teacher, recognised these as consequences of schooling and how they impact to position children as less competent literacy learners, but also saw that this is not inevitable and that pupil disengagement can be reversed:

I stay in [a high-poverty area] so it was what I thought it was going to be, but the experience itself was still quite humbling. ... It was hard, being as we were all so aware of his situation and we had to keep it in mind the whole time - what he was like, how he might be seeing it. But working in this project reinforced the fact that children do want to learn – I think it did that for all of us, our team – it just brought it home that he did enjoy reading, given the opportunity, and if he was shown how to do it. It reinforced what the teacher's role really is – it definitely reinforced that. (Ivor, Final year student)

Working in the Literacy Clinic offered a different social and power dynamic from school placement teaching, helped by an impact-based context that focused student teachers on the fluidity of professional judgments. It shaped a different kind

of professional self, one based on learning through enactment. For many, it presented a new way of ‘learning how to be’ as a teacher. Hannah describes how responding to knowledge as it emerged during teaching events prompted her to have an internal discourse about teaching and learning that was rich, analytical, evidenced and obviously, for her, a new way of thinking about teaching:

I learnt to teach on the spot, alone without a script. Like, as he was reading I was thinking of ways to help his understanding. It was responsive what we did – we had to look at what he did and find ways to make it better and make progress. (Hannah, Final year student)

On the whole, the interviewees were articulate about the novelty, the demands and the professional learning rewards of their of their ‘Clinic’ experience. Ivor described how his professional knowledge developed through enactment, negotiating meanings and considering a rich data set. His learning experience was clearly validated and enhanced by being entwined in the broader emotional, social and intellectual context of the joint enterprise:

I felt that this experience gave me more confidence about the kinds of things to look for, how to support children. It really was a two-way impact, me and [the pupil] learned from each other. His confidence went up and his face lit up when he came out to do his work. I was gutted when the project came to a close. (Ivor, Final year student)

Others were less articulate but felt that *something* was different:

I couldn’t put it into words. I really can’t say exactly what it was. I just became a lot more aware of the child’s needs. It was more focused, concentrated, and the relationship was a lot closer. You really find out your child’s needs. (Ethel, Third year student)

## 6.2 Learning ‘How to Act’: Alignment and Agency

The student teachers described how they learned ‘how to act’ by adapting the literacy curriculum contexts, tasks and explanations in ways that privileged the child’s expertise or provided a better bridge with home experiences. This created a new, child-level coherence that positioned the child more powerfully to drive his/her own learning.

Lisa described how realigning her professional understanding to cover more than the cognitive knowledge and skills led her to redefine her understanding and actions around contextualising tasks. Her ideas about ‘how to act’ like a literacy teacher now included building from the pupil’s experiences and world knowledge rather than just the cognitive knowledge and skills demonstrated by the standard to which set work was completed:

I feel that that on a placement I looked at children’s work but I never really focused on the wider learning process for one child. It is important to find out what “makes the child tick” and think intricately about how to use what he knows and cares about to help him learn the things he hasn’t grasped yet. That wasn’t my priority when I was facing a class of 33, but what I think now is that it helps everything else. (Lisa, Final year student)

For another student, Devora, realignment involved attending to data about the child's funds of knowledge and identity. Her group re-framed how some tasks were presented to position the child's artistic ability as central in the activity. They recognised that because this was something he was good at, and that he felt good about, it could become a positive bridge into literacy. She talks about using drawing to provide a 'more relaxed environment', and it isn't clear whether she is referring to the teacher's environment (i.e. that the team 'relaxed' their cultural scripts about what literacy teaching in school should look like in order to embrace a broader teaching-practice landscape), or to the child's environment (i.e. that the child was more relaxed because he was building from a stronger identity, based on his competence):

His mother didn't read or write but we found he was really good at art and although it was a battle to get him to even come out of the classroom at first, we could really use his art skill to reach out to him. By the end he was able to write and he could read a book. There was such a huge difference. The key was making it personal through his drawing ... it was a more relaxed environment and seemed to help him. (Devora, Final year student)

Alice describes how, in her teaching, she actively sought to bridge two knowledge domains by taking time to explain the hidden assumptions of the teacher's script she was adopting:

I think it was how important it is to tell him *why* he is doing this (learning to read) emphasizing the kinds of things that reading will let him do that he wants, and I realised I need to explain every wee [tiny] thing so I said 'Why I am asking you these questions about this book, it isn't to test you or to catch you out, but I want to show you the sorts of things that readers think about when they read. That's what my questions are doing'. It is important to let him in on the "secret of teaching...". (Alice, Final year student)

### **6.3 *Learning 'How to Understand': Agency in the Landscape of Practice***

The above ideas about 'how to be' and 'how to act' as a literacy teacher are different from the constrained, skill-focused judgments that Hall et al. (2012) report their student teachers making. Hall et al. (2012, p. 105) write '...the person, even the self-reflective professional—is never entirely the independent author of her or his own actions, beliefs, capacities and competencies' and the Strathclyde interviewees recognised this. They explained how they too operated narrower cultural scripts and understandings on traditional school placements, recognising how the power relations and performativity of traditional school placements shaped their participation, their agency and their ideas about 'how to understand':

I don't think the Uni [university] really understands what its like for us on placement. You're told what to do – you've got a hundred things to do so you don't really make decisions. It's pressure, pressure, pressure and even if you think things aren't right, you can't change them – you're in someone else's class, it's their space, so it's by tiptoe - wee bits, nothing major. And you might not see much reading being done – I didn't see any in my last placement. (Morag, Final year student)

Learning how to understand may mean learning to recognise the constraints of a professional learning context. The interviewees described how the tacit assumptions of school placements meant they were rarely, if ever, required to make diagnostic professional judgments about individual children and their literacy. This was true even when they taught pupils who struggled. Monica, a student teacher who identified herself as ‘doing well’ at the top of her cohort, appeared somewhat amazed that she and her friends had not noticed this before:

It’s the first time I’ve ever made decisions like this – It’s never been my call before –and I’m final year. We were talking about this the other day: If they can’t read on placement, the class teacher already has them on a program and you do that [i.e. the program]. They’ve decided how to fix it, you just do it. (Monica, Final year student)

Hall et al. (2012) report that Irish student teachers, marginalised on school placements, responded by concealing themselves as learners to appear competent and ‘teacherly’ and that this shaped their professional identity in unhelpful ways (2012, p. 107). In the Literacy Clinic, the group accountability, peer collaboration and the project’s intellectual location within the university made a flatter power structure in which it was possibly a bit easier for the student teachers to assume agency, handle risk and position themselves as learners. They shared risk and common purpose within the group, which reduced individual stress and built confidence, self-efficacy and agency even when the students did not know each other particularly well. The ‘boundary object’ of the Three Domains focused data-driven formal and informal discussions that offered opportunities to negotiate meanings, pool experiences, and to share ideas and practices, as Julia explained:

Having the group was good. We pooled ideas and it improved resources and [my] confidence, and helped with planning. I worried whether or not I was doing things right but ... it was a positive experience for me having the support of the group - we could talk about what we were doing and what worked. (Julia, Third year student)

The groups worked differently, and some student teachers reported only loose, although generally supportive, cohesion within the group:

We worked as a team up to a point. A lot of what we did was our own ideas but we brought them back together and discussed them and they mightn’t always be relevant. It was having someone to share things with and come up with other ways to approach it. We all did different things but within a framework. I only knew one of the others quite well. When we heard about who we were with, we all agreed to sit down and discuss what to do. We discussed the common themes we’d observed and then picked the three most important things - those we thought would give the greatest payoff. It was tricky at first working with people you didn’t know, but different people had different ideas - that was good. (Penny, Final year re-sit student)

The peer group discussions were driven by an acceptance that there is never a single ‘right way’ forward. Students could disagree, argue the relevance of data or knowledge and debate the applicability of previous ‘teaching scripts’ to this new context. These debates shaped their ideas about ‘how to understand’ by making visible the processes of alignment and negotiation through experience. It re-positioned individuals in relation to their professional knowledge, as Catriona explains:

There were differences in what we saw as the best areas to tackle. We didn't agree so had to argue it out. One person had a programme she'd seen working and wanted that, but we felt it was just skating the issues, so we pushed it to first principles; here was someone who said they didn't have a single book at home, they didn't know what Viv [a tutor] says about 'a story being a comfortable place to be'. (Catriona, Final year student)

## 7 Conclusion: Identity and Imagination

Professional identity matters because it captures the knowledge, values and aspirations of student teachers, standing as both the product of professional learning and the architecture for future learning. The evidence indicates that working in the Strathclyde Literacy Clinic may allow student teachers to access professional identities and cultural scripts about teaching that differ in important ways from those they can readily access in traditional school placements or university settings. Tasking student teachers to work in teams and with a real child in a complex learning situation provided a rich landscape for professional learning.

The 'Three Domains' was an effective boundary object in this context, enabling them to build and negotiate an evidence base that drew on different kinds of knowledge domains and research paradigms. In this way, the Clinic provides a different kind of professional context for reification through participation, alignment and agency. Student teachers learned to foreground different knowledge flows and kinds of data at different points and in ways that furthered their professional expertise and capabilities. Through this, they did what Esteban-Guitart and Moll (2014 p. 34) suggest is important for developing professional identity: they experienced and envisaged themselves as particular kinds of teacher, using knowledge in particular ways, and engaging in particular kinds of professional learning.

Much has been written about the centrality, complexity and fluidity of professional identity, and it is significant that all but two of the interviewees spontaneously spoke about how their understanding, vision and commitment to teaching literacy in particular ways was influenced by their work in the Strathclyde Literacy Clinic. Working in the Clinic is clearly not the only sort of teaching experience student teachers need, but it does appear to be an experience that shows student teachers how rich professional knowledge makes a visible difference to pupils. Despite being focused on just one child, it offers an intense experience that harnesses both their professional intellect and their emotions in ways that invite them to imagine the kind of literacy teacher they are and will be. The final sentences of this chapter go to Shirley, a final-year student, who captured a view that was expressed by many:

It's every teacher's dream to be able to work with one child and make a real difference. We've had that chance. We know we have the knowledge to do it and we know what it feels like and that's made us different teachers. I'm not the same teacher now as I was before this. I think differently about literacy and about teaching.

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# Transforming Literacy Outcomes in High-Poverty Schools: An Evidence-Based Approach

Eithne Kennedy

**Abstract** How best to narrow the literacy achievement gap between children in low and high socio-economic status (SES) communities has been a focus of successive governments around the world. This chapter describes phase one of a longitudinal collaborative university, school and community intervention in eight disadvantaged schools in Dublin, designed to address underachievement in literacy and build children's motivation, engagement, agency and academic resilience. It begins with a brief outline of the policy context in Ireland and the range of initiatives undertaken to date to address the underachievement of low SES children. Second, an overview of the research underpinning the balanced literacy framework (BLF) used in the intervention, the change model and the collaborative professional development are outlined. Third, drawing on questionnaires, findings in relation to school and teacher change are presented. Next, a profile of a school which has been successful in changing outcomes for children at all class levels is presented drawing on the questionnaire data and results of standardised tests of reading achievement. Finally, key factors impacting on the level of success in changing outcomes are highlighted.

**Keywords** Agency · Assessment · Balanced literacy · Collaborative professional development · Creativity · Engagement · High-poverty · Identity · Motivation · Professional learning communities · Self-efficacy · Whole-school intervention

## 1 Introduction

Ireland has generally performed well in the Programme for International Student Assessment<sup>1</sup> (PISA), ranking amongst the top-performing countries in the world, and for the first time since 1972, has seen standards on national assessments rise

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<sup>1</sup>In 2009, Ireland's overall ranking fell from 5th to 17th place, before recovering again in 2012.

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substantially (Shiel, Kavanagh, & Millar, 2015). However, like many highly developed Western societies, there remains a sizeable gap in achievement between children in low and high socio-economic status (SES) communities, despite the many policy initiatives aimed at closing it. This paper reports on phase one of the Write to Read research project, an ongoing collaborative university, school and community intervention in high-poverty schools in Dublin, Ireland. Located within a pragmatic and transformative-emancipatory paradigm (Mertens, 2003; Tashakkori & Teddlie, 2003a, b), it seeks to bring about not only a real change in achievement but also a change in children's motivation, engagement, agency and academic resilience. Recognising that there is 'no quick fix' (Allington & Walmsley, 2007) and no one solution, it adopts an evidence-based, holistic research-to-practice approach to investigate context-specific solutions to underachievement.

This chapter opens with a brief outline of the literacy policy context in Ireland and the range of initiatives undertaken to date to address the underachievement of low SES children, which form part of the backdrop to the Write to Read project. Second, it provides an overview of the research and theoretical perspectives underpinning the change model, the collaborative professional development and the balanced literacy framework (BLF) used throughout the partner schools. Third, the research sites, data collection and analyses are briefly outlined. Fourth, drawing on questionnaire data administered at the end of years one and two, successes and challenges in relation to the change process and professional development across all schools are presented. Next, a profile of a school which has been successful in changing outcomes for children at all class levels is presented drawing on questionnaire data and results of standardised tests of reading achievement. Finally, key factors impacting on the level of success in changing outcomes are highlighted.

## 2 Policy Context in Ireland

Ireland has a long tradition of designing and implementing policies to narrow the literacy achievement gap. The *Rutland Street Project* (Department of Education (DE), 1969) and *Early Start* (DES, 1994) delivered early intervention in a small number of early years' settings while *Breaking the Cycle* (DES, 1996) provided increased funding and improved staffing and lower teacher-pupil ratios (15:1 in junior classes; 20:1 senior classes) in the 33 schools identified as the most disadvantaged in the country. While such investment was necessary to help schools compensate for the high levels of poverty often experienced by their pupils, it was not enough to radically change educational outcomes for pupils (Archer & Weir, 2004; Weir, 2003). In 2005, the DES embarked on a large-scale ambitious initiative, *Delivering Equality of Opportunity in Schools* (DES,<sup>2</sup> 2005a), which has

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<sup>2</sup>Formerly, Department of Education (1921–1977) and Department of Education and Science (1977–2010). Currently, the Department of Education and Skills.

become known as the DEIS strategy (pronounced DESH—an Irish word meaning opportunity) targeting *all* schools designated as disadvantaged. Under new guidelines, rural and urban schools were divided into bands according to the levels of disadvantage, with band one urban identified as most disadvantaged. The DEIS strategy differed from earlier initiatives in a number of ways. First, schools were asked to set up three-year action plans to include: (a) specific literacy achievement targets and plans for how progress towards achieving the targets would be monitored; (b) strategies to improve attendance; and (c) plans to enhance parental involvement. Second, in line with national research recommendations (DES, 2005b; Eivers, Shiel, & Shortt, 2004), school-based professional development for literacy was provided under the newly formed Professional Development Service for Teachers (PDST). In addition, training in relation to Reading Recovery (e.g. Clay, 1993) and First Steps (Education Department of Western Australia, 1994) was offered to band-one schools in year one. While the first phase evaluation of the DEIS strategy (Weir, Archer, O’Flaherty, & Gilleece, 2011) reported statistically significant gains on nationally standardised tests of reading achievement, these were relatively small. For example, the number of children in 6th class (aged 12–13) performing at or below the 10th percentile was reduced by just over 3% (28–24.6%), though stronger reductions were apparent in second class (27–15%).

Such modest gains, along with Ireland’s controversial drop in achievement in PISA 2009 (Perkins, Moran, Cosgrove, & Shiel, 2010), led to a review of policy culminating in the National Literacy and Numeracy Strategy 2011–2020 (NLNS; DES, 2011) and the Policy on the Continuum of Teacher Education (Teaching Council, 2011). All schools, regardless of SES, were asked to develop a school improvement plan and to set their own targets in working towards the national targets set in the NLNS. Six key strands set out policy, implementation actions and timelines for delivery across the continuum of schooling in relation to parental involvement, reform of teacher education, school leadership, inclusion, curriculum reform and accountability (see Kennedy, 2013 for discussion). In addition, guidelines on school self-evaluation (DES, 2012) were issued to support schools in identifying areas for improvement and in developing their three-year action plans. A controversial dimension of the strategy was the requirement to report aggregate scores on standardised tests of reading achievement for children in second, fourth and sixth class to the DES and to the boards of management of schools. Responding to the call for curriculum reform, the National Council for Curriculum and Assessment (NCCA) commissioned three reviews of the literature: on literacy in the early years (Kennedy et al., 2012), on oral language (Shiel, Cregan, McGough, & Archer, 2012) and on language integration (O’Duibhir & Cummins, 2012) and established an expert advisory group to support the development of the revised Primary School English Curriculum for pupils in junior infants (kindergarten) to second class, which was launched in late 2015.

Despite these important policy decisions, which have had far-reaching consequences for schools and teacher education, recent data from the National Assessments of English Reading and Mathematics—conducted at five-yearly intervals—(Shiel et al., 2015) indicate that the gap in reading achievement between pupils attending

DEIS and non-DEIS schools is as wide as ever. Although each of the national achievement targets set under the NLNS strategy was met five years early and results show an increase in standards for the first time since 1972, the gap between children in high and low SES schools has remained. While children in DEIS schools made progress, it was not accelerated enough to narrow the gap, especially amongst DEIS band-one schools. This again underscores the complexity involved in bringing about a change in outcomes for children living in poverty. We turn our attention now to the Write to Read project which commenced in the midst of these major policy initiatives.

### **3 The Write to Read Project: A Longitudinal Intervention in High-Poverty Schools**

#### ***3.1 Origins of the Write to Read Project***

The Write to Read research project grew out of a successful small-scale pilot intervention with children in first and second class (6- to 8-year-olds) in a DEIS band-one school—one of the original 33 *Breaking the Cycle* schools noted earlier. The research was conducted in line with five key principles underpinning a pragmatic (Tashakkori & Teddlie, 2003a, b) and transformative-emancipatory paradigm (Mertens, 2003). First, research questions were framed in an exploratory manner with a view to uncovering the complexities involved in transforming outcomes in achievement, motivation and engagement and reasons why policy initiatives to date had not yielded the desired results. Second, considerable time (two years) was spent in the field in order to construct an in-depth picture of the environment, culture and perspectives of each group of the participants (teachers, parents and children) in the study. Third, a range of qualitative and quantitative data was gathered to illuminate research questions. Pre- and post-intervention data were gathered on children's achievement in reading, writing and spelling. Interviews and classroom observations conducted throughout the study provided insights into motivation and engagement, the change process and the implementation of new methodologies. Alternatives to current practices were explored as researchers and participants collaborated to find a more promising approach. Teachers were active in shaping the process of change from the outset, and their expertise and self-efficacy were cultivated throughout within a multifaceted professional development programme informed by research on literacy and on professional development (see below). Next, by mixing and integrating the wide range of data sources, interpretations were validated. A wide range of positive outcomes was achieved (see Kennedy, 2010, 2014; Kennedy & Shiel, 2010) including a large statistically significant increase in attainment on nationally standardised tests of reading and spelling and substantial improvement in writing as measured by the Criterion Scale (Wilson, 2002). Evidence from interviews and classroom observations indicated that children were more motivated, engaged,

agentic and strategic in their approach to literacy at the post-intervention stage. Finally, conclusions were presented in ways useful for the formulation of future policy, mindful that the ‘truth is not stagnant’ (Burke Johnson & Onwuegbuzie, 2004, p. 18), but always evolving as new research adds to our understanding.

Distinguishing features of the pilot study which differentiated it from national policy initiatives at the time included the intensity and sustained nature of the on-site customised collaborative professional development provided to the school. This honoured teacher professionalism, creativity and autonomy; enhanced teachers’ expertise; raised their expectations for children; and gave them a greater sense of self-efficacy and confidence in their capacity to respond to challenges. Rather than prescribing a particular programme, teachers had been supported to design and implement a research-based cognitively challenging BLF that motivated and engaged children and within which essential literacy skills could be developed systematically.

Though the pilot study was small in scale and focused on the early years (six to eight years), the results achieved were encouraging. The subsequent Write to Read project was developed to (a) replicate and address issues and limitations highlighted in the pilot; (b) extend the research to investigate the shape of a BLF to accelerate achievement in senior classes; (c) explore the kinds of supports needed to facilitate a whole-school approach from the outset and to scale the intervention across schools; and (d) include a greater research focus on family and community involvement than had occurred in the pilot.

In seeking to realise its dual aims of raising both achievement and motivation, the Write to Read project builds on the lessons learned from the pilot study and draws on key findings from a wide range of research on literacy development, on exemplary schools and teachers of literacy and on professional development. The next section summarises the theoretical underpinnings of the BLF developed and implemented in schools and the nature of the professional development provided.

## **4 Theoretical Framework Underpinning the Write to Read Project**

### ***4.1 A Cognitively Challenging Balanced Literacy Framework***

Underpinning the BLF in the Write to Read project is a broad and rich conceptualisation of literacy informed by widely used definitions in both national and international settings (e.g. DES, 2011; Mullis, Martin, Kennedy, & Foy, 2007) which embrace literacy in all its forms (oral, visual, digital, multimodal and print). Literacy is viewed as a ‘tool for personal empowerment’ (UNESCO, 2011) and for participation in society, recognising that it is a significant factor in enabling

individuals to reach their potential while also contributing to the development of knowledge, empathy, and the wealth and cultural capital of a nation.

