CHAPTER 15

EMPOWERING STUDENTS AS CRITICAL READERS AND WRITERS IN ONLINE SPACES

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ABSTRACT

Purpose – *To examine whether or not exposing novice teachers in a graduate literacy education diversity course to particular texts and activities focused on economic diversity and lifestyle differences among students makes them more likely to positively respond to these lesser understood forms of diversity in their own teaching and if so, in what ways.*

Design – *The research design was qualitative and included written reflections from the teacher-participants at the beginning, middle and end of the semester, and videotaping and transcribing activities and post-activity discussions. Ethnographic observations and notes were made by the primary investigator (PI). The theoretical frameworks that were foundational to the study were critical literacy and teaching for social justice.*

Findings – *The findings of this qualitative study indicate that exposing teachers to texts, discussions, and activities that educate them on economic diversity and lifestyle differences among students makes them more likely to positively respond to these forms of diversity in their own teaching. Specific examples of how participants did this are provided.*

Practical Implications – *This study contributes to the literature on diversity in literacy instruction by providing concrete, research-based suggestions for how both teacher educators and K-12 teachers can expand their definitions of student diversity to include economic disparities and lifestyle differences*

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among students. It includes recommended texts and activities for both teacher educators and K-12 teachers to address less typical forms of diversity, with a focus on economic diversity and lifestyle differences.

Keywords: Student diversity; lifestyle differences; economic disparities; critical literacy

INTRODUCTION

The Internet is the dominant text of our era. Millions of individuals globally use it to read, write, communicate, and participate with others. Paradoxically, history's first generation of "always connected" individuals (Perrin, 2015; Rainie, 2010) does not often critically examine the information with which they are connected (Bennett, Maton, & Kervin, 2008; Flanagin & Metzger, 2000; Tate & Alexander, 1999). Ironically, students from Pre-K through higher education spend inordinate amounts of time on computers and smartphones; however, our schools make little or no effort to teach them how to use those tools in a literate and useful way (Aldunate & Nussbaum, 2013; Kim, Kim, Lee, Spector, & DeMeester, 2013). Within these contexts, these challenges are even more pressing as the Internet becomes an increasingly common source of information. A perfect storm has erupted around the ways in which networked publics consume and critique information online.

A central challenge for educators today is that students from Pre-K through higher education do not always think critically about information they encounter online. Research has raised questions about the ability of students to evaluate online information (Metzger, 2007; Metzger, Flanagin, Eyal, Lemus, & McCann, 2003). Quite simply, many students appear not to have the evaluation skills and strategies to succeed in this environment (Bennett, Maton, & Kervin, 2008; Jewitt, 2008; Livingstone, 2004). Apparently, students mistakenly trust information they read online (Kiili, Laurinen, Marttunen, & Leu, 2012). In particular, students are not able to accurately judge the validity of a website, even when given procedures to do so (Weiler, 2005). Recent research continued to raise questions about the ability of students to evaluate online information. Findings from the Stanford History Education Group found that 82% of 7,804 students surveyed from middle school through college were unable to effectively judge the credibility of news and information read online (Wineberg, Ortega, Breakstone, & McGrew, 2016). The lack of critical evaluation skill, while reading online information, is also a problem among adults. For example, research showed that 75% of American adults rarely check the source and date of health information that they find online (Fox, 2006; Percheski & Hargittai, 2011).

Thus, it is clear that critical evaluation of online information is integral to the success of online readers in their ability to evaluate and safely use the information they find (Leu et al., 2008). Since online information is commonly used to make decisions affecting the personal well-being of individuals, the ability to critically

evaluate this information has become increasingly important to individuals at home, work, and school (Leu et al., 2011). Yet, it is also evident that there are other forces that are working to use this inability to critically engage as readers and writers in digital spaces against us. Individuals are being called upon to weigh and evaluate the accuracy, reliability, and authenticity of online information as rival entities propagate fake news, propaganda, and "alternative facts" online. Unequipped to engage in web literacies at the level now needed, the personal responsibility to act as informed citizens has eroded, making it possible to act against one's own best interests. All of these events transpire while algorithms and echo chambers ensure that individuals did not read the same information as their next-door neighbor or the student sitting next to them in class.

