DIGITAL STORYTELLING AND DIGITAL LITERACY LEARNING

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Abstract

This paper describes key concepts from an on-going study that examines the use of digital storytelling for development of digital literacy in an English language classroom. Overall, this study explores how upper primary school students may be engaged in digital storytelling with the goal of increasing digital literacy necessary for meaning making and representing through electronic multimodal texts. Data is collected through classroom application of digital storytelling and involvement with a class in a naturalistic setting. The study aims to develop a set of recommendations for pedagogically sound applications of digital storytelling for development of digital literacy in primary school English language classrooms. The study also aims to contribute to theoretical debate in relation to literacy learning and learning with technology, and develop recommendations for further research. Key concepts and some preliminary results and examples of digital stories developed by students will be discussed and showcased.

Toward Digital Literacy Learning in an English Language Classroom in Singapore Schools

The current primary school English language curriculum from the Singapore Ministry of Education emphasizes meaning making and representing through multimodal texts (Curriculum Planning and Development Division, 2001). The four basic language micro-skills (listening, reading, writing and speaking) are expanded in the current English language syllabus to include a new skill — *viewing*. Traditional language literacy is extended into a new literacy that is critical in communicating, creating and consuming contemporary digital texts. Digital technologies today enable integration of modalities such as traditional text, images, audio, animated sequences, transitions and video into *multimodal texts* (Kress, 2006). It is argued that today students "should be taught how to construct, control, consume and manipulate the wide repertoire of text" and that in order to do so "traditional reading practices and resources in the classroom should now

include media text, hypertext, CD ROMs, visual texts, and other forms [that] may soon be invented" (Koh, 2002, p. 260). This new literacy promoted by the revised curriculum can also be associated with other constructs used to describe emerging literacies, e.g., techno-literacy, information literacy, visual literacy, media literacy and critical literacy.

Practices reflecting this tend in English language teaching are in place elsewhere beyond Singapore. For example, most Australian states have revised curricula such that emphasis is now placed on using and composing multimodal texts (Vincent, 2006). The New South Wales Board of Studies in Australia has issued an English language syllabus for K–6 that includes new learning outcomes related to viewing multimodal texts. Viewing is described as skills for "observing and comprehending a visual text, e.g., diagram, illustration, photograph, film, television documentary, multimedia" that might or might not include reading accompanying written text (Board of Studies, 2007). The Board of Studies refers to these meta-skills as language modes and introduces an additional mode — "representing" — that is given prominence in the secondary school syllabus. In Victoria, the Victorian Essential Learning Standards (VCAA, 2007) for primary school English also emphasizes using and composing multimodal texts in electronic format. Similar developments are happening in other countries. For example, in Canada, viewing and representing are integral parts of the English Arts curriculum (see Division of Program Development, 1998) while in England, the Primary National Strategy places a priority on new technologies for literacy teaching in schools (see Department for Children, Schools and Families, 2006). Clearly, these developments all demonstrate that English language curricula for primary schools around the world have been revised to allow new literacy practices that involve digital media to enter the classrooms.

What is Digital Literacy?

Extending language skills to include *viewing* as an additional category in literacy learning represents response to contemporary developments in representation and communication. For Kress (2004), one key aspect of these developments is a move from dominance of writing towards the new dominance of multimodal texts. Kress (2004) underlines the second key aspect of the developments as a move from the dominance of the book (or print-based media in general) to the dominance of the medium of the screen (computer screen in particular). These moves leads us to thinking in what ways literacy learning should be extended to encompass skills required to specifically make meanings and represent through multimodal texts (digital literacy). This new literacy requires a blend of skills of speaking, listening, reading, writing and viewing in order to be fully functional for meaning making and representing through multimodal text. The digital literacy is not an alternative

or replacement to traditional literacies but an extension that contributes to overall literacy required for working, learning and socializing in the contemporary world.