An important dimension in realising this definition of literacy in classrooms is provision of adequate time. Teachers in the Write to Read project are supported to gradually increase instructional time for literacy to 90 min daily as they experiment with methodologies and develop a BLF for their classroom. Ninety minutes is more than the allocated time for literacy within the National Curriculum in Ireland, but is seen as a minimum internationally in interventions aimed at closing the gap (Shanahan, 2001; Taylor, Pearson, Clark, & Walpole, 1999). When used well, it provides opportunities for the kinds of 'instructional density' that is evident in the classrooms of exemplary literacy teachers internationally to occur (e.g. Taylor et al., 1999) and can translate into acceleration in learning which is critical for children in disadvantaged contexts if they are to catch up on their more advantaged peers. The block also signals a priority and value on literacy, and it creates the kind of space necessary for the development of the creative, emotional and aesthetic dimensions of literacy as well as the cognitive skills and strategies that are critical to children's development as successful readers, writers, thinkers and creators (Kennedy, 2014).

Essential literacy skills are taught within the context of reading and writing workshops. While a particular emphasis is placed on the 'unconstrained skills' (Paris, 2005), drawing on research highlighting their importance in the early years, particularly in relation to high-poverty contexts (Teale, Paciga, & Hoffman, 2010), this is balanced with appropriate attention to 'constrained skills' which are also key to literacy development. In writing, lower-level skills such as grammar and punctuation are taught in meaningful and authentic ways through demonstrations within mini-lessons and conferences as children are engaged in act of writing within writing workshops and show a need and readiness for them. Other constrained skills, such as phonics and Dolch high-frequency words, are taught systematically at a brisk pace through interactive activities using concrete materials. Given that no one approach to phonics has been shown to be superior (National Institute of Child Health and Human Development (NICHD), 2000; Torgerson, Brooks, & Hall, 2006), a blend of explicit multisensory synthetic and analytic phonics is used. Children are expected to learn how to write and spell the Dolch high-frequency words, in addition to recognising them in print (Dombey, 2006). Word work is differentiated according to assessment data (Stuart, 2006) and facilitated by the special education team working alongside the classroom teacher several times weekly given that 'push-in collaborative teaching' is a feature of schools breaking the odds (Taylor et al., 1999). Children are taught to apply word-identification strategies as they read, moving from shared reading with the teacher to increasingly more complex texts within small-group guided reading sessions and while reading independently. A 'word consciousness' (Graves & Watts-Taffe, 2002) is also fostered from the outset. Cultivating a curiosity about words is essential for children in high-poverty contexts given that research indicates that the vocabulary gap exists well before children walk through the school gates (Hart & Risley, 1995) and grows wider as they progress through school (Biemiller & Slonim, 2001). The importance of vocabulary knowledge to school success in general, and reading comprehension

in particular, is widely documented (Anderson & Nagy, 1992) and, as Stahl notes, ‘our knowledge of words ...determines how we understand texts, define ourselves for others, and define the way we see the world’ (Stahl, 1999, p. viii). Rich vocabulary instruction forges a bridge between the reading and writing workshops that are a key feature of the BLF adopted.

Writing workshops (e.g. Calkins, 2003; Graves, 1994) provide opportunities for children to participate in a community of writers and provide an environment for them to ‘talk, to read, to play, to imagine and inhabit, to dream, ponder and share ideas as well as to draft and reconstruct’ (Grainger, Gooch, & Lambirth, 2005, p. 23). During writing workshops, the cognitive skills of writing (planning, translating and reviewing) are modelled within the context of the structure and language register appropriate to each genre (Graham et al., 2012; Hayes & Flower, 1980). While children are expected to progressively develop knowledge of each genre, within a genre study they always choose their own topics given that choice is a key factor influencing motivation (Cambourne, 2002; Jeffrey & Woods, 2003). Within mini-lessons, children are taught to read with a writer’s eye and to notice and evaluate techniques used by an author to capture the attention and emotions of the reader. They begin to appreciate the aesthetics of writing and the importance of ‘rich, precise, interesting and inventive use of words’ (Graves & Watts-Taffe, 2002, p. 150) as they learn how to revise texts to achieve greater clarity, authority, fluency and ‘voice’, which Graves (1994, p. 227) defines as the ‘imprint of the self on the writing’. As Guthrie and Anderson (1999) suggest, ‘when students can talk to each other about their writing, they learn an acute sense of audience and authorship’ (p. 36). The share session at the end of the writing workshop provides a forum for this and is a powerful motivator for children as they gauge the audience’s reaction to their writing, learn to notice the qualities of good writing and respond to each other using the academic language skills learned in reading workshops.

In reading workshops, children are introduced to a range of genres and encouraged to develop a personal taste in books. Given that reviews of research on the effect of comprehension strategies on comprehension indicate that (a) relating text to prior knowledge, (b) creating mental images of text, (c) question generation, (d) generating summaries and (e) attending to text structure (fiction/nonfiction) are important to develop (NICHHD, 2000; Duke & Pearson, 2002; Pressley, 2002), a high premium is placed on the development of the higher-order dimensions of literacy critical to ongoing literacy growth and development and so valued in the adult world (communicating, reflecting, critiquing, using, creating, imagining, debating, inquiring, synthesising). Using the gradual release of responsibility model (Fielding & Pearson, 1994; Pearson & Gallagher, 1983), teachers explain, demonstrate and scaffold children in learning and using a range of comprehension strategies. Paris, Lipson, and Wixson (1994) note that readers’ metacognitive awareness and understanding of strategies varies. Readers with declarative knowledge can name and describe a strategy; readers with procedural knowledge can demonstrate how to use it, while readers with conditional and more advanced knowledge can say

when, why and how the strategy supports them in comprehending text. Comprehension strategies are taught singly to begin with, and then drawing on Pressley et al.'s (1992) transactional strategies approach, children are encouraged to activate and orchestrate multiple strategies when needed during reading. Teachers are asked to use dynamic flexible grouping (Fountas & Pinnell, 2012) based on assessment data and to focus teacher–pupil dialogue and pupil–pupil interaction before, during and after reading, drawing on comprehension strategies as needed.

Putting a BLF such as the one outlined here into operation requires high levels of teacher expertise. The Write to Read project provides multifaceted professional development to schools as they engage in the research and change process.

#### ***4.2 Features of Professional Development and the Change Process***

The location, duration and intensity of professional development, and the degree to which it is customised to the needs of participants have been identified as key factors influencing its success (Au, Raphael, & Mooney, 2008; Darling-Hammond & McLaughlin, 1995; Garet et al., 2001; Villegas-Reimers, 2003). Professional development in the Write to Read project is conducted mostly on-site in schools and sustained over three to four years. Each school is assigned an associate (literacy coach) who visits for one day each fortnight in year one of the change process and who collaborates with teachers to develop a whole-school BLF. The associate typically spends less time on-site from year two as schools take on further ownership of the change process. Associates are classroom teachers who have completed a Master's degree in literacy at Dublin City University, and are released from their own schools by the Department of Education and Skills to provide the professional development in the project schools. They are an integral part of the research and development team on the Write to Read project and help to document the change process.

A key feature of the professional development is the adoption of an inquiry-as-stance (Cochran-Smith & Lytle, 2009). The change process is seen as one in which everyone is learning—researchers, coaches and teachers—and a spirit of experimentation predominates, as all involved work together to discover solutions to challenges identified and encountered during the change process. Using a change model (Kennedy, 2008) drawing on the work of Guskey (2000) and Loucks-Horsley et al. (2003), teachers and associates identify a starting point and work through a phased process of change, gradually constructing a systematic comprehensive BLF drawing on the research base outlined above. A continuous focus on student achievement and engagement, informed by analysis of formative and summative assessment data (Kinnucan-Welsch et al., 2006), sheds light on the efficacy of the change process and highlights aspects in need of further investigation.

Building teacher content knowledge and 'pedagogical content knowledge' (Shulman, 1987) is considered to be an essential dimension of effective professional

development initiatives (Garet et al., 2001) and is achieved in three ways in the Write to Read project. First, on-site professional development sessions and professional readings provided are designed to enhance teacher expertise in content knowledge for literacy (e.g. oral language, alphabets, comprehension, vocabulary, fluency and writing: NICHHD, 2000; Pressley, 2006). Second, associates model new pedagogical strategies for teachers, supporting them to mediate this content effectively in the classroom. As Cambourne (2002, p. 31) argues ‘the process of making something one’s own involves potential learners transforming the meanings and skills that someone else has demonstrated into a set of meanings and skills that is uniquely theirs’. Thus, as teachers plan and experiment with new approaches, associates also observe teaching and provide feedback. This is not for accountability purposes but to open up further dialogue with teachers and support them in evaluating and honing their practice further. Observations conducted in this way have been found to enhance teachers’ sense of self-efficacy and belief in their ability to succeed (Da Costa, 1993; Joyce & Showers, 2002). They also serve to build the ‘relational trust’ (Hord, 2008) characteristic of school-based professional learning communities and contribute to a spirit of risk-taking and inquiry as teachers and associates jointly negotiate the change process in the reality and complexities of real classrooms. Third, teachers are encouraged to undertake accreditation for the professional development provided and can choose certificate or master’s level certification. This deepens understanding of the theory and research underpinning the changes introduced and supports the development of a personal philosophy of literacy teaching. As teachers adopt an inquiry-as-stance (Cochran-Smith & Lytle, 2009), they identify particular problems for investigation in their own school and classroom context, and in developing action research agendas to address these issues, they become change agents within their own school contexts while also generating new knowledge that is of benefit to the project as a whole.

## **5 Research Sites, Research Methods, Data Collection and Analyses**

### ***5.1 Phase One Partner Schools***

Implementation of the Write to Read Project Phase one began in eight DEIS band-one schools located in three geographical clusters in Dublin in January, 2012. Altogether 80 classroom teachers, 7 home school community liaison teachers,<sup>3</sup> 36 special education teachers and just over 1600 children are participating. Six of the

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<sup>3</sup>DEIS schools have a Home School Community Liaison (HSCL) post (it may be shared with another school depending on school size). It is a rotating position within a school which teachers undertake for a minimum of five years. The post-holder’s responsibility is to strengthen home school links and run programmes for parents.



eight schools are vertical schools serving 4- to 12-year-olds (five co-educational and one girls' school), one is a senior boys' school and the eighth is a co-educational senior school (8- to 12-year-olds). Schools vary in size (two have less than 100 pupils; two are mid-sized (100–160), while four range from 200 to 289 pupils), and as a result, some classes within schools are multigrade. Children at all class levels in each school participate in the project. In the last decade, there has been a significant increase in the number of children for whom English is an additional language (EAL) in Irish schools. In the eight schools, the percentage of EAL children range from almost none in one school to a high of 61% in another, though in most, EAL children make up between a quarter and a third of the school population. Three of the schools experience pupil transience within the school year as families move on or new families move in. All schools are located in low SES communities; seven of them are DEIS band-one schools and all qualify for government-funded free lunches and snacks for children. Schools opted into the Write to Read research project and agreed to collaborate to advance the research agenda outlined above.

## ***5.2 Research Methods and Data Collection***

The research process began with focus group discussions (documented in field journals by associates) in each school at each class level in order to develop a picture of current practices in relation to literacy. These included time allocation for literacy, methodologies, assessment procedures, provision for special education support, availability of resources, and issues and challenges perceived to be impacting on teaching and learning. Schools were also asked to provide standardised achievement data for children in first to sixth grade for the end of year prior to the commencement of the research. All schools had achievement data for children on national standardised tests of reading (required under the NLNS, DES, 2011), but none had standardised test data in relation to spelling. In addition, a sample of writing was sought for each child. These data served as baseline measures of achievement.

At the end of each academic year, reading and spelling data and a writing sample from beginning and end of year are collected so that achievement can be tracked over time. There are also a number of data sources which shed light on implementation. Questionnaires designed to ascertain classroom teachers' views on implementation of new methodologies and the teaching of specific skills and strategies within a BLF, classroom organisation for literacy, assessment procedures, materials for literacy, factors impeding success, experience of professional development and further professional development requirements have been administered twice to date (12 months and 24 months into implementation: the mid-point of each academic year). Most questions have a four-point Likert scale, while the final section invites teachers to comment on the impact of the Write to Read project on their work as a literacy teacher. An additional section in questionnaire two asks teachers to rate their confidence levels

in relation to planning, teaching and assessing literacy skills within a BLF. Furthermore, associates keep research journals documenting the focus of professional development sessions with teachers, teachers' and children's responses to the change process and their own reflections on successes and challenges encountered. Associates also highlight issues and concerns at planning meetings which typically occur fortnightly in year one and monthly in year two.

### **5.3 Data Analysis**

Standardised test data are entered into and analysed in the SPSS statistical package (version 22, IBM Corp, 2013). Mean scores and standard deviations are calculated for each class in each school. Minimum and maximum scores are also computed to ascertain the range of scores obtained by pupils alongside the percentage of pupils at each percentile band. Over time, changes at class levels within and across schools are ascertained through comparison with baseline data, and statistical significance of observed changes is evaluated. Further development of the data base is required to link the data for each child in each school. Quantitative questionnaire data are also analysed using both parametric and non-parametric statistics in SPSS, while open questions are coded using the constant comparative method (Glaser & Strauss, 1967) and categories developed to represent the range of views reported by teachers. Each school and teacher within a school is assigned letter codes (e.g. Ac: School A, teacher c) to facilitate links across responses. Though not the focus of this paper, writing samples gathered at the beginning and end of each academic year are scored on a customised rubric designed to assess five main dimensions of writing—organisation, ideas, voice, word choice and conventions.

## **6 Phases of Implementation**

Over the first two years of the project, in consultation with schools, the components of a BLF were introduced on a phased basis (Table 1). As none of the schools was using a writing workshop approach to the teaching of writing, this was chosen as the first focus. Thereafter, approaches to teaching and assessing vocabulary, phonics, fluency and comprehension within workshops were introduced alongside approaches to teaching a range of writing genres.

Questionnaires were administered at the end of year one and two of implementation (January to January). Overall, response rates were very high (83% ( $n = 66$ ) and 91% ( $n = 73$ ), respectively). Data shed light on teachers' responses to the change process, their involvement in professional development and their experiences in implementing a whole-school, cognitively challenging BLF during the first two years of the project. In interpreting results, it is important to note that

**Table 1** Outline of the professional development foci in years one to four

<b>Year 1</b> Phase 1 Jan–May	January: Focus groups; audit of current approaches/resources February: Shared/interactive writing (e.g. Pinnell & McCarrier, 1994); writing workshop (e.g. Graves, 1994): mini-lessons, conferencing, share sessions, management
Phase 2 Sept–Dec	Phase 1+ reading workshop: shared and guided reading using a range of texts; applying word-identification and comprehension strategies to reading; assessment, matching children to texts, grouping and managing groups (e.g. Clay, 2002; Fountas & Pinnell, 2012); fluency strategies (e.g. Rasinski, 2004); comprehension strategy instruction using the gradual release of responsibility model (Pearson & Gallagher, 1983); vocabulary (e.g. tier 1, 2, 3 words: Beck, McKeown, & Kucan, 2002); writing workshop: report writing, procedural writing (e.g. Calkins, 2003)
<b>Year 2</b> Phase 3 Jan–Mar	Phase 1+ 2+ Writing workshop: persuasive writing; Systematic word study: multisensory/synthetic/analytic phonics and spelling; sight vocabulary (e.g. Bear et al. 2007; Bowen, 1983); Embedding oral language development within reading and writing contexts (e.g. Resnick & Hampton, 2009)
Phase 4 Apr–May	Phases 1–3+ Writing workshop: poetry; multiple comprehension strategies instruction (e.g. Pressley et al., 1992); reader response (e.g. Rosenblatt, 2004); formative assessment of reading and writing (e.g. McKenna & Dougherty-Stahl, 2015)
Phase 5 Sept–Dec	Phases 1–4+ Balancing 90 min; revisiting skill development in reading workshop and genres in writing workshop
<b>Year 3</b> Phase 6 Jan–Dec	Using rubrics to assess writing (Kennedy & Shiel, 2014); consolidation of new approaches across the school and embedding within whole-school planning; cross-cluster professional learning communities on aspects of literacy
<b>Year 4</b> Phase 7 Jan–Dec	Professional learning communities across schools: dissemination of teachers' mini-research projects, e.g. dialogic classrooms, disciplinary literacy and integration of literacy across the curriculum

there was considerable turnover of staff in some schools within the project during this time. At the end of year two, just over half (55%) of respondents had been involved from the outset (25% were new in September of year one and a further 20% were new in September year two).

## 7 Findings and Discussion: Adapting to a Balanced Literacy Framework

### 7.1 Changing Instructional Approaches

The first questionnaire asked teachers to compare approaches to literacy within the Write to Read framework with those they used prior to taking part in the project. As can be seen from Table 2, a minority of teachers reported that approaches were *very* similar to their previous practices, and this was particularly so in relation to writing (6.3%), assessment (5%) and word work (9.5%).

**Table 2** Percentage of teachers reporting degree of similarity and difference between instructional practices in literacy in the Write to Read framework and their previous practice

	Very similar	Similar in some ways	Different in some ways	Very different
Reading	11.3	41.9	32.3	14.5
Writing	6.3	38.1	34.9	20.6
Word work	9.5	33.3	44.7	12.7
Oral language	11.9	22.0	40.7	25.4
Assessment	5.0	38.3	48.3	8.3

The open question data shed further light on these findings. Teachers were asked to comment on the impact of Write to Read on their work as literacy teachers and in particular to highlight successes and challenges encountered. A high proportion of teachers (73% year one ( $n = 48$ ); 70% year two ( $n = 51$ )) took the time to write detailed responses.

A dominant theme coming through in both years was the high percentage of teachers (e.g. qst1:  $n = 34/71\%$ ) who reported that their teaching of literacy was now more structured, focused and systematic than previously:

It has taken time but the structure of the lessons comes really naturally to the children and me now. It has brought significant but positive changes to my teaching of literacy (Teacher, Ho)

The structured nature of the programme has focused both myself and the class and has enabled me to manage my literacy lessons effectively (Qst2, Teacher Be)

These comments suggest that prior to the Write to Read project, literacy frameworks within schools were not as focused, balanced and systematic as they might have been or needed to be in addressing the needs of children and in achieving the kind of instructional density necessary to accelerate achievement.

Teachers in Ireland often change grade level yearly and so teachers new to a particular grade level found the structures very helpful while adapting to a new class level. Another teacher who felt she had mastered the design and delivery at one grade level worried that she would need support if she moved class level in the future, underscoring the specialisation and nuance in instruction needed at various developmental levels:

As a new teacher to infant level I found it so beneficial. Was so structured and provided me with a great structure to plan lessons. (Teacher Da)

I am concerned that when/if I change class level that I will be back to square one again and be looking for a lot of support. (Teacher, Ba)

Aside from the improved structure and focus to lessons, there were many successes and challenges reported as teachers began the process of adapting their teaching to the kind of BLF outlined earlier.

## 7.2 The Teaching of Reading and Word Work

As with writing, there were many dimensions in reading pedagogy that were different for teachers. These included the management and organisation of multiple groups based on running records and the matching of children to texts at their instructional level linked to their interests. In addition, the explicit and systematic teaching of reading strategies (word-identification, fluency and comprehension) using each step of the gradual release of responsibility model (Pearson & Gallagher, 1983) integrated into before-, during- and after-reading phases of a lesson were also new for teachers:

In relation to reading - wow! Such a difference! Prior to this I would have listened to reading every day. Now I teach it! The children love using novels and it's great that kids are grouped. (Teacher, Hj)

The planning for Write to Read has been very useful in ensuring that Dolch words, phonics, spelling, reading strategies and writing genres are taught in a structured way (Teacher Bd)

By the end of year two, elements which teachers reported were very to somewhat easy to implement (Fig. 1) included: supporting children to make predictions before reading a text 94% ( $n = 69$ ), supporting children to establish prior knowledge before reading a text 88% ( $n = 64$ ) and teaching reading comprehension strategies in general 83% ( $n = 58$ ). However, developing comprehension strategies in the during- and after-reading phases of a lesson required further support.

Aspects teachers reported as somewhat to very difficult (Fig. 2) to implement included managing the pace of instruction 42% ( $n = 31$ ) and differentiating instructional activities for each group 49% ( $n = 36$ ).

