Towards education 4.0: An agenda for multiliteracies in the English language classroom

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TOWARDS EDUCATION 4.0: AN AGENDA FOR MULTILITERACIES IN THE ENGLISH LANGUAGE CLASSROOM*

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ABSTRACT

In today's digital age, literacy practices have shifted beyond the reading of print texts to include the viewing of multimodal texts that make meanings through resources such as language, images, animations, and music. The sole focus of literacy as the learning of a language is no longer sufficient for students to navigate the complex multimodal communicational landscape that our students inhabit. New literacies for viewing critically and representing knowledge effectively are required in the contemporary communicative landscape. This paper argues that Education 4.0 involves a requisite shift in our literacy curriculum, from that of a language-focused curriculum to that of multiliteracies, with reference to a research project on integrating multiliteracies within the context of recent English Language curricular reforms in Singapore. The paper concludes with aLim, F. V., Weninger, C., & T.T.H., Nguyen. (2021). "I expect boredom"- students’ experiences and expectations of multiliteracies learning. Literacy, Online First. .pdf reflection on the curricular changes and pedagogic shifts that educators need to make so as to keep in step with the ever-changing world.

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INDUSTRIAL REVOLUTION 4.0

It is a cliché today to say that technology has changed our world, but indeed it has. Technology has radically transformed the ways we live, work, learn, and play. The exponential increase in computer processing power has been outperforming even what Moore’s Law has previously speculated – that it is more than doubling in its power every two years. This astounding advancement in the capability of digital technology has led to the World Economic Forum, amongst others, in 2016, to describe the changes as that of ushering in Industrial Revolution 4.0.

The term ‘Industrial Revolution’ was coined to describe the shift into a new form of production due to technological innovations in Western Europe in the 18th Century. The technological advancement in the first Industrial Revolution, or Industrial Revolution 1.0, was the use of water and steam to mechanise production. Its profound effects were to usher the agrarian society of Europe into an age of industry and capitalism. Industrial Revolution 2.0 happened at the turn of the 20th Century, with electric power as the core technological innovation which brought about mass production, along with its poster-boy, Henry Ford, with his signature automobiles in America. Some fifty years ago, the advent of electronics and information technology, such as the use of robots, led to the automation of production, reducing the need for manual labour. This led to changes globally in management reviewing employees’ numbers, redesigning jobs, reskilling workers, and redeploying staff.

Today, the paradigm of Industrial Revolution 4.0 has captured the world’s imagination as we witness the shifts that are happening around us due to the opportunities made possible by digital technologies. Disruptions in traditional business models and ways of doing things – think of the classic examples of social media giants, such as Facebook and YouTube challenging the traditionally print-based newspaper and its attendant advertising industry. Additionally, e-commerce platforms such as Amazon and Alibaba are driving many familiar brick-and-mortar stores to bankruptcy. Last but not least, the sharing economy, in the likes of Uber and Grab in transport, and AirBnB in travel accommodation, are threatening the profit margins, and in some cases the continual viability of taxi companies and hotels. A revolution is quietly brewing around us, even as we speak. The effects on our lives and society are currently uncertain and the present trajectory of the shifts seems to be often described by many as ‘disruptive’, ‘networked’, and ‘systemic’.

What is the impact of Industrial Revolution 4.0 on education? How should educators, in particular, language teachers, respond to the increasing prowess and popularity of
language translation applications, such as Google Translate, automated writing evaluation tools, such as Grammarly and Ginger, and self-directed language learning software, such as Duolingo? Should we embrace them, resist them, or ignore them? What about the changes in the ways of communication that our students experience in this digital age? Students are also reading more than ever – albeit in bite-sized posts as they skim and scan information from social media on their personal mobile devices. News and knowledge are now literally at their fingertips. Potter and McDougall (2017, p. 20) argue that “If we factor in the way that text is shared in ever multiplying ways, on screens, on myriad devices, as well as continuing to have a life on the printed page, then children and young people are daily attending to myriads of words, maybe even more than at any time in history.”

van Leeuwen (2017, p. 17) observes that “more recently, formerly austere genres such as textbooks and documents produced by corporations, universities and government departments have also become multimodal, and the multimodal affordances of ubiquitous digital technologies such as Word and PowerPoint have made multimodal text design accessible to all.” Our communication and interactions on social media are seldom made with language alone, but are often accompanied with emojis, images, and videos, making meanings multimodally. On social media, we seldom only passively consume media texts, but are now active producers of meanings. We interact with posts by liking or reacting that is, expressing our response, explicating our views through adding comments, and making our own posts. In doing so, we express our opinions and initiate a new conversation thread for followers to respond, hence both enacting and perpetuating the social network. Young people, including children, are also increasingly active in making videos of themselves, their ideas and their experiences on YouTube as part of their out-of-school literacy activities (Lim & Toh, 2020a).