As we consider the online and offline literacy practices that our students will need as future events warrant, the one constant is change (O'Byrne, 2014). This constant state of change, evolution, and consolidation of these texts and tools is something to be celebrated, if not just accepted. To prepare for this change we need a broadened, expanded view of "text" to include visual, digital, and other multimodal formats (Bazalgette & Buckingham, 2013; Jewitt, 2008). We also must recognize text that is not only deictic or relative to the individual and situation (Leu et al., 2011), but ambiguous in nature (Belshaw, 2012). This framing of text provides an opportunity to examine text that is not only contextual, but also with a certain amount vagueness allows for a certain amount of flexibility or inexactness as future literacies and technologies warrant. This requires a continual redefining, and re-examination of our notions of text and the knowledge, skills, and dispositions utilized as we read and write (Sernak, 2008). More to the point, we need to consider opportunities to move learners from consumers to producers of digital content.

THE CONTEXT

This chapter will first present a synthesis of findings from data drawn from four studies conducted by the author and colleagues. These studies sought to empower students to take advantage of the new resources that are available for people to gather information and knowledge. Each one tested an instructional model designed to teach students how to use the Internet and other communication technologies (ICTs) to acquire and use reliable informational sources to act as critical readers and writers of online information. This chapter will then share how these findings and themes were then utilized to help develop a framework of literacies and skills necessary when reading, writing, and participating online.

These studies have been conducted with adolescents in classrooms from the northeastern and southeastern portions of the United States. All of these studies have been conducted with students in schools in their State's lowest achieving districts, with documented high levels of diversity, English Language Learners (ELL), and poverty. These populations were selected because research suggests that students from economically challenged learning environments are not often given opportunities to work with online information at home or at

school (Leu et al., 2009). Research also promulgates that these students were often not given opportunities to work collaboratively in school, either online (Bennett, Bishop, Dalgarno, Waycott, & Kennedy, 2012) or offline (Ginsburg-Block, Rohrbeck, & Fantuzzo, 2006). When these students are given time to work collaboratively, they are often ineffective (Ginsburg-Block, Rohrbeck, & Fantuzzo, 2006; Greenwood, Delquardi, & Hall, 1989). Notwithstanding the aforementioned evidence, research has shown that students from low achieving school districts might benefit from time working collaboratively in a one-to-one laptop environment (Cole & Pullen, 2010). Unfortunately, they are often not given this opportunity (Leu, Forzani, & Kennedy, 2015; Warschauer & Matuchniak, 2010). Hence, this work has been conducted to determine if students from economically challenged school districts would respond positively to time spent working collaboratively in a one-to-one laptop environment.

These quasi-experimental, mixed-method studies (Shadish, Cook, & Campbell, 2004) included elements of participatory action research (Baum, MacDougall, & Smith, 2006) to test the use of an instructional model that empowered students as readers and writers of online information (Mehra, Merkel, & Bishop, 2004; Salomon, 1997). The Online Research and Media Skills (ORMS) instructional model consists of three skills: online reading comprehension, online content construction, and online collaborative inquiry (O'Byrne & McVerry, 2012). The instructional model contained three phases with instruction guided by modeling, coaching, and fading as detailed by cognitive apprenticeship theory (Collins, Brown, & Newman, 1988). As implemented in these studies, students synthesized discourse elements (Ackerman, 1991; McInnis, 2001) by constructing websites to assist them when comprehending "the interactive product of text and context of various kinds" (Spiro, 1980). Additionally, the instructional model engaged students as "co-investigators" (Scardamalia & Bereiter, 1983) to encourage them to reflect on strategies they have or may need.

This collection of research employed multiple theoretical perspectives and previous research to address the following research questions:

(1) What knowledge, skills, and dispositions are scaffolded by an instructional model that teaches the comprehension and construction of online content as embedded in classroom instruction?
(2) What skills, strategies, and pedagogies are needed by classroom instructors as they utilize an instructional model that teaches the comprehension and construction of online content in a Pre-K through higher education classroom setting?
(3) What are the themes and patterns that exist as groups of students comprehend and construct online information in a one-to-one laptop classroom?