Assessment of reading, particularly in relation to using running records to assess, group and match children to appropriate texts still proved challenging for many

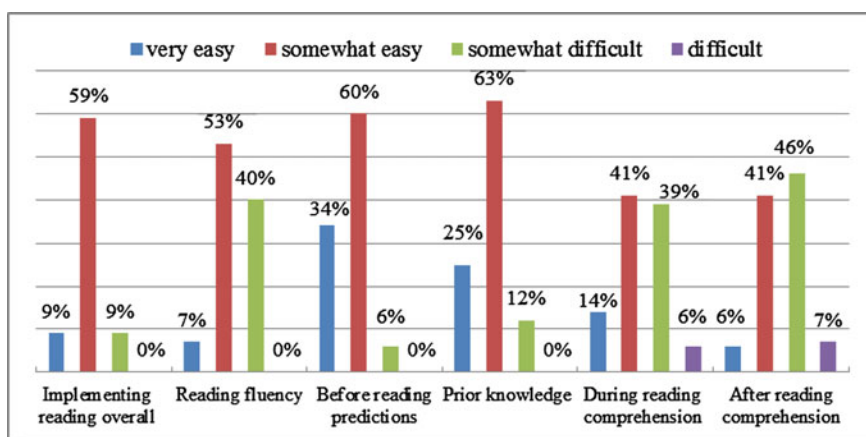
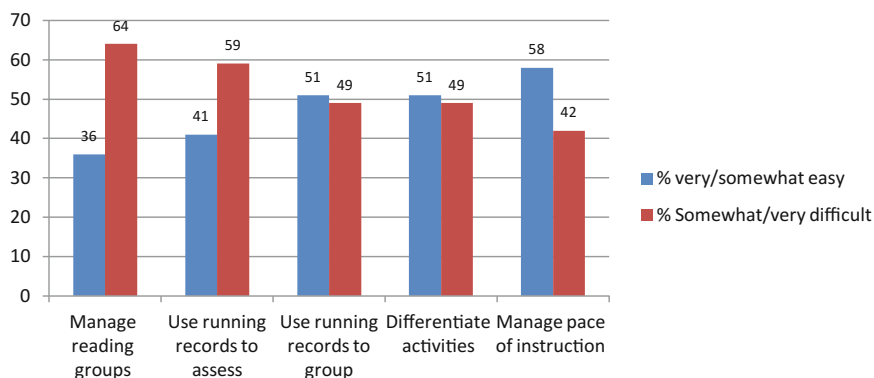


Fig. 1 Percentage of teachers indicating ease of implementing various components of reading



**Fig. 2** Percentage of teachers indicating ease of using assessment, managing and organising reading

teachers to use on an ongoing basis. In addition, almost two thirds of teachers ( $n = 47$ ) found it somewhat to very difficult to manage multiple reading groups. In part, this was due to time constraints and a feeling of never having enough time to effectively plan, teach and assess all aspects of the BLF within the time frame. The issue of time and how best to balance it, in the context of a broad and balanced curriculum, has been consistently raised as a constraint on teaching and learning in the Irish context (NCCA, 2005, 2008). It is, however, not unique to Ireland nor are there easy answers to the problem (Alexander & Flutter, 2009; INCA, 2003; UNESCO, 2003). Time pressure was highlighted by about one in five teachers (22%). The other main challenge highlighted was the level of preparation involved in preparing 90 min of instruction to a high level on a daily basis:

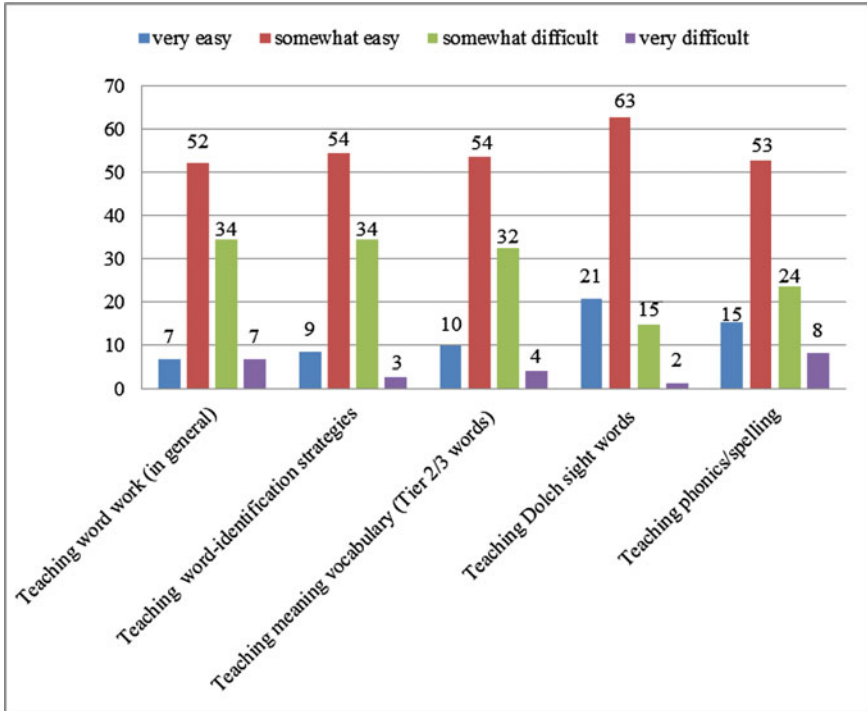
So much to do - planning, organising, reviewing/assessing to feed into teaching. Very worthwhile, though. (Teacher, Ec)

Can also be quite stressful trying to get everything covered in class and to give W2R its time each day. (Teacher Gk)

Teachers found all aspects of the word work easier to implement than other aspects of the BLF (Fig. 3). This was an interesting finding. As noted earlier, teachers had highlighted word work approaches as being very different to their regular practice:

W2R is an entirely more structured way to teaching English, particularly reading. Teaching vocabulary in its own right has been an enjoyable eye opener. Where I might have replaced a word the children might not understand, we are now enjoying a much broader range of vocabulary in the classroom. (Teacher, Fg)

Word work elements that teachers reported were different included the explicit teaching of a range of vocabulary types, selection of the words and pacing of instruction, the embedding of word work within meaningful contexts and the expectation that the words chosen be used in speaking and writing. At the end of



**Fig. 3** Percentage of teachers indicating ease of implementing various components of word work

year two, just over one-third of teachers highlighted the teaching of word-identification strategies and meaning vocabulary as somewhat or very difficult to teach. As they became more comfortable with the new methodologies, they acknowledged that children were developing greater ‘word consciousness’ (Graves & Watts-Taffe, 2002).

The children love the structure of reading and writing workshops and love to self-assess new work to see how well they are doing. I have noticed a huge difference in children’s vocabulary and flair for writing in general. (Teacher, Hj)

And they know. Like they know. They feel – they’re improving. Like if I use this word, it means I’m a better speaker. I’m a better – writer. They know — that it has enriched them somehow. (Teacher, Eh)

### 7.3 *Teacher Feedback on Professional Development*

In the open question section, many teachers commented on the varied dimensions of the professional development which had not only sharpened and focused their literacy teaching but also revived their interest in it. A majority reported greater

sense of agency, motivation, self-esteem and confidence in their literacy teaching. Affective factors are not only critical mediators of the learning process for children, but also influence teacher engagement in either positive or negative ways. As Bandura (1995) notes, 'Perceived self-efficacy refers to beliefs in one's capabilities to organise and execute the courses of action required to manage prospective situations. Efficacy beliefs influence how people think, feel, motivate themselves and act' (p. 2). In addition to the improved structure and effectiveness of lessons, teachers reported that the professional development had transformed their thinking about literacy. They particularly commented on the sample structures and timetables provided, which had empowered and motivated rather than constrained their planning and practice:

It has improved my confidence in teaching certain aspects of literacy e.g. Word work. (Teacher, Ec)

I feel that it has transformed my teaching. Whilst I do not stick strictly to the exact format suggested, by using the main ideas and resources and plans to support my own teaching methods it has made a significant difference (Teacher, Hf)

These are critical points as successful professional development initiatives that honour teachers' creativity and autonomy have been found to be more effective than those that prescribe (Au et al., 2008). The input from the associates was also highly regarded. Particularly valued were the regular visits which supported teachers on the spot and the regularity meant that issues could be resolved in a timely fashion. Lesson demonstrations enabled less confident teachers to observe new practices in the context of their own classroom, and as relationships were forged, teachers were more comfortable seeking feedback on their teaching when associates dropped in to observe:

Write to Read has had a positive impact on my work as a literacy teacher. The teaching plans, advice and demonstrations from the WTR associate have helped greatly in my teaching. (Teacher, Eb)

Write to Read associate help, suggestions and feedback great. Weekly visits allow for discussion and decisions to be made on the spot. (Teacher, Dc)

However, not all teachers have found it easy to get to grips with the demands of a cognitively challenging BLF. For some, the level of change has been challenging. In addition to the issue of time identified earlier, the other issues highlighted by a minority (two to three teachers) were in relation to the level of planning and resource development required. Furthermore, teachers new to a school in year two or returning to classroom teaching from years in special education or home school community liaison roles reported that learning to implement the framework required considerable work. This is not surprising as there was less on-site associate support than in year one. This was particularly significant for schools that experienced high levels of turnover (a third to a half of staff):

Vast impact for the better. Extremely daunting at first. Requires a lot of time input, personal study and research to get to grips with theoretical and practical frameworks. (Teacher, Hk)



As a teacher with no experience of Write to Read prior to Sept. It takes a lot of planning in relation to the organisation of the lessons and the groupings of students. The content and the input from Write to Read associates was very useful although too much at times. (Teacher, Ee)

I have found implementing the programme very challenging as I have been out of mainstream class teaching for a number of years and missed out on training courses. (Teacher, Ac)

To counteract these difficulties in years three and four, a full-day of professional development was offered to all schools for teachers new to Write to Read in the first month of the new school year. As more teachers within schools engaged in accredited professional development in years three and four (48 enrolled; 39 completions) either to certificate or master's level, schools were in a better position to respond to these internal challenges. This has enabled schools to 'up the ante' (Pressley, Allington, Wharton-McDonald, Collins Block, & Mandel Morrow, 2001), increasing coherence, continuity and progression from year to year. It has also provided opportunities for teachers who have graduated to master's level to take on the role of associate in their own school or in partner schools. This has contributed to the sustainability of the change process in these schools and in effect means a school now has an on-site expert who can respond to teachers' needs on a daily basis. These teachers have also joined the Write to Read research and professional team expanding the capacity of the Write to Read initiative to develop further. Taking on the accreditation has supported the inquiry-as-stance focus (Cochran-Smith & Lytle, 2009) of the change model, as teachers have taken on inquiries which have resulted in learning not just for their own classroom and school but for the whole project, as findings have been disseminated in a number of ways. First, teachers have opened their doors and facilitated teachers from other class levels within their own school and from other project schools in observing their practice. In some cases, classrooms have been used as a 'lab site' (Lauer & Matthews, 2007), whereby many teachers sit and observe the same lesson in action and discuss it afterwards, providing opportunities for further professional dialogue and debate. In addition, cross-cluster professional learning communities led by teachers have provided opportunities for them to develop 'leadership skills' (Lieberman & Miller, 2001) as they share their research questions, processes, artefacts and videos of practice. Teachers have found the inquiry process intellectually stimulating, and it has further contributed to their sense of self-efficacy:

This year I have worked closely with the associates as we analysed literature circles. Here we achieved brilliant results and being part of this has certainly been the highlight of the year for me (Teacher, Ef)

These 'vicarious experiences' and 'social persuasion' (Bandura, 1995) have also been powerful vehicles for creating 'cognitive dissonance' and raising teacher expectations for children, as they see their peers achieve success with children of the same age within similar contexts.

When the questionnaire data were disaggregated across project schools and further split in relation to junior and senior class teachers, interesting variations were found. This was not surprising given that Write to Read is not a programme but a framework of research-based practices, and that the professional development

is customised. Schools are on a continuum of change ranging from high to medium to low. The level and pace of change is affected by a range of particular school and individual teacher factors, as well as systemic factors beyond the control of schools. Further analyses and triangulation of interviews and field notes are required before firm conclusions can be drawn across the project. Overall, however, these findings indicated that designing and implementing a BLF was new and challenging for many teachers and required ongoing support. The next section outlines the impact of the change process on one school identified from the open questions as having a particularly collaborative and unified response to the change process and which was also successful in improving outcomes for pupils across a number of years. First, findings in relation to the reading achievement of children in first to sixth class from baseline data are reported. Next findings in relation to whole-school change drawn from the questionnaires are presented. Finally, findings in relation to reading achievement at the mid-point of year four (May/June) are also summarised.

## **8 Findings and Discussion: A School Where Literacy Thrives**

### ***8.1 Baseline Reading Achievement***

In Ireland, schools generally administer a nationally standardised test of reading achievement towards the end of the school year (May), and since the introduction of the NLNS (DES, 2011), they are required to report aggregated test results for children in second, fourth and sixth classes to the DES and to their board of management. School B provided results of children's performance on the Drumcondra Primary Reading Test Revised (DPRTR; ERC, 2007) for the end of year prior to the commencement of professional development. As can be seen from Table 3, with the exception of children in first class, mean standard scores were below the national average of 100. It can also be observed that standard scores were lowest in fifth and sixth classes and highest in first and third classes. This is a typical profile in DEIS schools where research in the Irish context has consistently identified a decline in standard scores as children advance through the primary grades (DES, 2005; Eivers et al., 2004; Weir, 2003), even with the extra supports provided under government initiatives (Weir et al., 2011). It is also in line with research findings internationally that the more economically disadvantaged a school is, the more seriously depressed the achievement scores of the children on a standardised test of reading achievement (Goldenburg, 2002; Puma et al., 1997). The decline in scores begins at second class where the comprehension demands of the test increase substantially. The large standard deviation in first to fifth classes indicates the wide range of achievement which is also evident in the span between minimum and maximum standard scores achieved across classes.

**Table 3** School B: baseline mean, maximum and minimum scores first to sixth classes DPRTR in June 2011

School B	Mean	Std. dev.	95% confidence interval for mean		Minimum	Maximum
			Lower	Upper		
First class	105.2	15.86	98.4	112.0	80	131
Second class	93.4	14.38	87.5	99.3	73	130
Third class	97.6	14.16	92.2	103.0	70	136
Fourth class	93.0	14.28	87.4	98.6	73	124
Fifth class	92.1	15.89	84.6	99.6	76	140
Sixth class	92.7	12.47	88.8	96.6	72	127

**Table 4** School B, baseline percentage of pupils  $\leq 10$ th and  $\geq 90$ th on the DPRTR in 2011

School B	First class (%)	Second class (%)	Third class (%)	Fourth class (%)	Fifth class (%)	Sixth class (%)	National average (%)
$\leq 10$ th percentile	9.5	21.7	11.1	20	23.5	20	10
$\geq 90$ th percentile	28.8	4.3	7.4	4.0	5.9	5.0	10

Nationally, 10% of children perform at, or above, the 10th percentile and at, or above, the 90th percentile on a standardised test of reading. As can be seen from Table 4, with the exception of first and third classes, the percentage of children presenting with low achievement was at least double the national average and rose to 23.5% in fifth class. In general, performance at the top end of the scale ( $\geq 90$ th) was below the national average ranging from 4% in fourth class to 7.4% in third class. The exception was first class with a high of 28.8% which is significantly above national norms.

In 2007 and 2010, the DES commissioned studies of trends in DEIS schools to evaluate the DEIS strategy introduced in 2005 (Weir et al., 2011). In School B, the percentage of children at or below the 10th percentile in second and fifth classes (21.7 and 23.5%, respectively) was higher than that found in 2010 in similar classes in DEIS schools (15.9 and 20.6%). School B's percentage in sixth class was lower than that reported for DEIS sixth classes (25.6%) and substantially lower than those for third classes (23%). In contrast, across all classes in School B, there were greater numbers performing at the top end of the scale compared with other DEIS schools (range in DEIS 1.1% in third class to 2.5% in sixth class). First class results greatly exceeded national norms (Table 4). Overall, these results indicated that in this school prior to intervention there were substantial numbers of children underperforming in literacy.

## 8.2 *Engagement with the Change Process*

From the outset, the vast majority of teachers in School B engaged critically with the change process and worked collaboratively with the associate assigned to the school who noted a strong sense of collegiality amongst staff and a strong sense of commitment to helping children achieve their potential. In examining teachers' responses to the open questions (70% written response rate in this school), what is striking is the level of cohesion between teacher comments at all class levels and the continuity in views expressed over the two years. Teachers greatly appreciated the interaction with the associate whom they felt had given valuable guidance, feedback and access to useful resources. Furthermore, *all* teachers and the principal engaged with the professional readings provided and shared responsibility for researching different aspects of literacy and updating each other outside of the associate visits. Teachers enjoyed the intellectual stimulation of the professional development which they noted had challenged their thinking and introduced them to many new ideas and recent research:

Write to Read is having a positive impact on my teaching of literacy. The support of the Write to Read associate (\_\_\_) has been very beneficial in providing advice on how to approach lessons in my writing workshop. (5<sup>th</sup> Qst1)

W2R has a huge impact on my work as a literacy teacher. Being part of W2R encourages me to have high expectations of my students no matter what their background. W2R stretches me professionally as a teacher and keeps me on my toes to ensure that I implement all aspects of the project. (3<sup>rd</sup> Qst2)

In addition, teachers collaborated closely on planning and the special education team worked alongside the classroom teacher within classrooms only withdrawing children for one-to-one attention if they did not respond to in-class support. There was a sense from comments made that teachers had substantially changed their thinking about literacy and that this had translated into a change in classroom practices. They commented that their literacy programme was now more structured and focused on the needs of children and that skill development was more embedded within meaningful contexts:

It has improved my understanding and given me a clear guide/framework of what I am working towards (JI, Qst1)

It has changed my view in the way I approach literacy, particularly in reading. It has also helped me to gain a better idea of where each child is at and how to help them individually (4<sup>th</sup> Qst1)

Write to Read has provided an integrated scheme to deliver the literacy programme. Using picture books to engage with comprehension strategies, and embedding these skills while reading novels is effective. The writing programme has resulted in an increase in motivation in creative writing and provides a consistent approach to the varying genres. (6<sup>th</sup> Qst1)

In particular, one teacher noted that the professional development had contributed to a more systematic whole-school approach. This was an important point,

as a critical factor in changing outcomes in disadvantaged schools is the degree of continuity, coherence, cognitive challenge and instructional density achieved year on year:

I think it has also given our school a better similar whole-school approach to teaching literacy that follows through year after year. I do feel like our school had a good approach beforehand but Write to Read has pulled it all together. (JI Qst1)

When high-quality instruction is sustained over time, it can have a positive impact on both children's motivation and their achievement (Shanahan, 2001). Many of the teachers commented on the impact of the instructional changes on children's engagement, confidence and literacy levels:

Time will always be the main challenge but the successes are many – enthusiastic, motivated, and confident children reading, writing and speaking because they want to and are interested in the content. Children who gobble up books and want more. (3rd Qst2)

Successes: Children progressing at their own pace. Sense of success. Increase in literacy levels in the class (5th Qst2).

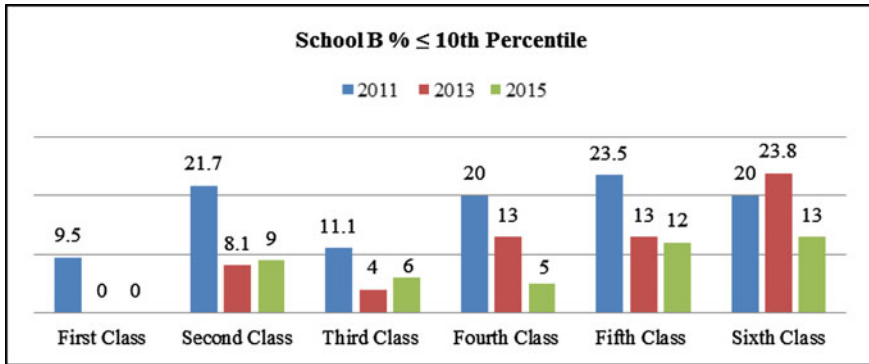
A further strength of this school was that it experienced relatively little teacher turnover during this period. It is likely that this stability contributed to the sustainability of the change process and to the development of a collective whole-school vision for literacy, factors identified internationally as being important to change efforts (e.g. Lein et al., 1997; Lipson, Mosenthal, Mekkelson, & Russ, 2004). It is also likely that all of the elements outlined above combined in ways to create a synergy that was pivotal in effecting the many positive changes in children's reading achievement that occurred.

### ***8.3 Longitudinal Achievement in Reading in School B***

Table 5 illustrates achievement at each class level after the school had engaged with professional development for just over three years. The mean scores at each class level show an upward trend when compared with baseline data. Furthermore, in all but one class level (sixth), the mean scores are above the national average and show strong growth in second, third and fifth class levels in particular when compared to the baseline mean scores. This is a highly significant development given that research on DEIS schools in the Irish context consistently demonstrates a decline in achievement scores as children advance past first class (DES, 2005; Weir, 2003). If progress is to be made in narrowing the gap, halting the decline is an important first step. Further investigation is needed into the nature of instruction at sixth class level to identify reasons why children's average scores though improved from baseline remained below the national average (100).

**Table 5** School B: mean, maximum and minimum scores, first to sixth classes DPRTR in May 2015 and baseline

School B	Mean baseline	Mean 2015	Std. dev.	95% confidence interval for mean		Minimum	Maximum
				Lower	Upper		
First class	105.2	108.0	12.55	102.39	113.52	86	130
Second class	93.4	106.0	15.63	101.34	110.62	77	131
Third class	97.6	104.9	15.58	97.14	112.64	73	127
Fourth class	93.0	101.5	14.09	97.02	105.91	76	138
Fifth class	92.1	105.7	17.38	98.67	112.71	75	140
Sixth class	92.7	98.1	17.64	91.13	105.09	71	140



**Fig. 4** School B percentage of children performing at or below the 10th percentile at each class level 2011, 2013, 2015

Further evidence of a real change in outcomes is apparent when we examine the percentage of children in each class level performing at the lowest ( $\leq 10$ th) and highest ( $\geq 90$ th) performance groupings (see Figs. 4 and 5). Critically, it can be observed that, by 2015, there was a substantial decrease in the percentage of very low-performing students in this school across all class levels, indicating that changes that teachers had made to their literacy framework were effective in meeting the needs of many low achievers. In 2013 and 2015, at first class level, there were no children performing at or below the 10th percentile compared to 10% nationally, while in second, third and fourth class levels, the percentages had reduced substantially (5–9%). These are all lower than national norms (10%) and

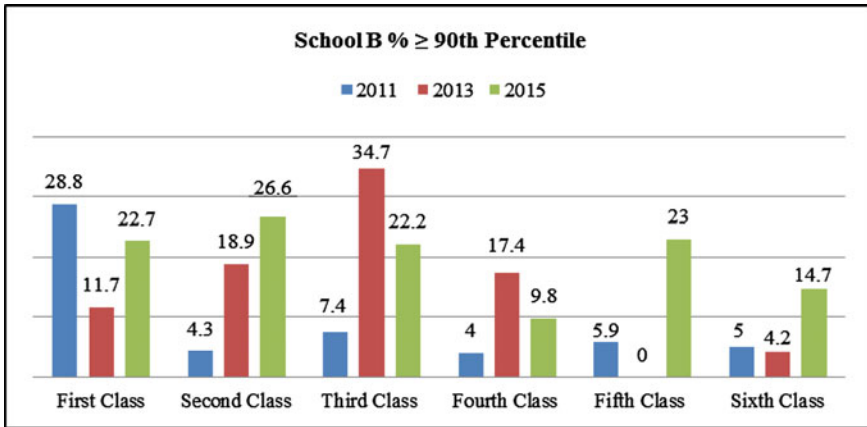


Fig. 5 School B percentage of children performing at or above the 90th percentile at each class level 2011, 2013, 2015

substantially lower than the percentages reported for DEIS schools in 2010 (15.9, 23%). The percentages in fifth and sixth class levels (12–13%) were close to national norms and substantially lower than those reported in DEIS 2010 (20.6 and 25.6%, respectively).