Futurist Alvin Toffler (1980) first coined the term ‘prosumers’ in his book ‘The Third Wave’ in 1980 to describe the merging of the roles of consumers and producers as companies shifted from mass production to mass customisation to accommodate the demand for a higher degree of customisation. Ritzer and Jurgenson (2010) reintroduced the term ‘prosumers’ and described prosumption as a feature of Web 2.0, questioning the extent of ‘exploitation’ of user’s data by big corporations. Within literacy education, the term ‘prosumers’ can likewise be appropriated to describe our communicative and literacy activities on social media, where reading/viewing and writing/representing are increasingly merged. Industrial Revolution 4.0 has brought about these new literacy realities of our young people today. In this light, how then should language teachers respond to the changing communicative landscape?

In this paper, I argue that Industrial Revolution 4.0 demands a change in our education. In particular, for language teachers, the present shifts in our world require that we reexamine what we teach and how we teach the digital natives in our classes today. It
should never be a natural default that we teach our students the same things as we were taught when we were students, and that we teach our students in the same way as we were taught decades ago.

The digital divide today is no longer that of access to computers, as the costs of devices have been significantly reduced over time, making ownership of computing devices more affordable. Increasingly in many parts of the world, ownership of computing devices, even amongst the economically marginalised, has been perceived as somewhat less of a luxury item and more of an essential item. As such, access to computers has become less of a concern to the new digital divide now identified by the Organisation for Economic Co-operation and Development (OECD). According to Schleicher (2011), the OECD’s Programme for International Student Assessment (PISA) finds that nearly 17% of 15-year-olds who have grown up with a computer do not possess the skills to navigate the digital environment. The new digital divide is thus between the people who have knowledge and skills to effectively navigate the digital environment and those who are unable to. Schleicher (2011) calls for policy makers, researchers, and educators’ attention to this gap so that “our children are not left behind on the analogue side of the digital divide.”

Against this backdrop, in this paper, I argue for the importance of broadening the teaching of language, to the teaching of literacy, which includes multiliteracies. This also challenges the assumption that since students are digital natives, having grown up in a technocentric world, they are equally fluent with technology and innately possess the knowledge and skills to be discerning of media messages. Students need to progress beyond an intuitive sense of knowing in learning to develop multimodal literacy (O’Halloran & Lim, 2011; van Leeuwen, 2017). As such, there is a need to guide students to be critical viewers and to make multimodal representations effectively.

**Multiliteracies**

What does it mean to be literate today? At the turn of this millennium, Unsworth (2002, p. 62) predicts that “while many of the fundamentals of established, language-based literacy pedagogies will endure in the foreseeable future, they are by no means sufficient for the development of the kinds of literacy practices that already characterise the continuously evolving information age of the new millennium.” Now, almost two decades later, this prediction has become our reality and the insufficiency of a literacy that focuses only on language has become even more pronounced in today’s digital age. This recognition has evolved into a “conviction that students require critical competencies that
move beyond traditional literacy practices to prepare them for life in the digital age” (O’Halloran et al., 2017, p. 148).

Lim (2018, p. 1-2) argues that the literacy curriculum needs to broaden “beyond just the teaching and learning of reading in print to reading both in print and on screen; from that of reading of books to that of reading of books and viewing of multimodal texts critically; from writing to writing and typing; from speaking to speaking and representing.” What this means essentially is that students need to develop both a fluency in the use of language, as well as multimodal literacy in both the production and reception of meaning. This is further discussed in Lim and Hung (2016) as ‘complementary competencies’ for future-ready learning.

As a signal for the expansion of literacy beyond language learning, the New London Group developed a manifesto for what they described as ‘multiliteracies’. In their 1996 seminal article, “A Pedagogy of Multiliteracies: Designing Social Futures,” they presented a new approach to literacy pedagogy and maintained that a paradigm shift towards multiliteracies will enable students to achieve the twin goals of literacy learning, that is “creating access to the evolving language of work, power, and community, and fostering the critical engagement necessary for them to design their social futures and achieve success through fulfilling employment” (New London Group, 1996, p. 60). In this regard, the purpose of multiliteracies is to ensure that our literacy curriculum continues to progress so as to remain relevant to the students, not in light of just the changing nature of their communicative needs, but also preparing them the knowledge and skills for their future contribution to human civilisation.