THEORETICAL LENS

The nature of literacy is rapidly evolving as the ICTs emerge (Coiro, Knobel, Lankshear, & Leu, 2008). These changes demand an expanded view of "text"

to include visual, digital and other multimodal formats (Dalton, 2012). A richer and more complex definition of literacy requires a richer and more complex theoretical framing of research (Brown, 1992). The studies examined in this chapter incorporate several theoretical perspectives, including those from critical literacy, mulitliteracies, and cognitive apprenticeship. Taken together, this synthesis of research, and the resultant web literacy frameworks serve to help reimagine reading and writing in our classrooms and beyond.

Critical Literacy

The Internet is the dominant text of this era, and through intentional use it may provide opportunities for the pedagogy espoused by Friere. Multiliteracies includes elements of critical literacy to engage students in "reading the word and reading the world" (Freire & Macedo, 1987) through the integration of digital texts and tools (Cope & Kalantzis, 2000). Guided by multimodal design (Cope & Kalantzis, 2000) multiliteracies transforms not only the way that we make meaning, but also provides opportunities to reconstruct and renegotiate identities and text (Garcia, Mirra, Morrell, Martinez, & Scorza, 2015; Rowsell & Walsh, 2011).

Multiliteracies

Based on elements of critical literacy and new literacies, a multiliteracies perspective is built on a pedagogical agenda of social change and empowered students as "active designers of social futures" (Cope & Kalantzis, 2017). Multiliteracies include critical literacy tenets of having students "reading the word and reading the world" (Freire & Macedo, 1987; Luke, 2017) while integrating the teaching of writing (Cope, Kalantzis, & Abrams, 2017) and ICTs. Pedagogy defined by multiliteracies theory and influenced by elements of multimodal design build aspects of critical engagement between students and text to promote social justice through process and product. This use of multiliteracies as a tool to assist students in thinking critically about online information was also consistent with work in multimodal design (Coiro, Kiili, & Castek, 2017; O'Byrne & Smith, 2015; Wise & O'Byrne, 2015).

Cognitive Apprenticeship

This work tested the development of an instructional model used to enhance the knowledge, skills, and dispositions that students need when critically reading and writing online information and was framed in theoretical perspectives derived from cognitive apprenticeship (Brown, Collins, & Duguid, 1989). Cognitive apprenticeship embedded the four dimensions of content, methods, sequence, and sociology into situations that were familiar social and physical components of the classroom (Brown, Collins, & Duguid, 1989). This involves the enculturation of students into authentic practices through activity and social interaction. These influences included guiding the manner in which students collectively solved problems, displayed multiple roles, and confronted ineffective strategies and misconceptions, as well as cultivating collaborative work skills (Grabinger

& Dunlap, 1995). These perspectives were found effective in previous work from the fields of reading (Palincsar & Brown, 1984), writing (Scardamalia & Bereiter, 1985), and online reading comprehension (Leu, Forzani, & Kennedy, 2015; Leu, Forzani, Rhoads et al., 2015).

Reimagining Readers and Writers

This work in multiliteracies and multimodal design is important as it allows schools and educators to represent more adequately the changes occurring to literacy as a result of technology while incorporating multiple modes of text into classroom instruction (Alvermann, 2002). The use of multiliteracies and multimodal design in the classroom has been shown to support and empower striving readers and writers (Henry, Castek, O'Byrne, & Zawilinski, 2012; O'Byrne & Smith, 2015). Furthermore, reading and writing of online, multimodal texts has been shown to reverse trends of underachievement for students of low-income, and culturally or linguistically diverse students (Vasudevan, Schultz, & Bateman, 2010). Empowering students and their educators as critical readers and writers of online information may hold the potential to allow educators to "reimagine" struggling readers and writers as they move from "struggling, striving, marginalized, and reluctant" to thriving and flourishing (Greenleaf & Hinchman, 2009).

AIMS AND SCOPE OF THE CHAPTER

Building on the previously described literature, this chapter presents a synthesis of data drawn from four different research projects conducted by the author and colleagues. The four studies investigated the extent to which critical evaluation skills required during online reading comprehension can be improved using an instructional model designed to engage students as creators of online information. The instructional examined opportunities to examine the role of students as consumers, curators, and then creators of online content. The lessons learned from this model were then used to serve as a basis for the creation and implementation of a web literacy framework that was used to further expand on the knowledge, skills, and dispositions necessary for individuals as they act as critical readers and writers online. The instructional model was first identified and developed as the ORMS model (O'Byrne & McVerry, 2015). This model was then used as the backbone to frame and develop the Web Literacy Map with the Mozilla Community (Chung, Gill, & O'Byrne, 2015; McVerry, O'Byrne, & Belshaw, 2015). The web literacy initiative was a collaboration between Mozilla and a global community of technologists, teachers, and makers in the online learning community.