Looking at the percentages performing at the top of the scale (Fig. 5), we can see that by 2015, there was very strong growth at each class level from second to sixth (first class was already strong at baseline). At each class level, the percentage of children performing at the 90th percentile are not only stronger than DEIS norms (1.1–3.3%) (Weir et al., 2011) but either meet or exceed national norms (10% ≥ 90th percentile), suggesting that the higher-order focus of Write to Read is also beginning to pay dividends for higher-achieving children. Further analysis of data is needed to explore outcomes in more depth to establish performance trends for children who were present at all three points in time. Furthermore, triangulation of these with a range of qualitative data (interviews, associates’ reports) will also be undertaken in the year ahead.

Finally, we can see School B’s overall performance in 2015 at each percentile rank in relation to national norms (Fig. 6). There are more children school-wide performing at the top end of the scale (STENS 8, 9 and 10) when compared with national levels, while there are fewer children performing at the lower levels (9% of children at STENS 1–3 in School B compared 16% nationally).

In averaging standard scores across the class levels, a score of 104 places average achievement in the school above the national average (100) at the 61st percentile compared to 95.6 and the 39th percentile at the outset. Overall, these results are encouraging and point to the effectiveness of a whole-school approach to literacy that prioritises engagement, higher-order thinking and the integration of oral language, reading and writing within a cognitively challenging BLF.

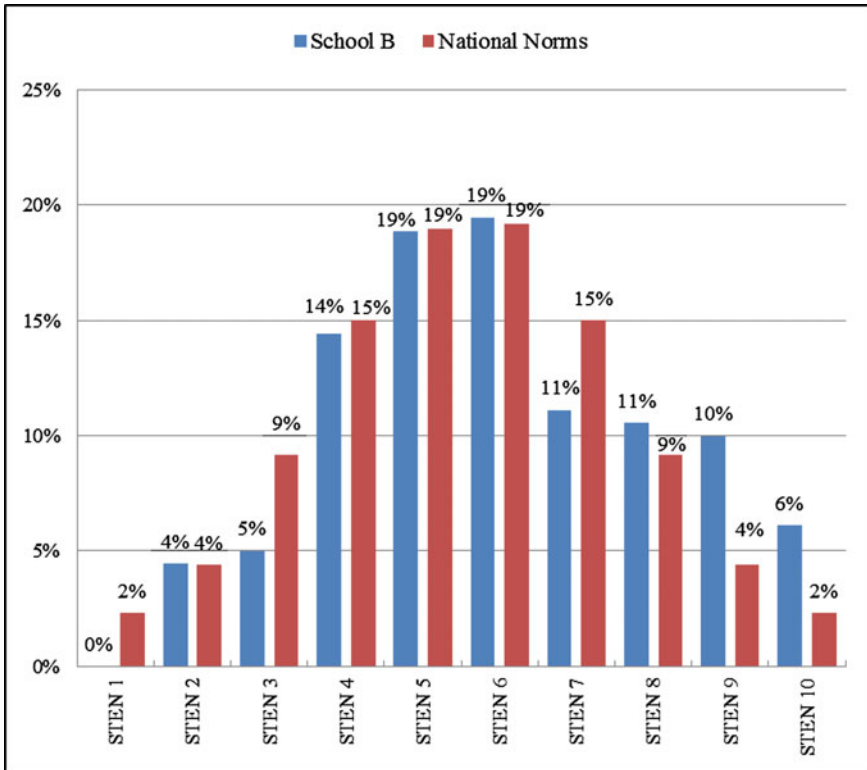


Fig. 6 School B performance on the DPRTR in May 2015 compared with national norms

## 9 Conclusions

Narrowing the literacy achievement gap between children in low and high SES communities has been a focus of successive governments nationally and internationally for some considerable time. Despite this attention, it has remained stubbornly resistant to intervention. Acknowledging that social inequalities are at the root of low achievement in high-poverty schools, and that the school is but one part of the puzzle, there is nevertheless sufficient research to guide reform efforts. Building on the work of a successful pilot project (Kennedy, 2008, 2014), Write to Read has committed to working with partner schools over the long term; to supporting them in looking critically at their literacy framework and practices in the light of the relevant research base presented above; and to developing and implementing a cognitively challenging BLF suitable for their whole-school context. Thus, our work with schools and teachers is context-specific and seeks to equip them with the knowledge base, practices and resources needed to address challenges identified rather than focusing on implementation of particular programmes or approaches. Such intensity of support has been missing to date in the Irish



context, where support has not usually been intensive enough nor available for sufficient periods of time and/or has been more focused on teaching teachers how to implement particular approaches such as Reading Recovery (Clay, 2002) and First Steps (Education Department of Western Australia, 1994).

Collaborating with teachers and schools over an extended period of time values the ‘funds of knowledge’ (Moll, Amanti, Neff, & Gonzalez, 1992) of all involved and acknowledges the complexity involved in addressing inequality of outcomes. In adopting an inquiry stance, teachers are co-researchers working with the Write to Read team to develop context-specific solutions. It has sparked teachers’ interest in literacy research and practice and been the impetus for many to take on accreditation for the professional development. Teachers have found the process stimulating and valued the respect for their individuality and creativity. They have enjoyed constructing their own classroom programme in line with a research-based, cognitively challenging BLF. Such an approach to change honours the notion of lifelong learning, and the professionalism and autonomy of teachers as critical decision makers who are creators of curriculum rather than consumers of it (Au et al., 2008). It gives teachers’ ownership of the change process and the capacity to drive and sustain it in the longer term as they have acquired the tools to access and interrogate research and practice. While more time-consuming in the long term, it would seem to be an important point for policymakers to bear in mind as research consistently demonstrates the more highly expert a teacher is, the greater their impact on students’ development and achievement (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007).

One of the challenges to the sustainability of change is the high level of teacher turnover in some schools. Schools experiencing high levels of turnover (one-third to one-half of staff) over one or more years have encountered greater challenges in designing, implementing and maintaining a cognitively challenging BLF and in *consistently* improving achievement across *each* class level from *year to year*. Almost half of the Write to Read schools experienced significant staff turnover. This had a knock-on effect on continuity, coherence and progression in children’s learning as new teachers tried to familiarise themselves with the framework. It underscores the need for a core of teachers in each school, with deep expertise in literacy, who have the capacity to induct and support new teachers into understanding and implementing the school literacy plan. Thus, there is a need for ongoing support and professional development within schools.

Teachers have found it demanding to design and implement a cognitively challenging BLF. As our findings have shown, even with access to multifaceted professional development (associate on-site to provide guidance and support, in-class demonstrations and feedback on teaching and planning, access to professional readings, development of professional learning communities and engagement in accreditation to certificate or master’s level), by the end of year two, some elements of the BLF continued to pose difficulties for some teachers. These included the higher-order dimensions of literacy and using formative assessment effectively. This is not surprising, as several reports and studies in the Irish context (DES, 2005; Quinlan, 1990) have highlighted that there is insufficient attention to

the higher-order dimensions of literacy (e.g. higher-order thinking skills, writing composition and the emotional and imaginative development of the child) and the teaching of skills within meaningful contexts. Real change takes time to take root and become a seamless part of teachers' daily planning, teaching and assessment of literacy, particularly when there are wide gaps between current pedagogy and proposed approaches since 'new ideas may not be viewed by teachers as desirable or "within reach" of their existing approach' (Powell & Diamond, 2011, p. 296). In the DEIS context, it is critical that teachers develop understanding of the significant role that the unconstrained skills play in literacy development (Knapp, 1995) and that they include them in their literacy framework from the very first year of school (Teale et al., 2010). Notwithstanding the challenges, overall the vast majority of teachers highlighted the significant benefits that had accrued to their teaching of many aspects of literacy through participation in the initiative. They particularly welcomed the structure and focus that the BLF had given them, indicating that prior to participating in the initiative, teaching was not as targeted as it could have been. The main challenges highlighted by teachers in implementing the framework included the time available for teaching literacy and the lack of time for planning and developing resources. These are issues that are not easy to resolve and are not confined to the Irish context.

The findings reported in relation to School B's reading performance indicate improved average achievement across all classes. Achieving a shift in outcomes across an entire school to the level achieved in School B was a significant and exciting development. The findings presented here indicate that there were many factors that fed into their success. These included limited staff turnover, a positive school culture and development of the school as a professional learning community. Critical engagement in the change process combined with a continuous focus on pushing boundaries to accelerate children's learning from junior to senior classes across the whole school was also a key feature. It would seem that the nature of the BLF adopted was successful in not only significantly reducing the percentage of children performing at, or below, the 10th percentile but also significantly increasing the percentage of children performing at the highest levels of reading (at, or above, the 90th percentile). In many classes, the results are in line with, or better than, national norms. It is also likely that the emphasis on vocabulary, comprehension strategies and writing which began in the first year of school paid off as children progressed through school. For example, the children in third class in 2015 would have had the benefit of the BLF since the start of senior infants. Achievement results for this class indicated only 6% performing at, or below, the 10th percentile and a large portion (22%) at, or above, the 90th percentile. Thus, the earlier children are exposed to such emphases, the better, and when progression and continuity are provided over time, the greater are the chances that outcomes will improve and the decline in achievement that occurs in the Irish context will be halted. However, promising as these results are, challenges remain as national standards are also rising (Shiel et al., 2015) and so there will be a sustained focus on building on the gains to date.

Findings reported here are based on test scores and teachers' self-report on questionnaires. We need to better understand the factors that support or thwart the development of the conditions which seem necessary for an improvement in achievement outcomes to occur. Many critical questions remain to be answered including, for example, how individual teachers operationalise time within the 90 min, the influence of reading on writing development and vice versa, the balance needed between constrained and unconstrained skills at various stages of development, ways in which assessment is used to drive teaching and learning, how motivation and engagement are fostered and the role children's out of school literacy lives play on outcomes. Future analyses will look to re-examine data and to triangulate quantitative and qualitative data. Furthermore, case studies are in development which will shed light on each school's progress in developing and implementing a BLF for their particular school context and the range of factors influencing their level of success or difficulty in improving outcomes school-wide.

Whole-school change at the level required to truly narrow the achievement gap is complex and requires collaboration on many levels, high levels of commitment, a range of supports and recognition that real and sustainable change will entail an extended period of time. If policymakers wish education to realise its promise of equity and access for all, they would do well to acknowledge this complexity and provide the kinds of long-term support needed to build schools' capacity to respond to the challenge of ensuring that every child emerges from primary school a confident reader, writer and independent thinker with high expectations for themselves and their futures, and the tools, persistence and confidence to reach their highest aspirations.

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# A University-School Partnership Teacher-Teaching-Teacher Intervention Model To Promote Reading in Hong Kong: Issues and Challenges

Barley Mak

**Abstract** Hong Kong has excelled in recent years in assessments of its young peoples' reading in international reading tests. These successes reflect well on the goals and objectives of continuous educational reforms as well as numerous projects that have enhanced the education scene in Hong Kong over the past two decades. Since 1998, a total of HK\$5 billion (about US\$645 million) has been allocated to these initiatives and, as of 2014, 8706 Quality Education Fund (QEF) projects have been supported. Notwithstanding such enormous effort, the Hong Kong Special Administrative Region (HKSAR) Government commissioned the Centre for Enhancing English Learning and Teaching (CEELT) of the Faculty of Education at The Chinese University of Hong Kong (CUHK) to implement the Consolidation and Redevelopment (C&R) Work on Quality Education Fund English Language (primary) Projects in order to promote, enhance and sustain quality in the teaching of English reading. From this project, a Resource Package of good practices on teaching English reading was compiled from 57 significant QEF projects (Quality Education Fund Cyber Resource Centre in Consolidation and Redevelopment work, 2014). To effectively disseminate these good practices, a teachers-teaching-teachers model was adopted. Using this bottom-up approach, teachers initiated and contributed to the development and dissemination of the Resource Package. In this chapter, the issues and challenges of the teachers-teaching-Teachers model are discussed in relation to the contribution they have made towards shaping education strategies in the future.

**Keywords** Hong Kong · Reading · New senior secondary school curriculum · Reading to learn · Programme for International Student Assessment

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## 1 Introduction

Taking place every three years, Programme for International Student Assessment (PISA) is an international survey that assesses the mathematics, science, and reading literacies of 15-year-old students from various nations initiated by The Organisation for Economic Co-operation and Development (OECD) (OECD, 2015). A main focus of PISA is to assess how 15-year-old students perform when asked to read for understanding, a skill reflective of how well they might cope with daily real-life challenges (OECD, 2015). PISA is well established and well-utilised due to its scientifically approved and internationally recognised assessment standards. Rankings from the PISA assessments have become a fundamental tool, akin to a standardised yardstick by which nations can compare themselves both internally and internationally, to evaluate the effectiveness of a country's implemented educational policies. Countries that do relatively weaker in PISA may review and revise their school curriculum, while those that do well are likely to widely celebrate their successes. Most recently, Hong Kong has progressed its ranking from sixth in 2000 through to third place in 2006, fourth place in 2009 and up to second place (among 545 countries) by 2012 (OECD, 2012).

On a similar scale of improvement, Hong Kong's primary school students have demonstrated outstanding reading performances in the Progress in International Reading Literacy Study (PIRLS) which is an international assessment for measuring trends in the reading literacy achievement of primary four students around the world. Coordinated by the International Association for Evaluation of Educational Achievement, the international assessment takes place every 5 years, with the current round completed in 2016. Hong Kong's primary four students have improved significantly over consecutive assessments—with 4867, 4700 and 4122 students participating in years 2001 (Centre for Advancement of Chinese Language Education and Research, 2008a, b), 2006 and 2011 (The University of Hong Kong, 2015), respectively. Hong Kong advanced from 14th place ranking in 2001 (Mullis, Martin, Gonzalez & Kennedy, 2003), to second place in 2006 (Mullis, Martin, Kennedy & Foy, 2007) and first place in 2011 (Mullis, Martin, Foy & Drucker, 2012). These consistently upward trends are no surprise, for Hong Kong has been deliberate in steering its people and system towards improving the reading literacy of students since the turn of the millennium.

What seems to have helped Hong Kong to achieve such improvement in relation to children and young people's reading is a series of significant educational reviews and reforms that began in the new millennium, coupled with funding schemes to resource initiatives grounded in teaching and learning workplaces. Hong Kong is not alone in its endeavour to improve young students' reading abilities. In the USA, the Superkids programme has had significant successes with K-2 students' phonics and overall reading abilities (Borman & Dowling, 2009). Similarly, the computer-based Waterford Early Reading Program in Israel has highlighted the effective use of computer software in improving young students' reading despite many of them having complex linguistic backgrounds (Shamir & Johnson, 2012),

and the Reading Recovery programme operating in the UK since the 1990s has had long-term benefits for students' enhanced reading performances (Moore & Wade, 1998; Rowe, 1995). Yet it is a common practice for these interventions, aimed at schools and systems, to adopt a top-down approach, thereby restricting valuable input from teachers and others on the front-line of children's education. Additionally, teachers who felt frustrated with this approach might ignore or modify policy and pedagogical imperatives (Calderone, 2007). This chapter describes the development of an innovative teacher learning model that was designed to overcome these difficulties. This model consists of a university-school partners' programme that allows teachers to play an active role in teaching other teachers with the Resource Package—a condensed compilation of good practices from 57 existing QEF projects on English Language (primary). This model allows teachers to exchange teaching practices and knowledge whilst continuously enriching the contents of the Resource Package, ensuring that good practices can be disseminated for other teachers in the future.

## 2 Hong Kong's Education Reforms and the "Reading to Learn" Initiative

While Hong Kong was adapting to the challenges of an increasingly competitive global environment both economically and educationally, as well as its return to Mainland China post-colonisation, it initiated a series of unprecedented education reforms (Curriculum Development Council, 2001; Education and Manpower Bureau 2005; Education Commission, 2000). As a response to the report on *Learning to Learn—The Way Forward in Curriculum Development* published in 2001 for Hong Kong's education reform (Curriculum Development Council, 2001), *The Basic Education Curriculum Guide—Building on Strengths (primary 1 to Secondary 3)* was published by the Curriculum Development Council (CDC) in 2002. A profound focus of the curriculum reform presented in the guide was the introduction of *Reading to Learn*, which is one of the four major learning goals implemented to assist educators to formulate effective reading strategies and activities for provoking students' independent reading habits and interests through a variety of interventions. *Reading to Learn* encourages primary school teachers to guide their young students to read books about science-related subjects so as to arouse students' curiosity. Secondary school students were to be given more opportunities to gain access to a wide array of quality materials to assist their reading, which included, but was not limited to, books, magazines, online resources, and compact discs. In doing so, it was intended that students would be able to construct knowledge, share experiences, ideas and feelings with others, develop new insights and perspectives, and communicate with others (Education and Manpower Bureau, 2002). Since the curriculum reform in 2001, the *Reading to Learn* culture has been widely adopted in schools, and the following reformative practices have been widely adopted:

1. Reading featured as one of the prominent goals within schools' development plans
2. Collaboration between parents and schools was established to promote reading
3. Reading sessions were assigned so that students read regularly
4. Guidance was provided so that students could develop effective reading strategies
5. Language learning was viewed as highly favourable
6. A large variety of reading activities and reward schemes were implemented
7. Teacher-librarians were assigned to promote reading
8. Schools actively participated in the Reading Fair and World Book Day that was organised by the Education Bureau.

(Curriculum Development Council, 2014)

To reveal the effectiveness of the 'Reading to Learn' initiative, a survey on stakeholders' views of the primary Curriculum Reform was conducted in 2011 by the CEELT at CUHK. One hundred and thirty-one primary schools, amounting to 25% of the total number of primary schools in Hong Kong, participated in this survey study. Key results from the report revealed that:

1. Over 90% of the school heads, curriculum leaders, key learning area (KLA) coordinators and subject panel heads, as well as teachers indicated that they provided students with opportunities to read to learn
2. Over 95% of the school heads and curriculum leaders and over 80% of the KLA coordinators indicated that they encouraged teachers to promote cross-curricular reading in their schools
3. Over 80% of the teachers reported that they promoted cross-curricular reading
4. Over 85% of the KLA coordinators stated that they devised reading plans and strategies for the respective class levels
5. Over 70% of the primary six students responded that they enjoyed reading.

(Mak, 2012)

At the time of writing, in 2015, a similar territory-wide investigation was being conducted by CUHK, a follow-up study that also has reading as a major component.

Although the *Basic Education Curriculum Guide* was further revised in 2015 with additional content (called *Basic Education Curriculum Guide (primary 1–6)*) (Curriculum Development Council, 2014), the enriched version not only reiterated the need for *Reading to Learn* in the school curriculum, but also stressed the importance of *Reading across the Curriculum*. The latter seeks to develop students' habit and capacity for self-regulated learning through reading texts across various KLAs, whereby their background knowledge and personal experiences enrich and empower them to:

1. Acquire interests and abilities across a broad and diversified field; and,
2. Develop new ideas for new opinions and better language learning across various disciplines, which will enhance both reading abilities and humanistic qualities.

(Curriculum Development Council, 2014)

Likewise, *Reading across the Curriculum* is promoted and encouraged widely in the revised curriculum guide. It urges schools to view and adopt reading as a whole-school initiative, to provide the necessary support and quality materials required to create a reading-friendly atmosphere whereby all stakeholders—school heads (or vice-school heads), primary school curriculum leaders, various KLA coordinators and subject panel heads, teachers, librarians, parents and students alike—cooperate to build this reading culture and atmosphere (Curriculum Development Council, 2014). The propaganda relating to the promotion of reading did not stop at the primary level. It was also a focal point in the most recent education reform, the *New Secondary School Curriculum*, which was implemented in 2009. Against similar backgrounds, education policies on reading remain highly promulgated across stakeholders as well as across various disciplines.

In view of recent education reforms that were bold, drastic and might even have spawned unpredictable results, effective interventions are one of the inextricable links to successful implementation. This claim has stemmed from the fact that many education reforms in other countries have failed (Borman et al., 2002; Fuhrman, 2002) due to schools' and teachers' reluctance to of change and/or lack of knowledge of the education reform, perhaps resulting from a lack of guidance or obscure messages (Coburn, 2001; Spillane, Reiser & Reimer, 2002; Mintrop, 2003). However, successful reforms, such as those experienced in New Zealand, have stressed the importance of having external experts to support the parties responsible to implement change using innovative interventions (Timperley, Annan & Robinson, 2009). Given these foreign experiences, the Hong Kong Education Bureau commissioned external professional parties to collaborate with its schools in order to secure effective education reform.