The prefix of ‘multi’ to ‘literacies’ in ‘multiliteracies’ is motivated to reflect the impetus for this work. Looking back to their conception of multiliteracies recently, Bill Cope and Mary Kalantzis, the key members of the New London Group, reflected that they added “two ‘multis’ to ‘literacies’: the ‘multi-’ of enormous and significant differences in contexts and patterns of communication, and the ‘multi-’ of multimodality... the multiliteracies notion sets out to address the variability of meaning making in different cultural, social or domain-specific contexts... The other ‘multi-’ response to the question... in part from the characteristics of the new information and communications media” (Cope & Kalantzis, 2015, p. 3).

In the last quarter of a century since the idea of multiliteracies was introduced to the world, the term seems to have gone viral, in modern day parlance. The idea of multiliteracies has also become increasingly popular over time. Cope and Kalantzis reported in 2015 that a Google search “shows 196,000 web pages that mention the word” (Cope & Kalantzis, 2015, p. 3). In 2020, half a decade later, the number has increased to 439,000 web pages. More significantly, the tenets in multiliteracies have also crossed from
the research and academic space into the realm of application, informing curriculum planners’ policy-making and influencing teachers’ professional practice.

Some more forward-looking educational systems have adopted the tenets of multiliteracies in their review and refreshed their English Language curriculum. For example, the latest revision of the Australian English curriculum in 2012 expresses a focus on multimodality. The curricular outcomes include developing students’ knowledge, understanding and skills in listening, reading, viewing, speaking and writing in three interrelated strands (Language, Literature and Literacy). Students will be exposed to a growing repertoire of texts such as literary texts and multimodal texts, in spoken, print and digital/online contexts and they will learn to interpret, appreciate, evaluate and create those texts. Educational researchers in Australia have also been providing insights and developing principles on how multimodality can be meaningfully harnessed in the language classroom (see for example, Anstey & Bull, 2006, 2018; Macken-Horarik et al., 2011; Unsworth, 2001; Unsworth et al., 2019; Walsh, 2009, 2010).

In particular, Walsh (2009) highlights the importance of the context of learning and the making of multimodal texts in teaching multiliteracies. She suggests that when designing literacy strategies for reading, using and producing multimodal texts, digital technology should be interwoven for a holistic learning experience that is authentic and situated in real-life contexts. Walsh (2010) describes the literacy strategies that students need for reading and writing with multimodal texts, and how digital technology can be harnessed in students’ development of multimodal literacy.

Unsworth (2001) argues for the need to integrate multiliteracies across the curriculum and highlights the need to develop a metalanguage that reflects the knowledge of meaning-making systems for teachers and students. Extending this work, Macken-Horarik et al., (2011) explored the question of what is a ‘good enough’ knowledge about language and proposed ‘grammatics’ as a way of thinking with grammar in mind. Studying the Australian National Curriculum and the Australian National Assessment Program in Literacy and Numeracy, Unsworth et al., (2019) advocated that the large-scale testing approaches to literacy assessment need to be reformed to be consistent with curriculum requirements in relation to multimodal literacy.

How then does a multiliteracies classroom look like and how is it different from a conventional literacy classroom that focuses on language learning? A multiliteracies classroom is not only distinguished by its topical content coverage. A multiliteracies classroom can be evident from identifying characteristics in terms of the lesson resources used, the pedagogic activities students participate in, and the learning outcomes designed for the students. They are characteristics of teaching and learning that draw from and illustrate the tenets of multiliteracies.
The lesson resources used in a multiliteracies classroom should be multimodal, that is, a range of semiotic modes, as compared to the privileging of language in a conventional classroom. The multimodal resources used could be digital, such as the use of websites, videos, and educational apps, but can also be print-based, such as picture books, posters, and newspapers. Educational technology tools, such as tools that facilitate collaborative annotations and visualisations, can also be harnessed to bring in new ways of learning and teaching.