Unlike language-based written texts that have been well researched and have established semiotic rules, no corresponding rules exist for multimodal texts (although Kress & Van Leeuwen (1996) made an attempt to develop what they call The Grammar of Visual Design). Callow (2003) writes that there is limited research on what skills students need when they are involved in making meanings from multimodal texts, while for Jewitt (2008), "pedagogical models for print literacy are based on the acquisition and mastery of sets of established practices, convention and rules" (p. 252) whereas models for digital literacy are incomplete. We attempt to understand digital literacy skills through understanding of properties of digital media. Code breaking and engaging with these properties in making and representing meanings through a digital text can be understood as digital literacy skills. The following properties of a multimodal text are important for defining digital literacy learning:

1. *Increased multimodality* — a digital text does not contain only a language-based text (e.g., explanations and discussions, headings and sub-headings, subtitles, and labels) and images (photographs, drawings and illustrations, icons and symbols, aesthetic elements, maps, concept/mind maps, diagrams such as flow charts, schemas and statistical graphs) but also it can contain other modalities such as audio (narration, music, and sound effects), animation (two- and three-dimensional), video, color leads, transitions and interactive elements. All these different modes afford something specific for representations (see Kress, 2004) and each communicate certain aspects of the overall display. Together they blend, and boundaries between them blur and mesh in a new multimodal configuration (Jewitt, 2008). This new multimodal configuration can be represented as, for example, a Web page (including blogs and wikis), discussion and news group, digital photo essay (digital story), multimedia presentation, visual representation, interactive representation, digital video, podcast, and mash-up. For Jewitt, students need to learn how to recognize what is salient in a multimodal text, how to read across the modal elements, how to move from the representation of a phenomenon in one mode to another mode, and how to navigate through the multiple paths of a text. Therefore, since reading and writing are inter-related, reading and creating multimodal texts would help students to read, and vice versa.

2. *Interactivity* — a digital text can be interactive, which will enhance (and sometimes confuse) its representational and communicative capacity. There are three aspects of interactivity. Firstly, interactivity allows navigation through a digital text, which is unique to this media. Digital literacy should include a disposition to examine all connected elements of a multimodal text. Secondly,

interactivity refers to the features of the multimodal text that allow one to manipulate its modalities. Digital literacy learning must engage students in developing specific skills for exploring such interactive representations in the process of meaning making. Finally, interactivity might also involve the reader and the author of the text in an interactive exchange around the multimodal texts. Digital literacy learning should provide students with an opportunity to explore how to go beyond the content of the multimodal text and engage other in extended meaning making.

3. *Meta-information* — more and more often digital texts are accompanied by other meta-information that extends their meaning. For example, tagging of a digital text, ranking, comments by users, information about an author and associates — all these further contribute to the meaning of a displayed multimodal text, and skills of leveraging these should be considered as an important aspect of digital literacy learning.

English language classrooms must provide students with an opportunity to work with technology and develop skills required for meaning making and representing through digital multimodal texts (digital literacy)**.** This digital literacy should not be understood only as a part of language learning but as something that prepares students for effective performance across the curriculum and in all aspects of the modern life where meaning making and representing activities are required (e.g., working, learning, socializing).

Challenges to Digital Literacy Learning

To realize digital literacy learning, transformations are required, not just in English language syllabuses but also in actual classroom practices. Any implementation of a curriculum in the classroom is mediated by a range of issues that may cause classroom practices to significantly deviate from the goals of the curriculum. This problem is in some ways obvious in Singapore's classrooms. For Kwek, Albright and Kramer-Dahl (2007), when the English language syllabus is implemented in Singapore's classrooms it applies "a narrow range of textual forms and organizational 'rules' that students are asked to reproduce" (p. 74). Digital literacy required for meaning making and representing through multimodal texts is rarely practiced. Some of the challenges for teachers in the implementation of digital literacy learning in their classrooms are:

1. *Limited focus on digital text* — 'Viewing' as presented in the curriculum has a strong association with print rather than digital media. This association is likely to encourage teachers to favor the use of the former as a means of developing

viewing skills while ignoring digital literacies. The current English language syllabus for Singapore's primary schools should be revised to distinguish more explicitly between literacies for print and screen and to provide recommendations for resources and activities for digital literacy learning.

2. *Disintegrated view of multimodal text* — Further challenge lies in the teaching approaches that consider modes of representations as separated entities. For example, one common classroom practice is to give students a text and ask them to draw a picture based on it (or another way around). In other words, the students are asked to change modality of information from one to another and in doing so to focus on monomodal rather than multimodal texts. Although such activities are beneficial for literacy learning, they do not fully address complexity and requirements of a multimodal text where different modes contribute to overall meanings in unique ways. Teachers and students need more specific strategies for students' engagement with multimodal texts.