### **3 Behind the Scene: The Quality Education Fund (QEF)**

To enhance the effectiveness of education reforms through education projects and research, the QEF was established in October 1997 under the Education Commission Report No. 7 (ECR7), to play a significant role in supporting Hong Kong's education sector through significant funding and the provision of expert input drawn from a variety of relevant disciplines from the tertiary sector (Quality Education Fund, 2015). The QEF fund operates under a Steering Committee that governs the direction and nature of the projects; the approval of such applications will be dependent on the decision-making of the Secretariat Reviewers, who are responsible for monitoring and evaluating the impact of approved projects. If a project is deemed worthwhile and the impact is significant and meaningful, it will be disseminated widely throughout Hong Kong. Since January 1998, a total of HK \$5 billion (about US\$645 million) has been allocated, and as of 2014, 8706 QEF-funded projects were approved, benefiting schools, front-line teachers as well as students in all areas of education. A sample of the approved QEF projects on reading is presented in Table 1.

**Table 1** Examples of QEF projects on reading for specific target groups

Year	Project title	Grant approved (US\$)	Target group
2003	Professional development on English curriculum—from textbook to a literacy-based approach for English language learning	\$25,139	primary
2004	Creating reading atmosphere—whole-school reading scheme	\$6372	primary
2004	Research on accelerated English reading effectiveness	\$49,789	primary
2007	Ready, steady, read!	\$19,780	primary
2010	Improving students' reading and speaking skills through drama teaching	\$10,525	primary
2012	Enhancing parent-child communications through dialogic reading	\$31,137	primary
2013	Reading enhancement scheme with electronic support	\$19,438	primary
2013	Enhancing language development through picture book reading	\$15,943	Pre-primary
2013	Adopting creative teaching strategies to the S1 English curriculum to promote reading	\$16,858	Secondary
2013	The practice of school-based reading strategies	\$30,080	Special needs
2013	Promotion of reading and interactive drama through storytelling	\$3,895	primary
2014	Effective use of e-resources to enhance students reading ability	\$15,502	primary

(Quality Education Fund, 2015)

With so many QEF project successes in the education sector, it is essential that their outcomes are systematically grouped and distilled for effective dissemination and benefit to the education sector. With this in mind, a series of theme-based C&R Work has been conducted, namely Project Learning, Chinese Language, Pre-primary Education and English Language (primary) (Quality Education Fund, 2015). Under this framework, the Quality Education Fund Thematic Network (QTN) was established in 2006 by the QEF as a tool and platform for the promotion of professional training, sharing of teaching experiences and distribution of good practices among schools (Quality Education Fund, 2015). Since 2006, a significant number of QTNs in different areas have been established, including the QTN on Gifted Education, Serving Students with Dyslexia, Healthy Schools, Chinese Language, Kindergarten Education (Whole-person Development), Support for Diverse Learning Needs (Reading and Writing) in Junior Secondary Schools and English Language (primary) (Quality Education Fund, 2015).

## **4 The Role of the Centre for Enhancing English Learning and Teaching (CEELT), CUHK**

From 2012 to 2013, the CEELT of the Faculty of Education at CUHK was commissioned by the QEF to undertake the C&R Work on Quality Education Fund English Language (primary) Projects. Given the numerous QEF-funded projects that have contributed immensely to local education, the Hong Kong Education Bureau urged compilation of these good practices for future dissemination in the form of supporting materials as well as practical and effective interventions. In view of this, CEELT produced a Resource Package based on good practices derived from 57 existing QEF projects on English Language (primary). From this, six modules were developed—namely Reading, Phonics, E-learning, Drama, Intervention Programmes (targeting at less able students, especially those with learning difficulties) and Enrichment Programmes (targeting at more capable, gifted students).

A QTN of university-school partners' programme was introduced to sustain the distribution of these good practices and apply these interventions and professional development workshops. Under this programme, local schools were empowered by the tertiary sector (CUHK) to lead other schools in further disseminating good practices of the QEF projects. Under this configuration, the provision of professional development for front-line teachers multiplied over the course of time through a University-School Partnership Teachers-Teaching-Teachers model (USPT). A detailed discussion of this intervention model is provided in next section of this chapter.

Subsequently, the QEF commissioned CEELT to lay the foundation of the QTN on English Language (primary) to introduce the Resource Package to its members including teachers, department heads and school heads. Against this background, the objectives of the QTN on English Language (primary) adopted by CEELT are to:

1. Experiment and refine the Resource Package
2. Implement the strategies outlined in the Resource Package in a classroom setting
3. Utilise the QTN as a platform for sharing of experiences and practices
4. Establish a professional development network
5. Establish a platform for future extensions of practices of pedagogical value.  
(Mak, 2014)

### ***4.1 The University-School Partnership Teachers-Teaching-Teachers Model (USPT): Theoretical Foundation***

The research on teacher collaboration provides an empirical foundation for the development of the teacher-teaching-teacher model. Teacher collaboration is a

successful and effective form of professional development as it can foster skills and promote knowledge transfer among colleagues (Aschermann & Klenzan, 2015). Furthermore, studies suggest that teachers' cooperation plays a pivotal role in the implementation and dissemination of a programme's objectives among teaching staff members within the school (Jäger, Reese, Prenzel & Drechsel, 2003). There is mounting empirical evidence supporting that teachers improve their teaching practices effectively and willingly when they learn from fellow teachers who share and experience similar constraints and affordances in the same working environment, and are even more so, when principals provide support to enable collaborative professional development (Fullan, 2011). Additionally, teacher collaboration is critical for the development of an effective teacher learning community which is conducive to the creation of group synergy among both experienced and novice teachers, allowing expertise to be readily shared, demonstrated and developed among its members. While the benefits of learning and being supported within such a community are evident, it must be noted that the effects of such a community-based intervention could diminish over time (Feger & Arruda, 2008; Stoll, Bolam, McMahon, Wallace & Thomas, 2006), requiring strong individual input and commitment from teachers as well as support from schools, parents and the wider education community in order to ensure its sustainability (Mak & Pun, 2015).

In order to yield optimal results from teacher-training programmes, literature confirms that teacher collaboration processes are most ideally supported through the involvement by an external third party, such as a university and/or researcher-facilitated professional development programmes for teachers (Krainer, 2003). In the context of this partnered relationship, the researcher does not regard teachers merely as passive subjects benefiting from the programme, but instead as experienced front-line partners that can contribute to, and therefore enhance, the professional development programme in return. Over time, new knowledge and skills are continuously reconstructed and teaching practices refined within an individual, social, as well as organised collective contexts (Mak & Pun, 2015). This mutually beneficial relationship between the facilitator and teachers can be a form of transdisciplinary learning, which enables teachers to discover new teaching strategies through the exchange of ideas between teaching colleagues and university-based researchers who bring expertise from different fields (Aschermann & Klenzan, 2015). In addition, researcher-teacher partnerships improve teacher efficacy, an attribute directly linked to the enhancement of student academic achievement as well as teacher adaptability and adjustment (Chong & Kong, 2012). Collaboration and partnership can be promoted at the school level. Fullan (2011) stresses that collaborative partnerships between schools where each can learn from the other are pivotal in ensuring effective professional development.

To capitalise on the benefits of teacher collaboration and partnership with a third party, critical elements for the establishment of an effective professional development model for schools and teachers should include the following:

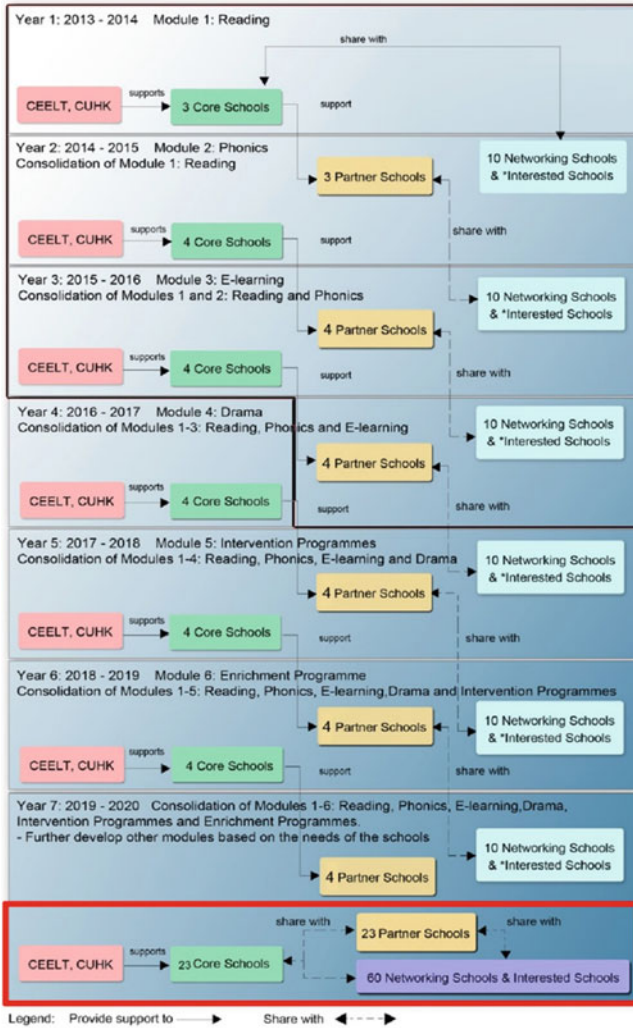


1. The model should promote interaction between teachers, most ideally between teachers of diverse backgrounds and experiences.
2. Knowledge and skills are to be made readily available for dissemination.
3. The professional development programme has to be facilitated by a third party, in this case researchers/consultants provided by a university.
4. Continuous development and improvement of teaching materials should include the input of teachers and researchers.
5. A platform must be established for schools to learn from each other.
6. The model has to be sustainable for effective long-term application.

These critical elements were utilised in the development of the USPT to sustain and disseminate the outcomes of a number of prominent works conducted by the HKSAR Government and CUHK. In the section below, I described the processes in developing this intervention model.

## **5 Using the USPT to Sustain and Disseminate the Outcomes of C&R Work**

To efficiently disseminate the Resource Package over a wide coverage of potential beneficiaries and to have effective and sustainable professional development for teachers over the years, a USPT was employed. The model builds on the notions of collaboration and partnership. In particular, these concepts are translated to two featured processes within the model, namely the provision of support and engagement in sharing. Figure 1 represents these critical processes in solid and dotted arrows. To facilitate the system-wide dissemination, the USPT model involved teachers from three different types of schools including core schools that play the role as the key leaders for dissemination, partner schools that join the dissemination process by working with core schools, and networking schools that collaborate with partner schools to extend the dissemination. Support and sharing are critical processes for promoting collaboration among teachers in these three types of schools. Core schools and their teachers were identified based on their sustained participation in the QTN project for at least three consecutive years. Three core schools and their teachers are trained with professional support and guidance from expertise provided by The Chinese University of Hong Kong Quality Education Fund Thematic Network (CUHK QTN) project team. They learn to guide teachers from partner schools to trial, and further develop, the reading module. Teachers in the partner schools have participated in the QTN project for two years and have already developed some knowledge about the project and the reading module. In the final round of dissemination, networking schools are invited to collaborate with partner schools to experiment with the reading module. The networking schools have not previously participated in the QTN project but have expressed keen interest in joining the professional development network. Figure 1 shows a graphic representation of this teacher-teaching-teacher model,



**Fig. 1** The 7-year plan of the QTN schedule (red border the impact of the USPT model under the University-Partnership Programme)

which involves teachers who hold varying levels of familiarity about the QTN project and the reading module, from each of the three school categories. In the initial round of experimentation, the university team had worked with three core schools which in turn worked with three partner schools. The partner schools were then expected to share their learning and disseminate the reading module to another 10 networking schools. In the second round of implementation, the number of core schools was increased to four in order to extend the dissemination to a wider set of schools.

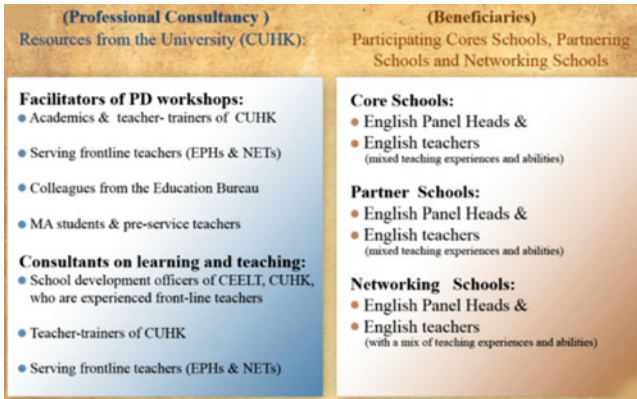


Fig. 2 Resources provided by CUHK and the beneficiaries

Using this model, teachers of various backgrounds are able to exchange knowledge and teaching strategies within a guided and facilitated environment, with supports provided by a university-based research team, experienced teachers and the aid of the Resource Package, which was undergoing continuous improvements based on teacher feedback. More importantly, less experienced teachers benefit most from this process. During the course of the first year, the core school teachers underwent professional development workshops facilitated by university-based teacher-educators and researchers, serving front-line teachers (English panel heads and Native English teachers), and curriculum officers from the Education Bureau. Simultaneously, consultations on learning and teaching were provided by experienced front-line teachers who worked as school development officers in the CUHK QTN team, as demonstrated in Fig. 2.

Remarks: EPHs = English Panel Heads; NETs = Native English Teachers

The general mechanism for knowledge transfer and the sharing of good practices and experiences from the CUHK QTN team to the core schools, and later to the partner schools and networking schools, as detailed in Fig. 3.

It is noteworthy that facilitation and consultation continue to be provided by the university while empowerment, collaboration, peer support as well as sharing and reflection processes are arranged between core schools, partner schools and networking schools. These valuable knowledge and experiences further improve the quality of the Resource Package for subsequent dissemination.

As a detailed example, the USPT under the University-School Partnership Programme in the first implementation year (2013–2014) is detailed in Fig. 4.

In the first implementation year (2013–2014), the three core schools underwent a series of professional development workshops, lesson co-planning meetings, lesson observation and feedback sessions, as well as producing, utilising and experiencing sharing of school-based learning and teaching materials. The goal of the programme

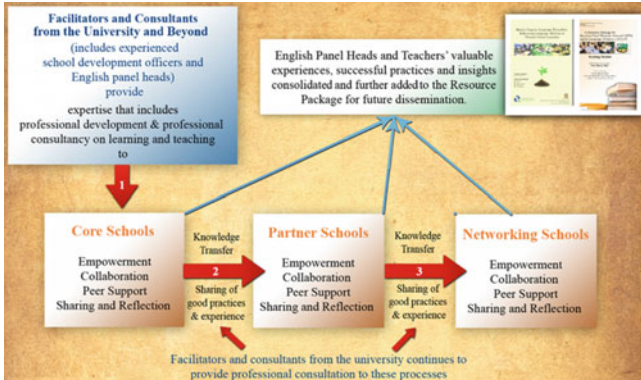


Fig. 3 The knowledge transfer and the sharing of good practices and experience mechanism

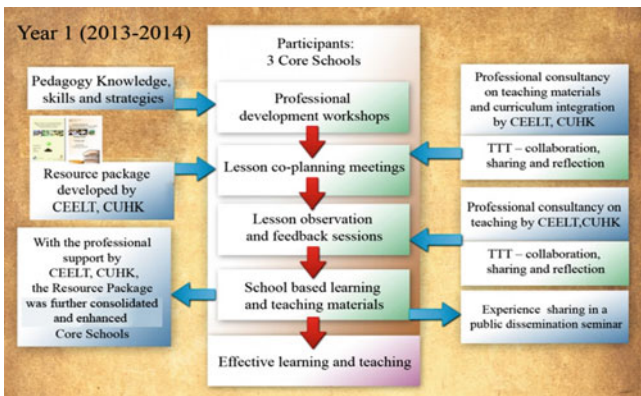


Fig. 4 The first implementation year (2013–2014) for the three core schools

targets both further consolidation of the Resource Package and realisation of the effective learning and teaching for the core schools. These major components are further elaborated as follows:

1. *Teacher Professional Development Workshops*

An important goal of the professional development workshops was increasing teacher capacity in terms of the application of the Resource Package for enhancing the teaching and learning of reading in English. These workshops were carried out by the project team in three consecutive sessions in January, March and May 2014.

2. *On-site School-based Lesson Co-Planning Meetings*

The CUHK QTN project team provided teachers with school-based lesson co-planning meetings on a regular basis. In doing so, teachers were provided with a common platform to brainstorm, share and express their views on good

practices. An online platform was also provided (Mak, 2014) to further enhance collaboration and sharing. In addition, the CUHK QTN project team provided on-demand professional assistance via face-to-face consultation, e-mails and phone calls to cater for the needs of core schools. Using both face-to-face and online interactions, principals, vice-principals, curriculum leaders, English panel chairpersons and English teachers from the Core schools benefited from interacting with each other through various forms of collaborative learning.

### 3. *Lesson Observation Feedback*

The CUHK QTN team took an active role in recording and documenting lesson activities that the core school teachers carried out. Likewise, other school members such as the principals, English panel chairpersons and peer teachers took part in lesson observations. The various parties later exchanged their teaching strategies and shared innovative ideas in the feedback sessions. These included good practices such as the following:

- Use of a bell to maintain discipline and to help students to pay attention.
- Use of a friendly but firm disciplinary approach by the teacher.
- Setting up, and preparation of, show-and-tell activities.
- Inclusion of a good variety of input such as video clips and PowerPoint slides.
- A good variety of learning activities including whole class interaction and group work.
- Demonstration of useful language and ideas in the classroom to support students who may require additional help.

(Mak, 2014)

## **6 The Development of School-Based Learning and Teaching Materials and the Application and Extension of the Resource Package**

One of the strongest motivating factors for the core school teachers to participate in the QTN was the opportunity to utilise the Resource Package. Teachers are empowered in this USPT whereby their valuable insights and newly developed teaching materials are shared among fellow teachers during sharing and evaluation sessions. These materials are captured and consolidated in the Resource Package, an ongoing process which will lead to additional modules in future.

The USPT stresses the university–school partnership. Under this configuration, professional guidance, support and training are provided by the university in order to facilitate the transfer of knowledge to participating teachers. Local schools are empowered in the process as they lead other schools through the process of disseminating good practices related to the QEF projects. Thus, the provision of professional development for front-line teachers is multiplied over the course of time. The USPT model adopts a bottom-up approach to its professional

development in reading education, allowing teachers' valuable front-line experiences to contribute towards teacher learning and development, the development and dissemination of the Resource Package as well as being a vital component to the consolidation and value-adding process. This approach is rather different from the traditional top-down approach in which interventions are mostly controlled and monitored by the administrators in the absence of teachers' input. The USPT model empowers the participating schools and teachers by emphasising a process of continuous revision of classroom reading practices until which time the desired outcomes are achieved (Robinson & Lai, 2006; Timperley et al., 2009). In this context, the training materials, developed through these partnerships, are user-friendly and applicable to real-classroom situations due to the active contribution of teachers to its development. This USPT was adopted to disseminate the Phonics Module (2014–15) as well as other modules according to the programme schedule presented in Fig. 1.

Professional training environments are often characterised by teachers teaching their colleagues (Stasz, Kaganoff, & Eden, 1994) and have proven to be 'a powerful way of linking professional development with team building' (Finch, 1999, p. 11). Multifarious positive outcomes can be achieved when teachers train other teachers, with such collaboration giving rise to leadership opportunities, enhanced communication and collaboration, increased learning, as well as reducing the sense of isolation among teachers (Mak & Pun, 2015; Rolheiser, Ross, & Hogaboam-Gray, 1999). The most significant feature of the USPT model is the manner in which it allows productive collaboration to extend beyond the boundaries of a single school context. Participating principals have unanimously agreed that this model develops accountability, collegiality, professionalism and pride among their staff, allowing teachers across different schools to feel a heightened sense of appreciation and respect for their professional contribution, producing higher levels of confidence, competence and excitement. Some principals expressed a preference to allow teachers to modify and integrate their practices in a customised manner, in order to suit their own teaching styles and stressed that teachers teaching teachers is the most effective professional development model currently available (Education World, 2015). Similarly, the participating teachers have expressed their need for a mentor or a colleague with whom to exchange ideas and provide insights (Sandholtz, 2002). The USPT model provides such mentoring and support opportunities through the establishment of networking and partnership, initially between the university and core schools, and subsequently between the core, partner and networking schools.

It is believed that teachers participating in the programme will ultimately produce effective learning and teaching outcomes. The sections below explain how the USPT model was applied to improve the learning and teaching of reading and the extent to which improved reading outcomes were achieved using this new model.

## 7 Reading Module and the Underlying Theoretical Literature

Reading is an interactive process in which a reader interacts dynamically with the text and elicits meaning using various kinds of knowledge such as linguistic and semantic knowledge to achieve reading fluency (Alyousef, 2006). Exposing English language learners to meaningful and interesting reading materials which have rich linguistic, lexical, and syntactic features is helpful to learners' long-term command of English (Hafiz & Tudor, 1989). Hedge (2003) believes that exposure to various authentic texts assists learners to develop text-related (readers' awareness of the text organisation) and learner-related (linguistic, schematic and metacognitive knowledge) strategies. Hedge (2003) along with Hafiz and Tudor (1989) state that reading helps learners to build their language competence and be acquainted with writing mechanism, and subsequently, learners show progress in both their reading and writing skills.

Based on the beliefs stated above, the CUHK QTN project team aimed to achieve the following goals for the reading module:

1. Motivating learners through the introduction of a variety of resources during lessons.
2. Enhancing learners' reading and writing skills by exposing them to a variety of texts.
3. Developing creativity and collaborative skills by engaging learners in different learning activities.

(Mak et al., 2014)

These goals were derived from the consolidated themes that run through the 57 existing QEF projects, which were grouped into three major categories that introduced:

1. a variety of resources (e.g. print, non-print and other resources);
2. a variety of text types (e.g. in the form of stories, rhymes, songs, poems as well as recipes); and
3. different learning activities (e.g. to engage students in shared/jigsaw reading, role-play, Reader's Theatre, presentation, discussion, group/pair work as well as creative writing).