The pedagogic activities in a multiliteracies classroom are informed by Cope and Kalantzis’ (2015) Learning by Design’s Framework. The pedagogic activities are described in terms of the dimensions of Situated Practice, Overt Instruction, Critical Framing, and Transformed Practice. Each of these dimensions corresponds respectively to the knowledge processes of Experiencing (the known and the new), Conceptualising (by naming and with theory), Analysing (functionally and critically), and Applying (appropriately and creatively). As an expression of the Learning by Design’s Framework, Lim (2018) details the pedagogical features in a multiliteracies classroom in terms of the organisation of the lesson according to the genre of the multimodal texts, the use of authentic texts, the facilitation of collaborative learning, the balance between explicit teaching and inductive learning, the use of educational technology, as well as the integration of viewing and representing activities though artefact making. Lim (2018) describes this as the systemic functional approach and argues for the importance of the teaching and learning of a set of metalanguage to develop multimodal literacy through the pedagogic activities in a multiliteracies lesson.

Fundamentally, the multiliteracies lesson is characterised by reflexive pedagogy that is described by Cope and Kalantzis (2015). A reflexive pedagogy involves the learning of communication and knowledge representations by combining insights and practices from both didactic and inquiry-based pedagogical approaches. The reflexive pedagogy positions that knowledge is created and internalised through our actions; hence the pedagogic activities in a multiliteracies lesson centre around the different kinds of things that learners do to know. This is reflected in the epistemological theory of learning that encapsulates the core tenets of multiliteracies, where “knowledge is not (just) the stuff that ends up in our minds. It is what we do and make. Learning is a consequence of a series of knowledge actions, using multimodal media to externalize our thinking… Learning is also very social, as we rely on the artefacts of collective memory, and work with others in the essentially collaborative task of knowledge making” (Cope & Kalantzis, 2015, p. 39).

In this regard, the learning outcomes for students in a multiliteracies classroom are, as O’Halloran and Lim (2011, p. 14) described to be “sensitized to the meaning potential and choices afforded in the production of the text, rendering an enhanced ability to make deliberate and effective choices in the construction and presentation of knowledge.”
Essentially, students must be guided to become critical viewers of multimodal texts, and to make effective representations with multimodal texts.

MULTIMODAL LITERACY

Having described the characteristics of a multiliteracies classroom, and the learning outcomes of developing students into critical viewers that can also make effective representations with multimodal texts, two common questions asked by educators are – how do we do it? Is there a set of knowledge and skills to be taught in multiliteracies? In this paper, I argue that the learning outcomes of multiliteracies can be achieved by developing multimodal literacy, that is a codified set of knowledge and skills through the metalinguage of multimodality, as well as a multimodal semiotic awareness in students.

The notion of ‘semiotic awareness’ is proposed by Towndrow et al., (2013, p. 327) as what the teacher needs to cultivate before “meaningful assessment of children’s multimodal design work can be conceived or implemented.” Semiotic awareness is described as the “critical attention to relational, multimodal aspects of meaning design, without which meaningful assessment schemes can neither be conceived nor implemented” (Towndrow et al., 2013, p. 328). The notion of multimodal semiotic awareness has been extended by Lim and Toh (2020b) beyond teachers, as part of developing students’ literacies in the reading of digital multimodal texts. Building on this semiotic awareness, students are guided towards an aptness in the use of semiotic modes, both in critically assessing its meanings, and producing effective multimodal texts across various genres, such as posters, videos, websites, and collages. As such, multimodal literacy involves cultivating multimodal semiotic awareness in students and guiding them towards an aptness in the use of semiotic modes as they grow in their repertoire of resources as meaning-makers.

How can multimodal literacy be developed? This question can be recast in terms of what teachers in the classroom should teach in a multiliteracies lesson. While the lesson resources in a multiliteracies lesson can involve the use of many multimedia texts, as well as discussion on the meanings from specific multimodal texts through teacher-led questioning, this may not be sufficiently targeted towards helping teachers develop multimodal literacy in their students. Lim et al., (2015, p. 916) observe that the “the teaching of multimodal texts is done mainly by teachers introducing a text and asking a series of questions to elicit students’ comprehension. Many lower ability students require more support in the form of the language, pedagogical scaffolds and technological tools, to develop understanding of the multimodal text.” I argue that multimodal literacy in
students will not be cultivated just in having teachers ‘teach’ multimodal texts by leading
the students in “interrogating the text.” This pedagogic activity assumes that through
“testing the students’ comprehension through a barrage of questions, the understanding
of the visual text will somehow develop” (Lim & Tan, 2017, p. 180) and can be challenged.