3. *Limited digital literacy of teachers* — Many teachers are not digitally literate themselves and this presents difficulties in appreciating the importance of new literacy as well as appropriately setting activities for students to promote digital literacy learning. Louden and Rohl (2006) explored pre-service teachers' readiness for literacy teaching in Australian schools and found that few beginning teachers were confident to teach new literacy. Louden and Rohl write that the beginning teachers in their study called for more practical ideas and concrete strategies. Teacher training institutions should ensure that beginning teachers have the opportunity to develop their own digital literacy skills in order to be able to support their students learning. Practicing teachers also require appropriate interventions to support their teaching.

4. *Lack of student-centered practices* — Digital literacy requires student-centered pedagogical practices, as its learning outcomes cannot be achieved simply by instruction and memorization. Students should be engaged to work on relevant tasks that require them to make meanings and represent through digital media. However, the literature is critical of pedagogical practices in Singaporean English language classrooms (e.g., Kwek, Albright, & Kramer-Dahl, 2007). For Tan (2001) and Chew (2005), such traditional teaching approaches are widely practiced even by experienced senior teachers. Our study intends to provide recommendations for digital storytelling to serve as one concrete strategy for teachers to apply in support of student-centered practices in classrooms leading to digital literacy learning.

5. *Lack of an appropriate multimodal assessment* — The existing English language syllabus in Singapore is not accompanied by an appropriate assessment strategy. For Vincent (2006), current assessment strategies are

> *monomodal* and despite efforts to increase multimodality in primary school classrooms the assessment in most of the English language classrooms emphasizes 'words' above everything else. Teachers need to possess an adequate means of assessing students' digital literacy; otherwise they will be unlikely to accept multimodal texts as a normal means of text production. Teaching in Singapore's schools is strongly directed towards enabling students to pass examinations (Chang, 1995; Chew, 2005; Cheah, 1998; Kwek, Albright, & Kramer-Dahl, 2007). Tan (2001) calls for assessment reform and warns that unless this takes place, teachers in Singapore will continue with outdated pedagogical practices that reinforce only memorization, structured instruction and preparation for examinations.

These challenges pose a threat to the implementation of digital literacy learning in an English language classroom. Any classroom strategy that intends to promote digital literacy learning must effectively meet these and any other challenges.

Digital Storytelling as a Classroom Strategy for Digital Literacy Learning

Digital storytelling can be one strategy that when appropriately applied in the classroom, might provide a tool for teachers to effectively face the challenges to digital literacy learning. Digital storytelling is a contemporary strategy for creation of digital multimedia content for expressing ideas, representing knowledge, and otherwise communicating information through digital artifacts. The digital story (the final product of digital storytelling) has also been referred to as a photo story (Microsoft, 2007), slide-show-style video (Salpeter, 2005), conversational media (Lambert, 2007), multimedia sonnets (Meadows, 2003a) and even radio-with-pictures (Meadows, 2003b). In the production of digital storytelling students integrate modalities such as music, sound effects, text, transitions, graphics and images. Although not common, it is also possible that videos and animations can be included in digital story productions. Digital storytelling as a classroom activity can be implemented through the following three stages (Churchill, 2007):

> 1. *Planning* — In the planning stage, students conduct research of a specific topic for presentation in the digital story, work within a group or alone, and negotiate and decide what to include in the digital story. The students also have to consider their target audience for their digital story. They develop a story map of what Ohler (2004) calls a Visual Portrait of a Story. A story map is a visual representation that displays the key events and progress of the story: call to adventure, tension, conflict, resolution and closure. Once the story map is developed, the student(s) is/are able to

present their story orally. Oral presentation allows a student to gather some initial reactions from a potential audience and to revise his or her story. Planning will then move to the construction of a set of storyboards as a blue-print for production of the digital story. The storyboard will provide information about each scene from the story, media that needs to be included and narration that will accompany the scenes. The storyboards should also be subjected to review and revision.