Through arranging the 57 QEF projects into these three essential interventions and placing them in the reading module of the Resource Package, the CUHK QTN project team provided a solid basis for the professional training of Hong Kong's teachers. Their work was later extended by the same teachers who practised them throughout the implementation year. The advantage of this arrangement is that it recognises the important front-line experiences of teachers and empowers them, while giving rise to continuous revision of their practices (Robinson & Lai, 2006; Timperley et al., 2009). The implementation of the reading intervention themes is discussed below.

## 7.1 *Motivating Learners through the Introduction of a Variety of Resources during Lessons* (See Appendix 1a)

Authentic reading materials offer children a motivating, meaningful context in which to experience, utilise, and learn language, thereby fostering contextual vocabulary development, and facilitating the development of thinking skills and second language (L2) learning (Ghosn, 2002).

Interesting and varied reading resources, both print-based and non-print based, are important for motivating students to learn English and helping them achieve accuracy in decoding and fluency (Rasinski, Rupley, Paige & Nichols, 2016). Stories are both attractive and effective means by which to motivate students to learn English and sustain the reading process as they shift from mechanical language learning to a more personally meaningful context (Collie & Slater, 1987). The implementation and utilisation of audio-visual aids, realia and other supporting resources help to enhance students' interest in learning, understanding and language acquisition. Videos are powerful and prevalent means to support students' learning as they engage students, and facilitate 'narrative visualisation' and 'simulation' (or 'dynamic modelling') (Shepard 2003), through which teachers can tell stories, play songs, convey information, show steps and instructions and promote online learning.

In the QTN project, a rich variety of resources have been adapted to arouse students' learning interests. In addition to print-based and non-print-based reading materials, teachers have also adapted other reading resources to engage students, including the illustration of realia when covering texts, teaching the genre of menus and recipes, and integrating students' learning through the design of board games. All of these serve as means for motivating students by engaging them in authentic reading and exposing them to the rich linguistic features present in different reading materials (Table 2).

**Table 2** The resources adapted to motivate learners are summarised below

Resources	Learning resources recommended in resource package	Additional learning resources developed/adapted during the course of the QTN project
Print	<ul style="list-style-type: none"> <li>• Stories/picture story books/big books</li> <li>• Recipes</li> <li>• Pictures and word cards</li> <li>• Procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Reader's theatre scripts</li> <li>• Sample menus</li> </ul>
Non-print	<ul style="list-style-type: none"> <li>• Video clips of stories, songs and recipes</li> <li>• Music/songs</li> <li>• Useful websites</li> </ul>	<ul style="list-style-type: none"> <li>• Video clips of poems and instructions</li> <li>• Online reading texts</li> <li>• Online learning games</li> </ul>
Others	<ul style="list-style-type: none"> <li>• Matching game playing cards</li> </ul>	<ul style="list-style-type: none"> <li>• Realia (e.g. fruit and food items)</li> <li>• Board games</li> </ul>



## **7.2 *Enhancing Learners' Reading and Writing Skills by Exposing Them to a Variety of Texts (See Appendix 1b)***

Reading exposes learners to lexical items embedded in natural linguistic contexts (Wilkins, 1972) and the syntactic or discourse system of English (Hafiz & Tudor, 1989). Also, reading enables learners to develop receptive skills in reading and word recognition (Elley & Mangubhai, 1983) and extends their language competence that underlies written performance (Krashen & Terrell, 1983).

Semiotics signs and symbols, such as printed text, pictures, body language, spoken language and music, help students construct meaning and communicate. In this regard, the QTN Resource Package exposes students to a rich variety of texts to enhance their language awareness, in turn developing both their reading and writing skills (Berghoff et al. 2002).

The QTN project adapted different text types to help students read by using logographic information (i.e. the contextual information provided by the pictures and/or symbols, the predictable language of the text they encounter and the way that stories mimic spoken language) to guess the words and understand the text by focusing on its contextual meaning. The teaching of stories, for example, offered students an ideal context for verb tense acquisition, equipped them with rich linguistic features and a communicative context, which consequently helped develop their critical thinking, requiring them to look for main ideas and supporting details, compare and contrast descriptions, find cause-and-effect relationships, and express their opinions using appropriate language (Ghosn, 2002). Through frequent practice and exposure to wide varieties of authentic texts, students became more aware of the relationship of spoken language to written language and had higher levels of phonological awareness as well as higher control of language in both the meaning (semantics) and structure (syntax). They were then able to develop automaticity (i.e. the ability to connect words with their background knowledge, chunk the ideas represented to gain new information or use reading to learn), develop fluency and attain higher levels of comprehension. Once students had developed fluency in reading, they had a better acquisition of language. They were then able to decode the information and construct meaning using their life experiences and became more aware of the use of vocabulary, styles, structures and linguistic features of various text types and applied their knowledge to their writing (Table 3).

## **7.3 *Developing Creativity and Collaborative Skills by Engaging Learners in Different Learning Activities (See Appendix 1c)***

Applying different learning activities in class can facilitate the development of students' creativity and collaborative skills. Egan (2005) defined creativity as the

**Table 3** The text types adapted to enhance learners' reading and writing are summarised below

Text types recommended in Resource Package	Additional text types developed/adapted during the course of the QTN project
<ul style="list-style-type: none"> <li>• Stories</li> <li>• Songs</li> <li>• Rhymes</li> <li>• Poems</li> <li>• Recipes</li> <li>• Procedures</li> <li>• Conversations/dialogues</li> <li>• Personal recounts</li> </ul>	<ul style="list-style-type: none"> <li>• Menus</li> <li>• Instructions</li> </ul>

involvement of imagination and possibility thinking which enables learners to think of all things as possible. According to Blumenfeld, Kempler and Krajcik (2006), collaboration focuses on the cooperative building of knowledge and play processes, which motivates learners and engages them in cognitive processing.

Indeed, learning activities which engage students in pair and group work are effective in developing their creativity and collaborative skills. Li and Lam (2013) state that activities with group learning goals that cover peer learning, practice, assessment and feedback can motivate learners to learn, provide opportunities for peer support and encourage them to brainstorm creative ideas. In a collaborative learning activity, learners can develop communication skills to exchange creative ideas, which are an important part of the creative process, and gain mutual benefits while maintaining ownership of their own accomplishments (Mamykina, Candy & Edmonds, 2002). A study by Kangas (2009) indicates that students working in groups experiencing the integration of fact and fiction in a playful learning environment are more advanced in developing creativity, imagination and collaboration skills.

In the QTN project, participating teachers adapted all the learning activities recommended in the Resource Package and were inspired to develop new activities to enhance students' creativity and collaborative skills. For example, reader's theatre, one of the suggested activities in the Resource Package, drove teachers to apply drama improvisation to enable students to discuss and come up with creative responses for different contexts (Table 4).

The Resource Package for the reading module aimed to support teachers to maximise both teaching and learning effectiveness. The design aimed to motivate students' learning interests through a variety of reading resources, including both print-based and non-print-based materials. During the course of the QTN projects, it was found that the adaptation of various reading resources and materials successfully engaged students, and participating teachers also developed new resources and text types to enrich the learning experiences of students. The carefully designed lessons facilitated deep involvement in reading activities among students. The resources were designed to introduce different text types to students through various activities, which successfully helped students to develop reading habits and understand language structures. As Paris and Hamilton (2009) stated, when reading is intertwined

**Table 4** The activities adapted to develop learners' creativity and collaborative skills are summarised below

Learning activities recommended in Resource Package	Additional learning activities developed/adapted during the course of the QTN project
<ul style="list-style-type: none"> <li>• Show-and-tell presentation</li> <li>• Reading aloud</li> <li>• Role play</li> <li>• Reader's theatre</li> <li>• Shared reading</li> <li>• Drawing</li> <li>• Presentation</li> <li>• Discussion</li> <li>• Jigsaw reading</li> <li>• Making handicrafts</li> <li>• Group/pair work</li> <li>• Creative writing—writing recipes and rewriting lyrics</li> </ul>	<ul style="list-style-type: none"> <li>• Drama improvisation</li> <li>• Designing board games</li> <li>• Creating mind maps</li> <li>• Survey</li> <li>• Share-writing</li> <li>• Creative writing—writing a new ending and creating a new food item</li> </ul>

with engaging activities that are focused on learning new content and students were assessed and re-taught to a deep level of new understanding, both their comprehension and writing skills can be improved significantly. By the end of the QTN project, with the continuous efforts of participating teachers, students were able to improve reading ability and master the linguistic features of different text types. The learning activities such as pair and group reading promoted collaboration among students, which in turn strengthened their communication skills and competence in other language aspects. Consequently, they were more motivated to learn and showed stronger mastery of language acquisition, particularly in reading and writing.

## 8 Questionnaire Feedback from the Core School Teachers

To assess the effectiveness of these teacher-teaching-teacher interventions for the reading module, the CUHK QTN project team conducted an evaluation questionnaire in June 2014. It examined core school teachers' perceived importance of innovative practices described in the previous section and how frequently they implemented these new practices after completing the training in the three major reading interventions (variety of texts types, variety of resources and creative reading) in the reading module.

The evaluation questionnaire was administered at the end of the project year. A total of 30 teachers, 25 females and 5 males, with an average age of 35 and average 10 years of teaching experience, from the core schools completed the evaluation at their own time and at their own pace. The panel chair of the English panel distributed the questionnaires, collected them and returned them to the CUHK consultancy team. The identities of the respondents were kept anonymous. To encourage teachers to fill in the questionnaire, personal data collected were limited to gender, age and teaching experiences. As a result, the return rate was 100%.

**Table 5** The perceived importance and frequency of use for variety of resources

Using a variety of resources (N = 30)	Importance to teaching	Frequency of using the strategies
	Mean score 1 = Not important at all 2 = Not quite important 3 = Important 4 = Very important	Mean score 1 = Never 2 = Occasionally 3 = Sometimes 4 = Always
Introducing a variety of resources in reading lessons	3.25	3.42
Using information technology to enhance English teaching	3.17	3.25
Using the materials on the internet for English language teaching	3.00	3.33
Using the textbooks for English language teaching	3.00	3.25
Using the school-based developed materials for English language teaching	3.00	3.17
Using other materials for English language teaching	3.00	3.00

### 8.1 Using Variety of Resources

As shown in Table 5, core school teachers perceived *variety of resources* to be important. All the items were positively rated in terms of both perceived importance to teaching and frequency of use.

It is noteworthy that ‘Introducing a variety of resources in reading lessons’ was rated highest in relation to both level of importance and frequency of practice by the core school teachers (3.25 and 3.42, respectively), particularly given that they were unfamiliar with, and lacked confidence in, using a variety of reading resources before they joined the QTN project.

### 8.2 Using a Variety of Text Types

A majority of core school teachers agreed that both ‘using language arts’ and ‘including a variety of text’ (mean score = 3.33 and 3.08 respectively out of 4) were important strategies for teaching reading in English. These strategies were practised regularly (3.27 and 3.33 respectively out of 4). Table 6 below shows these results.

**Table 6** The perceived importance and frequency of implementing variety of text types

Using a variety of text types (N = 12)	Importance to teaching	Frequency of using the strategies
	Mean score 1 = Not important at all; 2 = Not quite important; 3 = Important; 4 = Very important	Mean score 1 = Never; 2 = Occasionally; 3 = Sometimes; 4 = Always
Using language arts	3.33	3.27
Including a variety of text	3.08	3.33

### 8.3 *Fostering Creative Reading*

All core school teachers responded positively in regards to the importance of strategies that foster creative reading. ‘using a variety of activity formats’ was rated with the highest score in perceived importance (3.25), followed by—with equal importance (3.17)—‘cultivating and demonstrating free and open attitudes towards different opinions, ideas, values and cultures presented in reading materials’, ‘providing opportunities for learners to express ideas, views or feelings about a range of topics freely in reading lessons’, ‘stimulating learners’ imagination and creativity through different activities in reading lessons’, and ‘providing opportunities for learners to use and apply creative thinking techniques’. These strategies were also frequently practiced (all above 3.00) by teachers as indicated in Table 7.

### 8.4 *Other Reading Strategies*

As shown in Table 8 below, Core School teachers viewed ‘using storytelling, reading aloud and shared reading’ (3.36), ‘using bottom-up approach in reading lessons’ (3.17), ‘using task-based reading activities’ (3.08) and ‘using top-down approach in reading lessons’ (3.08) as important reading strategies. Likewise, these strategies were also frequently employed by teachers. Although ‘using top-down approach in reading lessons’ was relatively less practiced, this is understandable as top-down approaches are both time-consuming and labour intensive.

Taken together, the survey findings showed that the teachers found reading strategies, namely using a variety of resources, using a variety of text types and fostering creative reading, as important and useful.

The questionnaire findings were significantly limited as there was no comparison of data at the pre- and post-training stages. Without such data, it can be argued that these teachers might have held the beliefs that these practices/strategies were important and have been using them prior to the training. However, our recruitment process may counter this criticism. The core schools were asked to fill in a needs analysis form regarding the reading strategies regularly used in their classrooms

**Table 7** The perceived importance and frequency of fostering creativity through reading

Fostering creativity through reading (N = 12)	Importance to teaching	Frequency of using the strategies
	Mean score 1 = Not important at all; 2 = Not quite important; 3 = Important; 4 = Very important	Mean score 1 = Never; 2 = Occasionally; 3 = Sometimes; 4 = Always
Using a variety of activity formats	3.25	3.00
Cultivating and demonstrating free and open attitudes towards different opinions, ideas, values and cultures presented in reading materials	3.17	3.25
Providing opportunities for learners to express ideas, views or feelings about a range of topics freely in reading lessons	3.17	3.17
Stimulating learners' imagination and creativity through different activities in reading lessons	3.17	3.08
Providing opportunities for learners to use and apply creative thinking techniques	3.17	3.00
Providing opportunities for learners to respond and give expression to experiences, events, characters or issues through creative reading	3.08	3.00
Providing opportunities for learners to respond and give expression to experiences, events, characters or issues through creative writing	3.08	2.83
Encouraging creativity through questioning in reading lessons	3.00	2.92
Providing interesting, humorous learning experience in which learners correct errors intentionally made by teachers when conducting reading activities	3.00	2.83
Valuing originality of ideas through class publications for post-reading activities	2.92	2.75

when they submitted their applications to join the project. Only schools that reported limited use of these strategies, namely using a variety of resources, using a variety of text types and fostering creative reading, were recruited. In addition, during the pre-project/pre-training group discussions, the participating teachers admitted limited use of these reading strategies in the classroom. Subsequently, our lesson observation confirmed teachers' honest sharing. Therefore, it can be claimed that the training was effective in promoting teacher learning and adapting teacher practices in the teaching of reading as these teachers enjoyed the professional development workshops and were attentive to a very high degree.

**Table 8** The perceived importance and frequency of implementing reading strategies

Reading strategies (N = 12)	Importance to teaching	Frequency of using the strategies
	Mean score 1 = Not important at all; 2 = Not quite important; 3 = Important; 4 = Very important	Mean score 1 = Never; 2 = Occasionally; 3 = Sometimes; 4 = Always
Using storytelling, reading aloud and shared reading	3.36	3.25
Using bottom-up approach in reading lessons	3.17	3.25
Using task-based reading activities	3.08	3.08
Using top-down approach in reading lessons	3.08	2.92

## 9 Issues and Challenges

Implementation of the reading module has brought to light some important issues and challenges as perceived by different stakeholders in the USPT adopted for this QTN project.

The views of facilitators of the professional development workshops, English panel heads and English teachers of core and partner schools were captured through interviews, questionnaires and reflection reports. There were six English panel heads and 19 English teachers from three core schools and three partner schools attending the three professional workshops on the reading module. Prior to the workshops, all of them were asked to fill in a questionnaire which focused on their perspectives of applying different teaching strategies in the English lessons. This questionnaire was different from the evaluation questionnaire administered at the end of the project year. Some of the questions in this questionnaire were open-ended, while the others were quantitative questions related to the content of the workshops. At the end of the last workshop, they filled in the same questionnaire to compare the differences between the pre- and post-intervention data. In addition to the questionnaire, all participants filled in a reflection report to reflect on what they had learnt, challenges they might face in the ESL classroom and the inspirations they took away from the workshops. Also, in order to have an in-depth understanding of the participating schools, the panel head from each school was interviewed by the researchers. In the interview, they shared their perspectives on reading strategies with reference to their own school settings and concerns about the sustainability of professional development among teachers. The collected data were analysed and formed the basis for identifying for issues and challenges perceived as critical. These issues and challenges perceived by different stakeholders are summarised in the sections below.

## ***9.1 Perceptions of the Professional Workshop Facilitators***

Three professional workshops on reading were conducted for participating teachers of the QTN project, in which participants were empowered with the skills, knowledge and strategies to implement the Reading module, targeting at the three teaching goals as discussed in Sect. 6.

The professional workshop facilitators, including academics and teacher-trainers of CUHK and experienced front-line English teachers, shared in their individual interviews that felt participating teachers enjoyed the workshops and were attentive to a very high degree. This observation was consistent with quantitative responses teachers provided through an evaluation questionnaire on the professional development workshops. A majority of participating teachers agreed that ‘the content of the workshops was relevant to their teaching needs’ in the evaluation questionnaires of the three professional development workshops (95, 100 and 100% for workshops 1, 2, and 3, respectively) and that ‘the knowledge and information gained from the workshops would be useful to their teaching’ (83.5, 100 and 100% for workshops 1, 2, and 3, respectively).

The facilitators also observed a gradual increase of confidence among a majority of participants in regards to adopting and adapting learning and teaching materials in the Resource Package. Participating teachers were found to be more receptive to new teaching strategies and innovative ideas about reading instruction, as well as more willing to offer and accept opinions during discussions. The feedback of participating teachers also echoed these observations. The excerpt below shows examples of teachers’ feedback.

Sharing and collaborative tasks during the workshop benefit our daily teaching. The workshops are good reminder for me to open a gate for students and to inspire their creativity as well as my own.

I have learnt some new teaching strategies shared by teachers of other core schools.

However, the facilitators expressed concerns about the sustainability of professional development among participating teachers, which is crucial for the successful implementation of the USPT model. As mentioned earlier, there were observable positive changes among participating teachers after attending a series of professional development workshops. However, many facilitators pointed out that paradigm shift among participating teachers could not take place overnight. Sustained professional renewal is a continuous process and its success is dependent on a number of factors, including considerations such as whether participating teachers were convinced of the needs to change and willing to step out of their comfort zones to enhance their professional development, whether the school culture facilitated reflection, peer collaboration and professional dialogues, and whether the school management could create space for the USPT to maximise its effectiveness.



## ***9.2 Perceptions of the English Panel Heads of the Core and Partner Schools***

Data collected from interviews with English panel heads of core and partner schools showed that the USPT model was well received. All of them agreed that the QTN projected assisted English teachers to broaden their minds in relation to learning and teaching skills, as they observed changes among colleagues who were implementing new reading instruction strategies. Such strategies included multisensory language instruction and collaborative reading activities, to help students acquire reading skills in a fun and effective way. They remarked that with the professional input and advice offered by the CUHK QTN project team, through co-planning meetings and lesson observations, their teaching capability was enhanced as they were able to reflect on their own teaching, share good practices within the school as well as across participating schools in the QTN project. Many English panel heads believed that the QTN project provided teachers with opportunities to share good ideas, teaching resources, pedagogies and even methodologies in the learning and teaching of reading.

Despite their positive remarks, English panel heads voiced concerns about some issues in relation to the implementation of the QTN project. Many were concerned about teachers' busy teaching schedules and the enormous administrative arrangements required to organise the release of participating teachers to attend professional development workshops, co-planning meetings and lesson observations and arrangements for collaborations with the core/partner schools. Some English panel heads remarked that as the QTN project could only involve teachers of one level, not all English teachers could participate. They had to take measures to ensure that the positive experiences gained by participating teachers could be shared among all English teachers and that the development of school-based learning and teaching materials could be sustained, especially in light of inevitable teacher turnover.

## ***9.3 Perceptions of the English Teachers of the Core and Partner Schools***

Data collected from interviews and reflection reports of participating English teachers of the core and partner schools revealed similar positive responses that the English panel heads shared regarding the QTN project and, more specifically, the USPT model. They remarked that they were given opportunities to sharpen their teaching strategies through collaborating with their peers and teachers from collaborating schools during the QTN project, including experimenting with the shared reading strategies/activities in their own classes after the co-planning meetings. Some teachers mentioned that the lesson observations provided opportunities for them to observe, reflect and learn about reading instruction. The reading activities

adapted from the lessons they observed could stimulate reflection on their own teaching approaches and, hence, provide an opportunity for professional development. Most teachers reflected that they were more willing to open their lessons for observation and more involved in professional dialogues with their peers. They agreed that a supportive and collaborative culture created by the USPT model was conducive to the development of effective reading instruction.

Nevertheless, participating English teachers expressed their concerns about the sustainability of the QTN project. Most of them remarked about the additional workload arising from the project. The co-planning meetings and lesson observations were demanding due to their already heavy workload. They agreed that experimenting with new teaching strategies, sharing good practices and collaborating with peers could enhance their teaching capacity and thus resulted in more effective reading instruction. However, to sustain the positive impact of the USPT model, they needed more professional space in terms of designated time for the project and reduced workload. Relevant administrative adjustments would certainly be needed in the future to enable participating teachers to maximise the benefits offered by the USPT model in a sustainable manner.