This is not to say that questioning is unhelpful in a pedagogy of multiliteracies. Questioning can be powerful in directing students’ attention to the features and functions
of the multimodal texts. For example, the semiotic modes framework developed by Bull
and Anstey (2010), Chan and Chia (2014) and Chia and Chan (2017) included different ways
questions on a multimodal text can be organised. They proposed different organisations
of questions according to the semiotic modes, Bloom’s taxonomy, and narrative theory, so
as to bring an overarching coherence to the ways in which questions can be asked in the
classroom. Notwithstanding the value of organising the questions asked according to a
structure, a fundamental challenge that remains is whether students are already equipped
with the requisite knowledge and skills to be able to answer the teachers’ questions. As
such, it is useful to reflect if students have already been guided in the viewing and
representing of multimodal texts such that, all students, not just the naturally brighter
ones, are empowered with the skills and knowledge to answer the teacher’s questions and
to cite textual evidence to explain their interpretation of the text.

Hence, following the observation made by the New London Group, it is necessary to
have a way for teachers and students to be able to “describe meaning in various realms”
(New London Group, 2000, p. 24). The importance of having a metalanguage for the
learning of language is well-recognised, and has been expressed by researchers such as
Martin (2012) and Martin and Rose (2012). They argue that with the metalanguage,
students are able to identify the genre of the texts, specifically the features and their
typical functions, so that this knowledge will guide their reading of new texts within the
genre that they will encounter.

In this paper, I advance the argument that in order to cultivate students’ multimodal
literacy, we need not only to have a metalanguage for language, such as that linguists and
language educators are familiar with, but also a metalanguage for the other semiotic
modes. Crucially, teachers and students need a shared language to describe and discuss
the meanings made in multimodal texts so as to develop a multimodal semiotic awareness
and move towards an aptness in the use of semiotic modes.

The need of a metalanguage for multimodal meaning-making is highlighted by
Unsworth (2014, p. 38) when he argues that “Teachers and students need this kind of
metalanguage for talking about language, images, sound, and so forth, and for their
meaning-making interactions. This kind of metalanguage gives students and teachers a
means of comparing texts, of determining what semiotic choices were made in
constructing particular meanings, what alternatives might have been chosen, and the effects of particular choices rather than others.”

Along this trajectory, Lim et al., (2015, p. 915) propose a “systemic approach and the explicit teaching of a metalanguage to provide conceptual tools for students for the analysis and interpretation of multimodal texts.” The systemic approach to the teaching of multiliteracies is described in Lim (2018) and the metalanguage for the teaching of various types of multimodal texts, organised by genres and trialled in Singapore secondary schools, has been progressively developed in recent years. This includes the teaching of print advertisements (Lim & Tan, 2017; Lim, 2018), films (Lim & Tan, 2018), online news (Lim, 2020), media production (Liang & Lim, 2020) and video games for learning (Toh & Lim, 2020). Other works in progress include a metalanguage for the teaching of picture books for primary school students as well as for transmedia educational apps for literacy development.

The goal of developing the metalanguage for different multimodal texts is motivated by the conviction that multimodal literacy can be cultivated “by providing students with a language to describe and discuss multimodal texts, guiding them on where to look and what to look out for in a multimodal text and teaching them the generic features and functions of the text as well as the common engagement strategies in the text” (Lim & Tan, 2018). The utility and effectiveness in introducing a set of metalanguage for students have also been made by researchers in Australia, such as Mary Macken-Horarik, Kristina Love, Carmel Sandiford, and Len Unsworth in their book ‘Functional Grammatics’. They argue that the metalanguage for students can “structure their noticing, offering a fresh view of choices that may have been taken for granted in diegetic reading” (Macken-Horarik et al., 2017, p. 255). Most heartening was their observation that “the metalanguage was not only ‘turning up’ in their writing and talking but appeared to re-shape their ways of thinking about images and their contribution to higher orders of meaning in multimodal texts” (Macken-Horarik et al., 2017, p. 259).

Having a shared metalanguage between teachers and students for specific genres of multimodal texts not only provides the pedagogical scaffolds for students to develop multimodal semiotic awareness and guide them towards an aptness of use in semiotic modes but also offers a way for teachers to assess their performance of multiliteracies. The assessment of multiliteracies can be notoriously challenging as language has been the most familiar mode of knowledge representation for teachers and students. As such, while ways have been developed and institutionalised for the assessment of language in students’ productions, such as the marking of students’ written compositions, the assessment of students’ multimodal compositions, such as collages and videos, can be uncertain for many teachers.