2. *Production* — In the production stage, students collect and edit media required for integration (e.g., take and edit digital photographs, scan images, draw illustrations and diagrams, record and edit audio), then integrate these in the digital story productions. Typically, the integration process occurs as follows: (a) import images and arrange them in the desired sequence, (b) if required, crop images and change properties such as brightness or add effect such as transforming to black and white, (c) add text such as titles or subtitles to images, (d) configure transition between images, such as one image zooming out while another zooms in, (e) add background music and narration to images, (f) test that everything works as intended, and (g) export digital story in digital video format for appropriate presentation such as via computer, internet or mobile devices. In the production phase, it is important that students remain focused on the content of their story rather than on technological aspects (Banaszewski, 2002; Kajder, 2004; Ohler, 2004). This stage might also include a production of a preliminary prototype that students can test with relatives and friends, a few other students from the class, or a teacher. The digital story is then finalized and packaged for final delivery.

3. *Presentation* — In the presentation stage, students deliver their digital story. At the basic level, they can present their digital story in the classroom to receive feedback and comments from the class and a teacher. However, students can also present their digital stories via the Internet. This can be easily achieved by publishing digital stories in blogs or via sites similar to YouTube if a school does not have its own system in place. In this case, others can view these digital sorties, rank them, provide comments, and add tags to describe content. Students should also take into consideration and reflect upon the feedback that they receive from others such as their class peers and teachers, and ideas they may have gotten from the digital stories of other students. Students should also be encouraged to preview the digital stories of others and actively participate in commenting, ranking and tagging these.

Digital storytelling in a classroom will provide a strategy for teachers to effectively move beyond the print-based texts and engage students in working with digital multimodal texts. It requires students to bring together various modes such as written words, images, and sounds into their own multimodal representations. At the same time digital storytelling can serve as an effective multimodal assessment strategy that enables teachers to understand students' skills for meaning making and representing through digital multimodal text. Thus, digital stories produced by students can be considered as artifacts that demonstrate developments in students' knowledge and skills. Furthermore, digital storytelling is easy to implement, as it requires minimal technical skills. This will allow teachers to concentrate on pedagogical aspects of implementation rather than be overwhelmed by technical difficulties. For Warlick (2005), teachers need to be provided with an opportunity to develop their own digital literacies and suggests that practicing digital storytelling in the classroom should provide teachers with such opportunity. However, the most important affordance of digital storytelling is that it provides an opportunity for student-centered learning while making teaching and learning more relevant to students' expectations that they bring to classroom.

Our Study

Currently we are engaged in a study that investigates how teachers might engage school students in digital storytelling with the goal of increasing the digital literacy necessary for meaning making and representing through digital multimodal texts. The following broad research question is at the center of the study: How are upper primary school students engaged in digital storytelling to develop their digital literacy necessary for meaning making and representing through digital multimodal texts? The study investigates factors that enhance or inhibit effectiveness of digital storytelling in achieving digital literacy learning. The study should contribute to more effective implementation of the requirements of the emerging English language curriculum that address meaning making and representing through electronic multimodal texts. Also, the study will contribute to theoretical debate in relation to literacy learning and learning with technology, and develop recommendations for further research.

The study is pursued through classroom application of digital storytelling and involvement with students in a naturalistic setting. Essentially, the study adopts methodology in the form of a case study (Merriam, 1988), although the intended strategic blend of qualitative and quantitative data that is being collected and analyzed resembles the formative experiment methodology (Reinking & Watkins, 2000). An upper primary school English Language class (11–12 year old children) consisting of about 30 students is included as a case for study. The class engages

in a number of digital storytelling activities over a semester. The data is being collected through the following means:

1. *Observations* — Observations are conducted throughout the students' engagement in digital storytelling. These are interwoven by occasional discussions with students. Sometimes during the observations the researcher (the first author of this paper) will capture short video clips and take photographs. These will be later played back to students for a stimulated recall discussion. The audio recorded observations and discussions will be later transcribed. Observations will in particular provide understanding regarding changes in practices as indicators of development of some aspects of digital literacy.