## 10 Conclusion

Hong Kong's successes in reading literacy are widely acknowledged. These successes are believed to vindicate the goals and objectives of the series of education reforms since the new millennium, and were made possible by the concerted efforts of various crucial front-line players in Hong Kong's education sector. Coupled with major funding schemes such as the QEF, numerous projects that are in line with the education policies enhanced the effectiveness of education reforms on the micro scale. Yet, in order for the positive outcomes of these projects to be disseminated to the mass majority, consolidation of existing QEF works and projects funded by the Hong Kong Government was necessary. The Resource Package successfully consolidated and expanded on the good practices derived from 57 QEF projects, was produced by the CUHK QTN team in light of this crucial need, and the implemented Reading module was greatly successful based on views shared by multiple stakeholder groups. The CUHK QTN team has introduced an important intervention, the University-School Partnership Teachers-Teaching-Teachers Intervention Model, to improve the teaching quality of English reading in the Reading module. Driven by a bottom-up approach, the USPT model valued and acknowledged teachers' input as ongoing consolidation of the Resource Package. It is noteworthy that teachers favoured a bottom-up approach to reforming reading pedagogies. Their responses to the questionnaire items strongly suggest that they were keen to contribute to reforming the learning and teaching of reading through a collaborative process made feasible by the USPT model.

Core school teachers' perceived importance and frequent use of reformative reading strategies derived from the QEF projects indicate successful dissemination

of focal ideas in reading interventions. The partnership between university and the school sectors was vital in the dissemination process through the USPT model. In this context, sustainable development and dissemination of QEF materials and evidence-based practices are dependent on collaborative efforts of different stakeholders involved in the planning, implementation, evaluation and monitoring processes of education reforms related to reading instruction. The USPT has proven its effectiveness in promoting teachers' professional learning in Hong Kong. With concerted efforts, the USPT can sustain systemic dissemination of effective reading practices and continue to benefit learning and teaching of reading in Hong Kong classrooms

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# Reading and Writing Connections: How Writing Can Build Better Readers (and Vice Versa)

Steve Graham and Karen R. Harris

**Abstract** Even though reading and writing are more important than ever, an unacceptable number of children do not acquire the reading or writing skills needed for educational, social, and occupational success. While we have made considerable progress in identifying effective reading and writing practices, it is important to identify additional practices that can enhance literacy performance if students are to acquire essential reading and writing skills. One purpose of this chapter is to examine whether writing and writing instruction provide a useful means for enhancing how well students read. To answer this question, we drew upon data from recent meta-analyses of true- and quasi-instructional experiments (Graham & Hebert In *Harvard Educational Review*, pp. 710–744); Graham & Santangelo In *Reading & Writing: An Interdisciplinary Journal* 27:1703–1743, 2014); Hebert, Gillespie, & Graham In *Reading & Writing: An Interdisciplinary Journal* 26:111–138, 2013). The lens used to examine the evidence from these meta-analyses were three theories of reading and writing relationships (shared knowledge, functional view, and rhetorical relations), as described by Shanahan In *Handbook of writing research*. Guilford, New York, pp. 171–183, 2006). A second purpose of this chapter is to examine whether reading and reading instruction improve writing performance. The same theoretical lens was applied, but it was necessary to widen our search for evidence to include findings from individual studies as well as meta-analyses, including meta-analyses conducted prior to 2000. The available evidence provided support for all three theoretical models. This was true for the effects of writing on reading and vice versa. We further found that writing, writing instruction, and writing about material read were evidenced-based reading practices. We did not make similar claims about reading-oriented evidenced-based writing practices due to limitations on the evidence reviewed.

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Becoming a good reader is not an option for students today. It is essential. Poor reading skills prevent many students from completing high school, pursuing a post-secondary degree, contributing to the work place, and participating fully in community and civic life. Although there is evidence that some countries, but not all, have made progress in improving students' reading skills since the start of the new century, at least one in every five, 15-year-old students worldwide cannot use reading to handle the most simple and obvious tasks according to PISA results reported by the Organization for Economic Cooperation and Development (2012). In one of every four countries, a majority of 15-year-olds evidence this low level of reading performance. These youngsters are at a distinct disadvantage educationally and economically.

It is important to point out that no country, not even the richest and most technically advanced, is immune to this problem. Our own country, the United States of America (USA), bears strong witness to this. According to the latest National Assessment of Educational Progress (NAEP) conducted in the USA in 2013, only just over a third of the students in the country perform at or above the 'proficient' level (defined as solid academic performance) in reading (National Center for Educational Statistics, 2014). Simply put, the findings from the NAEP in the USA and PISA worldwide make it clear that too many youngsters are unable to acquire essential reading skills.

One recommended approach for improving students' reading skills is to use proven and effective practices for teaching reading. This is exemplified in the evidence-based practice movement in education (Cook, Smith, & Tankersley, 2012), which is aimed at 'identifying, promoting, and implementing *evidence-based practices* (EBPs): instructional approaches shown by high quality research to result in generally improved student outcomes' (p. 495). The basic idea behind this approach is that practitioners should apply the best scientific evidence available to make informed decisions for their clients (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). For reading, this process involves using the best evidence from research to make decisions about how to assess, teach, and manage reading instruction. This does not mean that teachers should set aside the knowledge and teaching skills they have acquired through their clinical and professional experiences. Instead, the evidence-based movement maintains that practitioners need to bring findings from scientific research to bear when teaching reading, contextualising, and integrating such information with the teaching practices they have acquired over time, and using this scientific evidence to drive and make calculated decisions about what and how to teach (Graham, Rouse, & Harris, in press).

One of the most influential attempts to identify EBPs for reading was conducted by the National Reading Panel (NRP) in the USA (National Institute of Child Health and Development, 2000). The 14-member panel considered over 100,000 research studies on how children learn to read, and eventually settled on several

hundred investigations to analyse. Based on their review, the NRP reported the following five practices were supported by research: teaching of phonological awareness, phonics, vocabulary, reading fluency, and comprehension. These five practices were later emphasised in a large-scale policy action known as *Reading First*, which mandated that schools ensure that all students read by third grade.

Unfortunately, *Reading First* did not result in the types of reading gains envisioned by its advocates (Herlihy, Kemple, Bloom, Zhu, & Berlin, 2009). While there are many possible reasons for this, we think that one contributing factor was that the NRP report was incomplete. The NRP made a conscious decision to focus its attention on a select set of instructional practices. It is important to realise that this decision constrained not only how many scientifically supported practices were identified, but what types of practices were encouraged under *Reading First*. We do not mean to distract from the effort or work done by the 14-member panel, but we want to make it clear there are other possible EBPs for teaching reading.

One possible tool for improving students' reading that was overlooked by the NRP is writing. In this chapter, we consider the role of writing and writing instruction in learning to read. We present the findings from three meta-analyses that support our proposition that writing and writing instruction make students better readers (Graham & Hebert, 2010, 2011; Graham & Santangelo, 2014; Hebert et al., 2013). This includes identifying specific writing practices that can be considered EBPs for reading. Our analyses throughout this chapter relied on true- and quasi-intervention experiments to determine whether the different treatments analysed evidenced a causal link to the literacy outcomes assessed.

We further contend that reading is an underutilised tool for improving students' writing. We are currently working on a meta-analysis examining the effects of reading and reading instruction on writing development (i.e. Reading to Write), but it is not yet completed. While we draw upon observations we have made while working on this meta-analysis, our primary data for examining the effects of reading on writing are drawn from prior meta-analyses (e.g. Bus & van IJzendoorn, 1999; Ehri, Nunes, Stahl, & Willows, 2001a; Ehri et al., 2001b; Graham, Harris, & Santangelo, 2015; Graham, Kiuahara, McKeown, & Harris, 2012; Graham & Perrin, 2007) as well as individual studies not included in these reviews. As will become evident, this evidence was dated in some cases, not fully assembled in others, and did not always adequately isolate the effects of reading or reading instruction on writing. Consequently, knowledge of the impact of reading and reading instruction on writing is incomplete at this juncture. This is the reason why there are parentheses around 'and vice versa' in this chapter title and why we did not identify reading practices amongst EBPs for improving writing.

Before examining the assembled evidence, we set the stage for why writing should facilitate reading and vice versa. We draw on three theories proposed by Shanahan on how reading and writing are connected (Fitzgerald & Shanahan, 2000; Shanahan, 2006, in press). The evidence that we review in this chapter also allowed us to examine whether these theories enjoy empirical support.



# 1 Theories of Reading/Writing Connections

As Shanahan (2006, in press) noted, three theoretical models have guided research on reading and writing relations. These theories are presented below.

## 1.1 *Shared Knowledge View of Reading/Writing Relations*

The shared knowledge view of reading and writing connections stresses that reading and writing are not identical skills, but they both draw on the same knowledge and cognitive systems. To make this model more concrete, Shanahan (in press) indicated the shared knowledge model ‘conceptualizes reading and writing as two buckets drawing water from a common well or two buildings built on a common foundation’ (p. 3).

In an earlier discussion of this model, Fitzgerald and Shanahan (2000) indicated that reading and writing draw on four common knowledge bases. One knowledge base includes content or domain knowledge, as readers draw on prior knowledge to understand what they are reading, and writers draw on this same source (at least in part) as they compose text. A second source involves meta-knowledge about written language, as readers and writers collectively draw upon what they know about the purposes and functions of written language and how writers and readers interact to help them interpret an author’s message and construct their own message for others to read. A third knowledge pool encompasses pragmatic knowledge of text attributes, including knowledge of the features of text, words, syntax, and usage, as writers and readers draw on these as they decode/encode words and comprehend/construct sentence or larger units of text. The final source centres on procedural knowledge which includes knowledge about how to access information purposefully, set goals, question, predict, summarise, visualise, and analyse, which readers and writers apply as they attempt to understand what is written or to write what they intend.

According to the shared knowledge view, instruction that enhances any of these four pools of knowledge should yield positive dividends for readers and writers. Likewise, instruction that improves writers’ knowledge in one or more of these domains should have a reciprocal and positive effect on reading and vice versa.

## 1.2 *Functional View of Reading/Writing Relations*

The functional view of reading and writing connections considers reading and writing as separate skills that can be used together to accomplish a particular task or solve a specific problem (Shanahan, 2006; Langer & Applebee, 1987). This can involve, for example, using reading and writing to acquire, understand, or study

content material. A basic assumption underlying this view is that better learning takes place when reading and writing are used in tandem to achieve a desired goal. Again, Shanahan (in press) provides an apt metaphor: ‘reading and writing are tools that can be used together much as a carpenter might use a spirit level and sabre saw alternately when building something’ (p. 5).

With the functional view, writing and reading can be used together to accomplish a variety of tasks within and outside school, but they can also be used to support each other. For instance, students might generate questions about material read and answer them in writing to help them focus their attention on specific ideas in the text. Likewise, they might read to gather information to write about.

### ***1.3 Rhetorical Relations View of Reading/Writing Relations***

The rhetorical relations view of reading and writing connections is sociocultural in orientation (Fitzgerald & Shanahan, 2000; Rubin, 1984), conceptualising these two skills in terms of writer–reader relations. According to this model, the purposes of reading and writing are to communicate. Further, effective communication when reading or writing involves specific processes that can each inform the other. As Shanahan (in press) noted, this view describes ‘reading-writing relations as a kind of conversation, and the key variables include insights about and awareness of the conversational partners and their purposes’ (p. 4).

To illustrate, the act of writing may enhance reading, as writers can gain insights about reading by creating text for an audience to read, even if the student is the intended audience (Nelson & Calfee, 1998; Tierney & Shanahan, 1991). Moreover, readers may acquire important insights into writing, as they think about why authors used a particular word, phrase, sentence, or rhetorical device to deliver their intended meaning.

## **2 Writing and Writing Instruction’s Impact on Reading**

Based on the three theoretical models presented above, it is reasonable to expect that teaching writing improves reading skills (shared knowledge model), writing about reading enhances students’ comprehension of text (functional model), and increasing how much students’ write improves their reading (rhetorical relations model). We examined the veracity of these hypotheses in a meta-analysis commissioned by the Carnegie Corporation of New York (Graham & Hebert, 2010), published in the *Harvard Educational Review* (Graham & Hebert, 2011). In two additional meta-analyses, we examined more fine-tuned effects of writing instruction on reading (Graham & Santangelo, 2014) and writing about material read (Hebert et al., 2013). The veracity of each of these presumed effects is examined next.

## **2.1 Does Writing Instruction Improve Reading Skills?**

As noted earlier, writers and readers draw on common knowledge sources as they read and write, and efforts to enhance one or more of these knowledge sources through writing instruction should carry over to improved reading. For example, teaching students how words are spelled may enhance reading development by shaping children's knowledge of phonemic awareness, strengthening their grasp of the alphabetic principle, and making sight words easier to remember (Ehri, 1987). Increased knowledge of the alphabetic principle and how to read words presumably are strengthened when children are taught that particular sounds stand for specific letters. Learning how to spell individual words should make it easier to correctly recognise these words when reading, as it improves lexical representations (Perfetti, 1997). Thus, spelling instruction should make word reading more accurate and fluent, which may lead to improved comprehension of text (Graham & Santangelo, 2014).

Another possible way that writing instruction may improve reading skills involves teaching students patterns for constructing larger units of text. For example, teaching students how to combine smaller units of writing into a more complex unit, as is done with sentence combining where students learn how to combine kernel sentences into more complex sentences (Saddler & Graham, 2005), which should result in greater skill in understanding such units in reading (Neville & Searls, 1991). This should also occur when writing instruction involves teaching even larger units of text, such as basic structures for writing paragraphs or the common genre elements included in specific types of writing, such as a story. It is further possible that teaching students about the processes and strategies involved in writing, as is done in the process approach to writing, will enhance students' use of such procedural knowledge when reading.

### **2.1.1 Impact of Spelling Instruction on Reading Skills**

Graham and Santangelo (2014) conducted a meta-analysis examining the impact of explicit spelling instruction on spelling, writing, and reading performance. The studies included in this review all involved true- and quasi-experiments testing the impact of a spelling treatment with students in kindergarten to 12th grade. All studies included a spelling and reading outcome measure. Further, each study was presented in English and contained the data necessary to compute a weighted effect size (or data were obtainable from the authors). We excluded studies where spelling instruction was delivered in a special school (e.g. school for the deaf); attrition exceeded 20% for any condition; there were fewer than five participants in any condition; the intervention targeted multiple outcomes (e.g. spelling and handwriting) and spelling was less than 50% of the instructional focus; the control condition received spelling instruction; or the spelling measure(s) only assessed the spelling skills taught to the treatment group.

We located 53 studies that met our inclusion/exclusion criteria. Students in these studies covered the full range of permissible grades from kindergarten to grade 12. Before examining the impact of spelling instruction on reading performance, we first address whether spelling instruction did in fact improve students' spelling skills. This is an assumption underlying the shared knowledge model of reading–writing relations (i.e. if spelling instruction does not improve spelling, it is unlikely to improve reading skills).

Spelling instruction did in fact improve spelling skills, as spelling instruction produced greater spelling gains than no spelling instruction (effect size = 0.54), additional spelling instruction produced greater spelling gains than less spelling instruction (effect size = 0.70), spelling instruction produced greater spelling gains than approaches relying on incidental learning methods (effect size = 0.43), spelling instruction improved students' spelling in their written text (effect size = 0.53), and spelling gains were maintained over time (effect size = 0.53). All effects were statistically greater than no effect.

Providing empirical support for the shared knowledge model, we further found that teaching spelling had a statistically significant and positive impact on phonological awareness (effect size = 0.51), reading words (effect size = 0.40), and reading comprehension (effect size = 0.66). While a statistically significant effect was not found for measures of reading fluency, the effect size was greater than a third of a standard deviation (effect size = 0.36) and should be considered clinically significant. In summary then, teaching spelling is an EBP for improving reading skills.

### **2.1.2 Impact of Teaching Larger Units of Writing Text on Reading**

A meta-analysis conducted by Graham and Hebert (2011) examined whether sentence/paragraph, text structure, and process writing instruction improved students' reading skills. Like Graham and Santangelo (2014), we examined true- and quasi-experiments, but limited the review to students in grades one to 12. We included only studies with reading outcomes where the treatment group was taught to write, students wrote about what they read, or amount of writing students did was increased (all studies were in English, and it was possible for us to obtain the needed statistics to compute a weighted effect size). Studies were excluded if they were conducted in special schools for students with disabilities, the writing treatment did not involve the creation of meaningful text (the only exception involved spelling studies which are not considered here), the control condition received writing instruction, or the reading outcome was the same as the writing intervention (e.g. students were taught to summarise written text, and the reading outcome involved writing a summary to assess reading comprehension).

Twenty-one experiments with students in grades one to 12 tested the impact of sentence/paragraph, text structure, and process writing instruction on students' comprehension of text. These studies produced average weighted effect sizes of 0.22 on norm-referenced tests and 0.27 on researcher-designed measures. These

effects were statistically greater than no effect. While we did not examine whether the writing instructional practices in the 21 studies also enhanced writing performance, other meta-analyses have shown that they do (Graham, Kiuahara, McKeown, & Harris, 2012; Graham & Perrin, 2007).

As with the spelling instruction meta-analysis reviewed above, these findings from Graham and Hebert (2011) provide support for the shared knowledge model of reading and writing connections. They further demonstrate that teaching larger units of text in writing is an EBP for reading.

### **2.1.3 Does Writing About Material Read Enhance Reading Comprehension?**

The functional view of reading and writing relations contends that writing about text should facilitate comprehension of it. There are at least five ways that this may occur (Applebee, 1984; Emig, 1977; Klein, 1999; Stotsky, 1982). One, writing about text requires that the author makes decisions about which information in text is most important. Two, it may encourage the author to organise ideas from the text into a coherent whole, establishing explicit relations between these ideas. Three, writing requires active decision-making about what will be written and how it will be treated. Four, writing involves the authors putting ideas from text into their own words, making them think about what the ideas mean. Five, when an idea from text is committed to writing, it is easy to review, re-examine, connect, and critique, which may lead to new understandings. More succinctly, writing about text should facilitate its comprehension, as it provides students with a tool for visibly and permanently recording, connecting, analysing, personalising, and manipulating key ideas in text. Two of the meta-analysis we conducted (Graham & Hebert, 2011; Hebert et al., 2013) examined the impact of writing about text.

### **2.1.4 Impact of Writing About Text on Understanding**

The Graham and Hebert (2011) meta-analysis described above examined whether writing about text led to better comprehension of that text. We located 66 studies conducted with students in grades two to 12 that tested this thesis. The outcome measure in 11 of these studies was a norm-referenced measure of reading comprehension, whereas 55 studies employed researcher-constructed assessments of the same construct. With studies employing a norm-referenced measure, an average weighted effect size of 0.37 was obtained. The effect size 0.50 was slightly higher for studies that relied on researcher-designed measures. In both cases, the effect size was greater than no effect. We further found that writing about material read was more effective in middle school than in high school, but that instruction in how to apply writing as a tool for reading was more effective with high school students than it was with those attending middle school.

Across the studies reviewed by Graham and Hebert (2011), the writing interventions fell almost exclusively into one of the four categories: (1) writing an extended response to material read, (2) writing a summary of material read, (3) writing notes about material read, or (4) writing responses to questions about the reading material/creating questions about text and answering them in writing. All four of these writing activities had a positive and statistically significant impact on reading comprehension: effect size of 0.68 for extended writing, 0.54 for summary writing, 0.45 for note taking, and 0.27 for question answering.

These findings provide support for the functional model of reading and writing connections. They further show that the following four methods for writing about material read are EBPs for reading: extended writing, summary writing, note taking, and answering questions about text in writing.

### 2.1.5 Differential Impact of Writing to Read Activities

As a follow-up to the Graham and Hebert (2011) review described above, Hebert et al. (2013) conducted a meta-analysis to determine the relative impact of different activities for writing on what is read. To locate studies for this review, we employed the same basic inclusion/exclusion criteria as Hebert and Graham, except we were interested in true- and quasi-experiments comparing one writing activity to another as well as counterbalanced designs, where the same students were tested using both writing activities. Because different writing activities may elicit different types of thinking about text read (Langer & Applebee, 1987), we expected that some writing activities would result in better comprehension than others, but this would depend on how closely the writing activity aligned with the reading comprehension measure.

We located 19 studies that met our inclusion/exclusion criteria involving students in grades two to 12. Contrary to our prediction, none of the comparisons (i.e. summary writing vs answering questions, summary writing vs note taking, answering questions vs note taking, and answering questions vs extended writing) differed statistically when treatment-inherent, reading comprehension measures were excluded. Treatment-inherent measures were defined as assessments that were highly similar to the writing activity used to enhance reading comprehension. However, when the writing activity was more closely tied to the assessment (i.e. treatment-inherent), we found that extended writing outperformed answering questions by a full standard deviation (1.01) and that summary writing was superior to answering questions (effect size = 0.48).

While Graham and Hebert's (2011) analyses provided evidence that there are multiple ways of using writing to enhance comprehension of material read, Hebert et al. (2013) demonstrated that it should not be assumed that one activity is better than another. If it is, success likely depends on how comprehension was measured. Consequently, teachers should consider the types of thinking that a writing activity is likely to engender and the type of comprehension they hope it will enhance when deciding what writing activity to apply.

## ***2.2 Does Increasing How Much Students Write Improve Reading?***

According to the rhetorical relations model of reading and writing connections, the process of composing text should enhance one's skills at comprehending text read. It is assumed that writers gain insights about reading by creating text for others, even if the audience is the writer. It is thought the process of writing text encourages students to be more thoughtful and engaged when reading material produced by others (Fitzgerald & Shanahan, 2000). Further, because writers need to make their assumptions and premises clear to the reader as well as observe the rules of logic when composing text, this should make them more aware of these same issues when reading.

Graham and Hebert (2011) located studies that examined whether increasing how much students wrote enhanced their reading comprehension. The collective findings from these studies provide support for the rhetorical relations model and demonstrate that increased writing is an EBP for reading. For students in grades one to six, increasing writing improved reading comprehension by slightly more than one-third of a standard deviation (0.35). This was statistically different from no effect.