Towards Education 4.0

Towndrow et al., (2013) sought to address the challenge in the question of “what does a successful multimedia literacy performance look like and how might ‘designful’ multimedia thinking and composition be taught, learned, and assessed?” (Towndrow et al., 2013, p. 327). Present approaches to assessing students’ texts quantitatively with a set of rubrics on “technical and substantive aspects observable in students’ finished work” (Towndrow et al., 2013, p. 331), as well as drawing from Bearne and Wolstencroft’s (2007) proposal of describing and evaluating students’ growing compositional capabilities in more qualitative terms are discussed. Notwithstanding, it was concluded that these approaches were limited in that there were insufficient examples from research at present “to suggest a range of criteria for developing an ‘apt metric’ (Kress, 2010, p. 182) for multimodal literacy assessment” (Towndrow et al., 2013, p. 332).

In this light, Towndrow et al., (2013, p. 332) argue that the development of semiotic awareness in teachers can present “a middle path that accepts, for the present, the predominance and consequences of quantitative assessment while also promoting a more meaning-focused, relational approach to evaluating students’ multimodal literacy performances.” In this paper, I add to Towndrow et al.,’s (2013) proposal by suggesting that the cultivation of multimodal semiotic awareness and guiding students towards an aptness in the use of semiotic modes pave the way towards the recognition of the types of learning demonstrated in students’ critical viewing and effective representing with multimodal texts. The heart of assessment is about recognising learning. It is about the teachers valuing and validating the types of learning that students experience in the production and reception of multimodal texts. In order for the teachers to value and validate the types of learning students experience, a shared metalanguage is necessary to provide a common understanding of the knowledge and skills to be taught, which only then can be subsequently and systematically assessed to ascertain the students’ multimodal literacy.

The metalanguage for multimodal texts referred to in the preceding paragraphs is developed from theoretical frameworks in academic research and translated into an accessible and pedagogically practicable version in close collaboration with teachers and students. Specifically, the systemic approach described by Lim et al., (2015) and Lim (2018) are based on Systemic Functional Theory (Halliday, 1978; Halliday & Matthiessen, 2014) and Systemic Functional Multimodal Discourse Analysis (O’Halloran, 2008; O’Halloran & Lim, 2014), including seminal work on the analysis of images by Kress and van Leeuwen (1996) and O’Toole (1994). Specifically, the systemic approach “emphasizes explicit teaching of the generic features of [multimodal] texts and introduces the common multimodal strategies used to engage viewers. It aims to provide a set of pedagogical scaffolds, informed by Systemic Functional Theory and insights from multimodal research,
to provide students with a structure and appropriate metalanguage to interpret [multimodal] texts” (Lim & Tan, 2017, p. 180).

Notwithstanding the compelling value of developing a theoretically-informed metalanguage for the teaching of multiliteracies, it is also crucial that the metalanguage “does not overwhelm the teachers and students with too much technical jargon and complexities” (Lim & Tan, 2017, p. 181). In Singapore, as it must be in many parts of the world, there is the challenge of a fairly crowded curriculum in most systems where time and space to be devoted to new areas of learning are strongly contested (Tan, 2006). While teachers may have access to professional learning opportunities, the range of teachers’ capabilities in any system is usually broad. As such, teachers may be unwilling or unable to manage new knowledge that may appear too technical and challenging to appropriate (Albright & Kramer-Dahl, 2009; Teo, 2014).

As such, Lim and Tan (2017, p. 181) describe the close collaboration between researchers and teachers to iteratively and “judiciously identify the necessary descriptions and choice of descriptors that are aligned to what they are already using to teach similar concepts in English language learning.” This was done to “prevent an overload of terminology... [and] ensure that each new term introduced was necessary and helpful for the students to use for their description and discussion of multimodal texts” (Lim, 2018).

The work in developing a pedagogy, with instructional strategies and lesson materials, for the teaching of multiliteracies to students is increasingly valued by policy makers and curriculum planners in Singapore. This is signalled by the inclusion of multiliteracies as one of the explicit focus areas in the new English Language Syllabus to be implemented from 2020. A core research project on integrating multiliteracies in the English Language classroom led by the author, in collaboration with curriculum specialists from the Ministry of Education, has also been awarded by the Educational Research Funding Programme for 2019-2023. This investment demonstrates the interest and commitment of the Ministry of Education in multiliteracies as part of nurturing future-ready learners and in growing the professional capabilities of the teachers in teaching multiliteracies. In the next section of this paper, I describe the research project in the context of recent English Language curricular reforms in Singapore.