2. *Interviews* — Semi-structured interviews will be conducted with groups of students (students working together in groups on digital stories) to explore their experiences with digital storytelling and how it supports their digital literacy development. The participants will be asked to show their digital stories while explaining how they developed them, difficulties they encountered and how their plans changed as they engaged in the process. The interviews are audio recorded, transcribed and validated by the participants.

3. *Artifacts developed by students* — Through the process of digital storytelling the students produce planning documents (storyline diagrams, scripts and storyboards) and final digital stories. Planning documents will provide ideas about students' initial plan to represent their stories in digital ways and inform about aspects of their digital literacy at that stage. Attention is also given to exploring how technology mediates their planning documents development. Comparison of planning documents and final digital stories will provide insights into development of students' digital literacy based on the actual process of production using digital tools. The analysis of digital stories and other artifacts produced by students will be assisted by a critical friend, who will be required to review and suggest how these indicate improvements in digital literacies.

4. *Comments about digital stories by students* — The students will present their final digital stories on-line by uploading them into Youtube web site and will review digital stories of others. The Youtube will allow students to evaluate each other's digital stories on a scale from one to five stars. At the same time, the students will be able to leave comments about digital stories that they preview. They will also be able to add tags (key words) describing how they understood content of a previewed digital story. These

evaluations and critiques of digital stories by the peers will provide an insight into some aspects of the participants' digital literacy.

5. *A questionnaire* — A questionnaire will be developed based an ongoing analysis of the data. The items in the questionnaire will be based on Likert scale and aimed at validating and extending understandings that emerged form the study. The questionnaire will not aim to use any statistical procedure for analysis. Rather, it will aim to triangulate major assertions and to extend understanding of emerging issues.

6. *Tests of digital literacy skills* — A test instrument is being developed for this study. The test requires students to engage in multimodal tasks. Pre- and post-tests will be conducted and compared in order to understand any changes in their digital literacy. Overall, the tests focus on examining students' skills in engaging with properties of a digital text in meaning making and representing.

Ongoing data analysis involves coding, classifying, statistical analysis of tests and questionnaire and the triangulating of different pieces of evidence in order to arrive at emerging categories that lead to assertions.

Our initial engagement in the study suggests that digital storytelling, when appropriately applied in the classroom, will effectively support digital literacy learning. Digital storytelling in a classroom will provide a strategy for teachers to effectively move beyond the print-based texts and engage students in working with digital multimodal texts. Digital storytelling requires students to bring together various modes such as written words, images, and sounds into their own multimodal representations. At the same time digital storytelling can serve and an effective multimodal assessment strategy that enables teachers to understand students' skills for meaning making and representing through digital multimodal text. Thus, digital stories produced by students can be considered as artifacts that demonstrate developments in students' knowledge and skills. Furthermore, digital storytelling is easy to implement, as it requires minimal technical skills. This will allow teachers to concentrate on pedagogical aspects of implementation rather than be overwhelmed by technical difficulties. Practicing digital storytelling in the classroom will also provide teachers with an opportunity to develop or improve their own digital literacy.

Conclusion

School classrooms must provide students with an opportunity to work with technology and develop skills required for meaning making and representing

through multimodal texts (digital literacy)**.** This digital literacy should not be taken into consideration only in language learning but it should prepare students for effective performance in all aspects of the modern life where meaning making and representing activities are required (e.g., working, learning, socializing). In our study we attempt to understand digital literacy skills through understanding of properties of digital media. Code breaking and engaging with these properties in making and representing meanings through a digital text can be understood as digital literacy skills. To realize digital literacy learning, transformations are required, not just in English language syllabuses but also in actual classroom practices. Certain challenges pose a threat to the implementation of digital literacy learning in an English language classroom. Any classroom strategy that intends to promote digital literacy learning must effectively meet these and any other challenges. Digital storytelling can be one strategy that when appropriately applied in the classroom, might provide a tool for teachers to effectively face the challenges to digital literacy learning. Overall, digital storytelling provides an opportunity for student-centered learning while making teaching and learning more relevant to students' expectations that they bring to classroom. We hope that our study will provide us with material useful to construct evidence leading to a set of recommendations for pedagogically sound applications of digital storytelling for development of digital literacy in primary school English language classrooms. We also hope that the study will contribute to theoretical debate in relation to literacy learning and learning with technology, and further research.

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