## **3 Reading and Reading Instruction's Impact on Writing**

Based on the three theoretical models described earlier, it is also reasonable to expect that teaching reading improves writing skills (shared knowledge model), reading tied directly to a specific writing assignment enhances students' writing (functional model), and increasing how much students' read improves their writing (rhetorical relations model). We examined the veracity of each of these propositions by applying data from relevant meta-analysis and the outcomes from individual studies. Our conclusions for each of these propositions are much more tentative than those drawn for the impact of writing on reading, as there is no comprehensive meta-analysis currently available and the evidence from most of the existing analyses evidenced one or more weaknesses.

### ***3.1 Does Reading Instruction Improve Writing Skills?***

The report produced by the NRP (National Institute of Children's Health and Development 2000) indicated that reading performance can be enhanced by teaching phonological awareness, phonics skills, vocabulary, reading fluency, and reading comprehension. According to the shared knowledge model of reading and writing connections, teaching these specific skills should carry over to improved

writing. For instance, teaching phonological awareness, phonics, and reading fluency should all enhance students' spelling. The first two instructional approaches provide knowledge of language and the alphabetic principle that are central to correct spelling. Reading fluency should enhance spelling, as it exposes students to how words are spelled as they read them in text. We are unaware of any meta-analyses that have examined the effects of reading fluency instruction on spelling or other writing skills, and we have found such studies to be almost non-existent in a new meta-analysis we have just completed. There are, however, several systematic reviews examining the impact of the first two instructional approaches on young students' spelling performance.

Meta-analyses by Bus and van IJzendoorn (1999) and Ehri et al. (2001b) provide evidence of the impact that phonological awareness instruction has on spelling. Bus and IJzendoorn's analysis of 36 true- and quasi-experiments showed that such instruction increases preschool and kindergarten children's pool of knowledge about phonological awareness over the short term (effect size = 1.94) and long term (effect size = 0.48). It also provided support for the contention that phonological awareness instruction improves spelling success over time, as an average effect size of 0.25 for spelling was obtained from one to three years. Similar results were reported by Ehri and colleagues in a second meta-analysis involving preschool to sixth-grade students. This review was conducted as part of the NRP, and they reported an effect size of 0.86 for improved phonological awareness and 0.59 for improved spelling immediately after instruction. The average spelling maintenance effect was 0.37 and 0.20 at the first and second follow-up probes.

The evidence from these two meta-analyses provides support for the proposition that reading instruction enhances writing performance, but this conclusion must be tempered by three concerns. One, most of the studies that assessed spelling performance in Bus and van IJzendoorn (1999) did not involve random assignment and spelling was not assessed at the start of the experiment due to the young age of the students. Two, phonological awareness instruction in some of the investigations included in Ehri et al. (2001b) included instruction that could be construed as spelling instruction (e.g. completing an Elkonin box with the tiles for each letter of a word). Three, as we have gathered studies for the Reading to Write meta-analysis we are currently conducting, it has become obvious that there are now many more studies assessing the impact of phonological awareness instruction on spelling. As a result, the point estimates provided in these two previous reviews may no longer be valid.

Another outcome from the NRP report was a meta-analysis examining the impact of phonics instruction (Ehri et al., 2001a). In 38 true- and quasi-experiments conducted mostly with elementary grade students, phonics instruction enhanced students' reading skills (effect size = 0.41–0.44) and resulted in improved spelling performance (effect size = 0.35). While the evidence from this review supports the impact of reading instruction on writing hypothesis, it must be realised that this conclusion is compromised by the fact that phonics instruction in many studies included spelling instruction as well.

Theoretically, reading instruction should influence more than just students' spelling. Take, for instance, vocabulary instruction (an instructional approach



recommended by the NRP). The words writers use when composing determine how well they express their intentions and capture readers' attention. While word use is complex and can vary considerably from one piece of writing to the next, the vocabulary of students' text can account for 9–46% of the variability in writing quality scores (Olinghouse & Wilson, 2013). While such correlational evidence is intriguing, it does not establish a causal link between vocabulary instruction and how well students' write.

A meta-analysis conducted by Graham, Harris, and Santangelo (2015) casts some limited degree of light on this issue. They located three studies where some form of vocabulary instruction was provided to students and a measure of writing quality was also collected. The three true- and quasi-experiments conducted with children in grades three to eight taught topic, content, or genre vocabulary that students might use when completing the writing assessment. This instruction had a positive impact on writing quality, resulting in a statistically significant effect of 0.78. Nevertheless, some caution must be exercised in interpreting this finding as the vocabulary instruction was closely tied to the topic of writing.

It also seems likely that teaching students about larger units of text as they read (such as the basic genre elements of a story) or about specific strategies for comprehending text (e.g. creating a summary of material read) should enhance students' writing. Theoretically, this should result in the acquisition of new declarative or procedural knowledge that is likely useful to writers as well as readers. While true- and quasi-experiments that examine these types of instruction have been conducted and generally produce positive effects on students' writing (e.g. Fitzgerald & Spiegel, 1983; Jampole, Konopak, Readence, & Moser, 1991; Mason, Davison, Hammer, Miller, & Glutting, 2013), we did not locate any meta-analyses that examined the impact of such reading instruction on measures of writing performance. Moreover, as we searched for studies for our ongoing meta-analysis on Reading to Write, we have been struck by how many reading instruction studies, especially those involving the teaching of comprehension, make writing part of the treatment package. The NRP declaration that comprehension instruction improved reading should have come with an asterisk, indicating that this was commonly facilitated by writing.

Another observation we made while conducting the Reading to Write meta-analysis was that reading instructional studies rarely assess students' growth in writing. It is not uncommon though for writing to be used as a way to assess reading comprehension (e.g. a written recall measure) in these studies or for the writing measures to be taught as part of reading instruction (Meyer et al., 2002).

In summary, the available evidence supports the shared model of reading and writing relations as well as the supposition that reading instruction enhances students' writing. The accumulated evidence, at least in terms of meta-analyses, does not provide a definitive answer to these issues though, indicating the need for a more comprehensive and systematic review to be undertaken to draw more definitive conclusions.

### ***3.2 Does Reading to Access Information to Write About Improve Writing?***

The functional view of reading and writing relations suggests that writers can use reading to enhance what they write. For instance, writers might read to gain information about their writing topics. Knowledge about the writing topic is likely to be quite important for certain types of writing, with Olinghouse, Graham, and Gillespie (2015) reporting that such knowledge predicted the quality of students' persuasive and informative papers once variability due to discourse knowledge, topic interest, and transcription skills had been accounted.

We were unable to locate any meta-analyses that specifically assessed the impact of this practice on students' writing. There are, however, a small number of studies that examine this issue. For example, Brodney, Reeves, and Kazelskis (1999) reported that reading to locate information paired with a pre-writing activity to organise relevant ideas on the writing topic resulted in better writing than the pre-writing activity alone. Likewise, Doan and Bloomfield (2014) found that using the Internet to locate possible writing contents enhanced students' writing. These findings support the functional view of reading and writing relationships and the potential power of gaining writing information through reading. Until more studies are conducted, though, the veracity of these propositions must be viewed as tentative and in need of further testing.

### ***3.3 Does Reading Improve Writing?***

According to the rhetorical relations model of reading and writing connections, the process of reading should enhance one's skills as a writer. The basic assumption here is that the readers gain insight about writing as they engage with text. One possible way that this might happen is that readers pay attention to how authors construct their message. A meta-analysis focusing on students in grades four to 12 (Graham et al., 2012) found that asking students to read, analyse, and emulate model text resulted in improved writing quality (effect size = 0.25) in true- and quasi-experiments. It is not clear, however, if reading without such instruction would lead to improved writing, although some studies have assessed this possibility (e.g. Norris, 2008).

Reading may also enhance students' spelling (Graham, 2000). To illustrate, as students repeatedly read the same word in connected text or in isolation (as may happen during reading instruction), the translation of the word from print to sound may result in the reader acquiring word-specific, orthographic information that improves spelling of the target word as well as other ones (Share, 1999). While this self-teaching function has improved word reading and spelling performance (Share, 2004), no meta-analysis has been conducted to determine the magnitude and statistical significance of such phonological recoding across investigations.

Finally, the rhetorical view of reading and writing relations emphasises that reading and writing involve a conversation between readers and writers (Shanahan, in press), and it is possible that observing readers in action may lead to important insights that inform writing. For example, observing readers as they try to carry out a task based on material read or listening to others vocalise their thinking processes, while reading may make writers more aware of their audience as well as issues involved in the production of text (Moore & MacArthur, 2012). Again, there is some evidence that such observations can have a positive impact on writing (e.g. Couzijn, 1999), but there is no systematic quantitative review of this literature.

## 4 Conclusions

### 4.1 *Theoretical Implications*

Meta-analyses examining the impact of writing and writing instruction on students' reading (Graham & Hebert, 2011; Graham & Santangelo, 2014; Hebert et al., 2013) support the three models of reading and writing connections proposed by Shanahan (e.g. Shanahan, 2006). The shared knowledge model was supported as spelling, sentence, genre, and process writing instruction improved reading comprehension as well as word reading and reading fluency in some instances. The functional view of reading and writing relations was also supported as asking students to write about what they read enhanced their comprehension of text. This included answering questions in writing, note taking, summary writing, and writing an extended response to text read. Lastly, the rhetorical relations model received support as increasing how much students wrote improved how well they comprehended text.

The evidence reviewed here on the impact of reading and reading instruction on writing provided additional support for the three targeted theoretical models of reading and writing relations. Phonemic awareness, phonics, vocabulary, and comprehension instruction enhanced one or more aspects of students' writing as did reading, reading to acquire possible writing content, reading and analysing modelled text, and observing readers in action. Nevertheless, any conclusion about the impact of reading on writing based on the evidence presented here must be viewed as tentative. Three of the meta-analyses that provided evidence were somewhat dated (Bus & van IJzendoorn, 1999; Ehri et al., 2001a, b), and not all of the studies included in these reviews adequately isolated reading effects on writing (e.g. the writing outcome was spelling, and the intervention included both reading and spelling instructions). In addition, some of the conclusions we drew about the effectiveness of a specific reading intervention were based on the findings from individual studies and not on a collective and systematic review of all pertinent intervention studies. A more definitive conclusion on the impact of reading and reading instruction on writing performance awaits a more comprehensive review (such as the Reading to Write meta-analysis we are currently conducting).

## **4.2 *Practical Implications***

In addition to supporting the three theoretical positions of reading and writing connections, the evidence reviewed in this chapter extends our understanding of how students' reading abilities can be expanded. Writing should be added to the list of activities that make a difference when teaching reading. Spelling, sentence, genre, and process writing instruction; writing about text read; and increasing how much students write should be viewed as EBPs in reading (most of these procedures are already recognised as EBPs in writing; Graham, Rouse, & Harris, in press). In effect, the report from the NRP (National Institutes of Children's Health and Development, 2000) on effective reading practices was incomplete. We suspect that there are other effective instructional practices in reading that are not included in the NRP report waiting to be identified.

We did not attempt to identify EBPs' reading practices for teaching writing for two reasons. One, the focus of this book is on improving reading. Two, the evidence we presented on this topic demonstrated several limitations as noted above. Nevertheless, many of the practices reviewed have been identified as EBPs in writing. This includes increasing amount of writing, implementing a process approach to writing, and teaching students about spelling, sentence construction, and the genre elements that comprise specific types of writing (Graham et al., 2012, 2015; Graham & Perrin, 2007).

It is important to note that the evidence presented in this chapter did not provide support for just teaching writing in the hope that students will become good writers (or vice versa). Quite frankly, the effect sizes presented were not large enough to suggest that teaching one of these skills will make teaching the other one redundant. As a recent report from the National Institute of Child Health and Human Development and the International Reading Association (2012) suggested, we need to dedicate separate time for teaching both of these skills, while also looking for ways to integrate reading and writing instruction, where appropriate.

## **4.3 *Future Research Implications***

Two things have become obvious to us as we worked on this chapter and the Reading to Write meta-analysis. One, intervention studies aimed at establishing a causal connection between reading and writing are relatively rare (especially when one considers the 100,000s of studies conducted in reading). Two, there have been many missed opportunities to examine these connections in past intervention studies. For instance, most of the intervention studies that assess the effectiveness of reading comprehension did not examine whether there was a corresponding improvement in writing capabilities. This is the same for vocabulary and reading fluency instruction and to a lesser degree for phonics and phonological awareness instruction. We hope that this chapter triggers additional research on reading and

writing connections and results in both reading and writing measures becoming a routine component of literacy instructional studies in general.

Finally, it is obvious that more research is needed to examine the connections between reading and writing and how these can be exploited instructionally. We were surprised at how few studies actually examined how writing instruction and increased writing can enhance reading performance. While there were more studies examining the effects of reading instruction on writing, this is a relatively thin literature, and some potential causal relations have not been examined at all (e.g. the impact of vocabulary or reading fluency instruction on spelling performance). While there is still much to be done and learned, it is critical that this work takes place if our students are to become strong readers and writers.

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## Appendix A

### Means and Standard Deviations of Activities Occurring During Lessons

Activity occurring during lessons	M (first questionnaire)	SD (first questionnaire)	M (second questionnaire)	SD (second questionnaire)
The reading material is selected together	2.70	0.92	2.41	0.89
The teacher reads aloud	2.66	0.98	2.25	0.99
Students read silent	3.27	0.86	3.09	0.82
Students read self-selected material	3.31	0.83	3.16	0.80
Students read aloud in turns	3.08	1.01	2.87	1.04
Students read with a pair or a group	2.34	0.95	2.15	0.86
Reading is allowed out of the classroom	2.43	0.98	2.45	0.91
Other material than school books is utilised	2.69	0.94	2.55	0.86
Studying occurs out of the classroom	2.79	0.88	2.70	0.83
The teacher uses a computer	3.24	0.85	3.16	0.84
Students are allowed to use computers	2.89	0.85	2.58	0.76
Students make videos and slideshows	1.82	0.88	1.93	0.77
Studying in the library	1.75	0.81	1.71	0.79
The teacher recommends a book to read	2.06	0.78	1.81	0.70

(continued)



(continued)

Activity occurring during lessons	M (first questionnaire)	SD (first questionnaire)	M (second questionnaire)	SD (second questionnaire)
Students recommend to each other books to read	2.55	0.91	1.91	0.82
The teacher encourages students to express Opinions about a text	2.59	1.00	2.15	0.91
The texts relate to students' lives	2.00	0.89	1.77	0.81
Current topics are discussed	2.16	0.88	2.15	0.86

## Appendix B

### Means and Standard Deviations of Activities Outside of School

Activity outside of school	M (first questionnaire)	SD (first questionnaire)	M (second questionnaire)	SD (second questionnaire)
Reading fiction	2.81	1.01	2.65	1.04
Reading non-fiction	2.49	1.01	2.38	0.99
Reading magazines	2.79	1.00	2.72	1.03
Reading comics	3.04	0.96	2.93	0.95
Watching pictures	2.97	0.94	3.06	0.91
Watching TV	3.70	0.72	3.68	0.80
Watching videos	3.17	0.95	3.32	0.91
Listening to music	3.46	0.82	3.52	0.78
Listening to audiobooks	1.63	0.83	1.44	0.76
Writing fiction	2.00	0.87	1.75	0.83
Writing non-fiction	1.91	0.87	1.71	0.82
Writing comics	1.80	0.90	1.68	0.84
Taking pictures	2.86	0.94	2.97	0.93
Making videos	2.33	1.02	2.36	1.03
Playing board games	2.53	0.84	2.36	0.81
Playing Internet games	3.13	0.95	3.07	0.99
Playing Internet games	3.00	0.97	2.90	1.02
Chatting	2.60	1.35	3.00	1.27
Using social media	1.86	1.24	2.14	1.39
Reading blogs	1.75	1.09	1.77	1.08
Writing blogs	1.29	0.73	1.21	0.67

(continued)

(continued)

Activity outside of school	M (first questionnaire)	SD (first questionnaire)	M (second questionnaire)	SD (second questionnaire)
Reading forums	1.70	1.07	1.57	0.98
Writing to forums	1.60	1.07	1.50	1.00
Using email	2.18	1.15	2.11	1.07
Reading online newspapers	1.90	1.08	1.90	1.11
Using online dictionaries	2.07	1.08	1.95	0.98
Using online encyclopaedias	2.19	0.99	2.22	0.87

# Appendix 1a

*Motivating learners through introducing a variety of resources in lessons* is the first goal of the Reading module of the QTN project. Examples of resources adapted to motivate students are shown below:

a. **Print**

e.g. Menus



b. Non-print

e.g. YouTube video clip



c. Others

e.g. board games

 A board game layout for "Word Skills". The board consists of several interconnected paths of cards. 
 

- Top Row:** A dashed box containing a "Choice" card with a green character. To its right is a "Rhymes" card with a cat and hat illustration.
- Second Row:** From left to right: an "Ends With" card with a fish; a "Synonyms" card with "large" and "big" and two faces; a "Short Cut" card with a red arrow pointing up; an "Opposites" card with a face; and a "Words That Have" card with "ar", "ai", "aw", "ew", "ow", "ea", "ee", "ea", "oo".
- Third Row:** A "Begins With" card on the left, followed by a "Rhymes" card (cat and hat) and a "Words That Have" card (same as above).
- Fourth Row:** A "Choice" card (green character) in the middle, a large illustration of a superhero character in the center, and a "Rhymes" card (cat and hat) on the right.
- Fifth Row:** A "Synonyms" card (same as above) on the left, followed by an "Opposites" card (same as above) and a "Ends With" card (fish) on the right.
- Sixth Row:** A "Start" card on the left.

 The "Word Skills" logo is at the bottom center, with a small URL below it: "Materials adapted from [www.boggslearning.com](http://www.boggslearning.com)".

# Appendix 1b

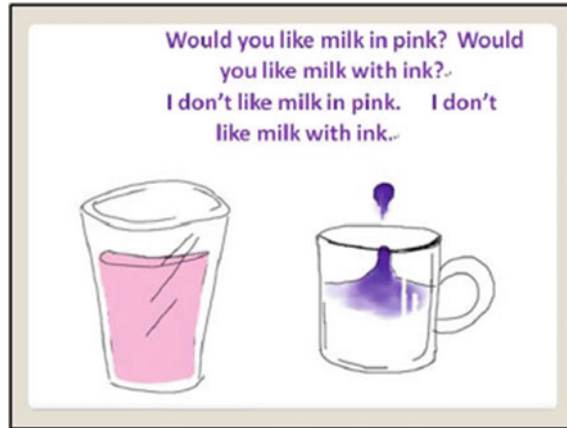
*Enhancing learners' reading and writing skills by exposing them to a variety of texts* is the second goal of the Reading module of the QTN project. Examples of text types adapted to enhance students' reading and writing skills are shown below:

## a. Stories

### Green Eggs and Ham

<b>Reading tip::</b> <u>Pronunciation &amp; intonation – voice projection – expressiveness – read for meaning:</u>	
<u>Green Eggs and Ham - By Dr Seuss</u>	
Sam-I-am:	I am Sam. Sam-I-am. Sam-I-am.
Friend:	I do not like that Sam-I-am! Sam-I-am!
Sam-I-am:	Do you like green eggs and ham? Yes or no? Yes or no?
Friend:	I do not like green eggs and ham. I say no. I say no.
Sam-I-am:	Would you like them here and there? Here and there?
Friend:	I would not like them here and there. Here and there.
Sam-I-am:	Would you like them in a house? In a house?
Friend:	I do not like them in a house. In a house.
Sam-I-am:	Would you like them with a mouse? With a mouse?
Friend:	I do not like them with a mouse. With a mouse.
Sam-I-am:	Would you eat them in a box? In a box?
Friend:	Not in a box. In a box.
Sam-I-am:	Would you eat them with a fox? With a fox?
Friend:	Not with a fox. With a fox.
Sam-I-am:	Would you? Could you? In a car? In a car?
Friend:	I would not, could not, in a car. In a car.

b. Rhymes



c. Recipes

**One and a half minute Marshmallow Omelette**


**Ingredients:**  
2 eggs  
1 slice of ham  
2 big marshmallows or 8 small marshmallows  
1/4 cup of grated cheese  
1 tablespoon of milk

**Directions:**  
1. Beat eggs and milk in a bowl.  
2. Add ham.  
3. Cook the mixture in a pan over high heat for about 30 seconds.  
4. Add the marshmallows and cheese and cook for about one minute longer.  
5. Fold the omelette in half when the egg mixture is set.  
6. Serve hot.


# Appendix 1c

Developing creativity and collaborative skills through engaging learners in different learning activities is the third goal of the Reading module of the QTN project. The following learning activity requires students, in pairs, to rewrite a monster song by filling in the blanks with different adjectives and rhyming words. It serves as an example of learning activities developed and adapted by participating teachers of the QTN project to achieve this teaching goal.

What words do you use to describe the things put into the soup? Fill in the missing parts of the song with new adjectives and rhyming words.



**BOIL, BOIL,  
BOIL THE SOUP!  
HEE HEE!  
HA HA! HEEEEEEEE!**



One (e.g.) tall green tree,  
And (e.g.) four \_\_\_\_\_ tea.  
\_\_\_\_\_ mice,  
And \_\_\_\_\_ rice.  
\_\_\_\_\_  
And \_\_\_\_\_ boys,  
And \_\_\_\_\_ toys.  
\_\_\_\_\_  
And \_\_\_\_\_.



**BOIL, BOIL,  
BOIL THE SOUP!  
HEE HEE!  
HA HA! HEEEEEEEE!**