THE CASE OF SINGAPORE

Although Singapore is a multilingual society, the English Language has been chosen to be the common language that binds the different ethnic and cultural groups together and at the same time assumes the role of the medium of administration, education, commerce,
science, technology, and global communication. Bilingualism has been the cornerstone of Singapore's language education, in which English is taught as the first language alongside one mother tongue of students’ choice, being Malay, Chinese or Tamil. Effective communication has been the foremost aim of English education, reflected consistently throughout the English syllabuses 2001, 2010 and 2020. Recognising the rapid changes in communications facilitated by technological affordances demands more than just language ability to communicate effectively, Singapore has also made changes in its English Language Syllabus to reflect the changing communicative experiences and needs of today’s students. In the English Language Syllabus 2010, Viewing and Representing were added as two new aspects of language learning. To develop the viewing skills in students, teachers are expected to help students “comprehend closely and critically a variety of different types of texts: literary and informational/functional, print and non-print [and] teach pupils to think critically and reflect on what they read and/or view to become critical readers and viewers” (Ministry of Education, 2008, p. 29). With the focus of developing in students “critical viewing skills” (Ministry of Education, 2008, p. 19), the syllabus signals the changes in two dimensions: the shift in the understanding of literacy and the emphasis on criticality in students. Specifically, the traditional areas of language learning that is, reading, writing, and speaking have been broadened to a literacy that includes multimodal communication and students are trained to be critical evaluators of what they are exposed to in communication.

In the latest revision of the English Language syllabus, EL Syllabus 2020, multiliteracies are explicated as one of the foci. This builds on the earlier work in English Language Syllabus 2010, where the areas of language learning have been expanded to include the viewing and representing of multimodal texts, beyond the traditional focus on language. In the EL Syllabus 2020, “texts” refer broadly to “monomodal, bimodal and multimodal texts from diverse sources, such as print, non-print and digital networked sources” (Ministry of Education, 2018, p. 14). Teachers are expected to guide students in understanding how different semiotic modes contribute independently and are integrated in communicating the meanings in the text. Students are encouraged to “actively consider the purpose, audience, context, and culture of the texts they encounter or produce and to examine the semiotic features of texts… to build knowledge and an understanding of multiliteracies so as to be more informed and discerning users of the English Language” (English Language Branch, 2019, p. 4).

The research project on “Integrating Multiliteracies into the English Language Classroom: Developing an Instructional Approach to Teach Multimodal Literacy (Critical Viewing and Effective Representing of Multimodal Texts)\(^1\)” led by the author in

\(^1\) https://www.nie.edu.sg/project/dev-01-18-vl.
collaboration with curriculum specialists from the Ministry of Education is in tandem with the implementation of the EL Syllabus 2020 and will inform the design of the pedagogies for multiliteracies. The project seeks to understand how multiliteracies are currently taught in the English Language subject classroom in Singapore schools and then to develop an instructional approach for the teaching of multiliteracies in lower secondary and upper primary students.

The project has three phases. Phase 1 focuses on understanding how teachers are teaching the viewing and representing of multimodal texts in the English Language lessons. Teachers are to identify lessons where multiliteracies are taught, and invite the researchers to sit in to observe these lessons. Both pre- and post-interviews with the teachers are conducted. The former is to understand the teacher’s beliefs about multiliteracies and expectations of the lesson. The latter is to facilitate the teacher’s reflection of the lesson, and to surface the successes and challenges they experienced during the lesson. In addition, a whole-class survey, and a focus group discussion conducted with a group of 5-6 students from each class, are conducted in Phase 1. The aim is to collect the student’s voices and perspectives on multiliteracies, specifically on the relevance between what they experience in their daily lives and what they learn in schools, as well as the support they would like in the viewing of and representing with multimodal texts. These understandings, together with a reflection of the unique pedagogical practices and preferences of each teacher, their beliefs towards multiliteracies, as well as the specific issues they encounter in the design and implementation of the lesson will inform Phase 2 of the project. Instead of imposing a new instructional approach on the teacher, the design principle is to understand the teacher’s way of teaching and integrate the instructional approach into the prevailing multiliteracies activities and lesson packages that the school already has.

Phase 2 centres on the co-design of lesson packages between the teachers and researchers. Based on the lesson observations, interviews with the teachers, as well as focus group discussions and surveys with students in Phase 1, a more nuanced understanding of the needs of the teachers and students in each school would have emerged. This would inform the co-design of the lesson packages with the teachers from each school. It is expected that further negotiation of understandings and discussions will be made through the co-design sessions.

Phase 3 of the project involves the implementation and subsequent iterations of the lesson packages co-designed in Phase 2. Lesson observations and post-lesson interviews will be conducted to evaluate the fidelity of implementation as well as to invite the teachers to reflect on their experience in conducting the lessons. Through the review of the lessons, the lesson packages will be refined through subsequent iterations, before they are packaged for dissemination to be used by teachers in other schools through the Ministry of Education and the National Institute of Education network, such as in pre-
service and in-service courses. While the project is currently in progress, the findings from Phase 1 has been published in a report for policy makers (Lim et al. 2020).

CONCLUSION

Industrial Revolution 4.0 demands a response from our education system. Our constantly changing world requires us, as researchers and educators, to regularly review and reflect on what it means for our students to be future-ready. While tempting to fall back on defaults, it is our responsibility to consider if the current state of education is serving our students well, and if it is not, to bravely challenge the status quo. It will be a tragedy if we unquestioningly persist in teaching our students the same things as we were taught as students, and to teach our charges in the same way as we were taught a generation ago. This is not to discard the fundamentals of literacy education that have served us well, but to explore new things to learn and new ways of learning as effects of technology permeate every aspect of our modern lives.

The high call of literacy educators is to prepare our students to be literate citizens, contributing meaningfully to the society of tomorrow. In light of the paradigmatic shifts brought about by Industrial Revolution 4.0, some educators have coined Education 4.0 as an appropriate response to the digital revolution. Educational technologists have offered a vision for the future of learning in Education 4.0 that includes the harnessing of artificial intelligence, learning analytics, and big data, collected seamlessly across learning platforms and digital learning environments. Even as blended learning promises to change the nature of teaching and learning experiences, it is productive to also consider the digital knowledge and skills students need to navigate the increasingly growing digital space.

In this paper, I argue that Education 4.0 involves a requisite shift in our literacy curriculum, from that of a language-focused curriculum to that of multiliteracies. The student outcomes in Education 4.0 should therefore describe students as being nurtured to be critical viewers and effective producers of multimodal texts. In order to achieve this, students’ learning needs to include an intentional cultivation of multimodal literacy. Based on the studies in Australia and Singapore, a critical first step in cultivating students’ multimodal semiotic awareness and guiding them towards an aptness in their use of semiotic modes is through the learning of a metalanguage. The metalanguage thus represents the knowledge and skills in analysing and producing specific genres of texts that can be taught, learnt, and assessed in a multiliteracies classroom.

We are building on the work of many researchers that have laid the foundation for a pedagogy of multiliteracies. However, much remains to be done. Issues and challenges in
this endeavour include the policy question in many education systems on how the literacy curriculum can be broadened beyond a language-centred one to include multiliteracies (Lim, 2021). Researchers need to advocate the importance of multiliteracies to policy makers and speak their language in making a case for the criticality of multiliteracies in students as a response to future-ready education in the digital age. The translational research question of how research in multimodal studies inform instructional practices in the classroom remains to be adequately addressed. While attempts have been made in the right direction through the work of researchers in Australia and Singapore, a more culturally-nuanced approach might be needed in different systems, in consideration of the teachers’ familiarity and comfort with the functional literacy approach to the curriculum.

In addition, there is also the practice question related to professional development of teachers. Even as multiliteracies is introduced in the English Language curriculum in Singapore, there remains the need to build teachers’ capabilities to teach and assess multiliteracies competently and confidently. Finally, the impact question needs to be addressed for any educational innovation. The impact question centres on sustainability and scalability of the educational innovation, in our case, the pedagogy to teach multiliteracies. The Integrating Multiliteracies research project is one response towards the question of building teachers’ capacity and the subsequent scaling up of the pedagogy through the development of lesson packages to be disseminated in pre-service and in-service teacher training programmes.

In this digital age, teaching and learning should continue to evolve in tandem with the changing world. A responsive and evolving curricular and pedagogical response to the ongoing changes in the world is far better than living in the naive hope that technological changes in our world will have neither relevance nor impact to education. Education 4.0 will be potentially disruptive to language education and we, as literacy educators, should be at the forefront of the charge and lead the change.

REFERENCES