CRITICAL READERS AND WRITERS IN ONLINE SPACES

The four studies synthesized in this chapter focused on engaging students in the process of critically reading and writing online information. The ORMS instructional model provides new opportunities when incorporated into a classroom that

uses ICTs to change the way in which our students read, write, and communicate. It is imperative that we understand and adjust for new changes in pedagogy and practice employed in our classrooms as these new and digital technologies are always changing. As critical readers, students should be taught how to "read between the lines of the media messages, question the interests behind them, and learn how to look for alternative ways to be informed and/or entertained" (Torres & Mercado, 2006, p. 273). As critical writers, students should have the opportunity to critique, respond to, and remix online texts and inject their perspectives into these discussions (Jenkins, Purushotma, Weigel, Clinton, & Robinson, 2009). Having the opportunity to participate in the development of these skills should be a fundamental component of classroom instruction (Cervetti, Pardales, & Damico, 2001).

The ORMS instructional model provides guidance as to how to instruct students in Pre-K through 12 and higher education and include the enculturation of authentic practices through activity and social interaction. Because critical evaluation has been shown to be a situated activity (D'Mello & Graesser, 2012), the instructional model was designed to use elements of cognitive apprenticeship to embed learning in activity (Brown, Collins, & Duguid, 1989). As applied in the testing of this instructional model, critical evaluation of online information requires an examination of the context, content, and contingencies that affected interpretation of information by students and energized them to participate in their education. The essential and significant elements of the ORMS model identify opportunities to: (a) allowing students to dissect how online information is created, (b) permitting students to creatively assemble their own online content, and (c) permitting them to observe the interrelationship between content and credibility.

The ORMS Model

The ORMS model was developed and tested to address these concerns and support educators and students as they authentically and effectively use online informational text in the classroom. The purpose of the ORMS model is to prepare students for a digital and global economy while also reinforcing reading, writing, speaking, listening, and viewing of content area knowledge. There are three cornerstones in the ORMS model (see Fig. 1) which support lifelong reflective learning which empowers students through online inquiry, composition, and comprehension with the use of learning environments that utilize authentic, productive, and ethical use of applications required in today's global economy:

- Online Collaborative Inquiry – A group of local or global learners who arrive at a common outcome while co-constructing multiple pathways of knowledge.
- Online Reading Comprehension – The skills, strategies, practices, and dispositions students need to locate, evaluate, and synthesize information during problem-based inquiry tasks.
- Online Content Construction – A process by which students construct and redesign knowledge by actively encoding and decoding meaning by constructing, designing, and remixing texts through the use of ever shifting multimodal tools.

Fig. 1. Online Research and Media Skills Model

Online reading comprehension (Leu et al., 2009) is the actual reading of online information as a process of problem-based inquiry that takes place as students use the Internet to search and sift for answers to problems. This cornerstone is viewed as reading of online information. Online collaborative inquiry is the collaboration and co-construction of a body of information by a group of local, or global connected learners. This cornerstone is viewed as collaboration by learners as they search, sift, and synthesize online informational text. Online content construction (O'Byrne, 2013) is the skills, strategies, and dispositions necessary as students construct, redesign, or re-invent online texts by actively encoding and decoding meaning through the use of digital texts and tools. Content construction is viewed as including the process and product of writing using digital texts and tools.

The Web Literacy Map

Occurring contemporaneously with the development and testing of the ORMS model, the Mozilla Foundation, the global non-profit best known for the Firefox web browser, led an initiative to define the skills and competencies necessary to be fully web literate. Working as a group of stakeholders from formal and informal education, industry, and the community at large a "Web Literacy Map" was developed and released in 2013 (Belshaw et al., 2013). See Fig. 2 for version 1.1 of the web literacy map. Subsequent versions and iterations have been released since then. The author of this chapter assisted in the development and dissemination of this work since its inception. The result of this connection is that elements of the ORMS model and the web literacy initiative are often times tightly connected.

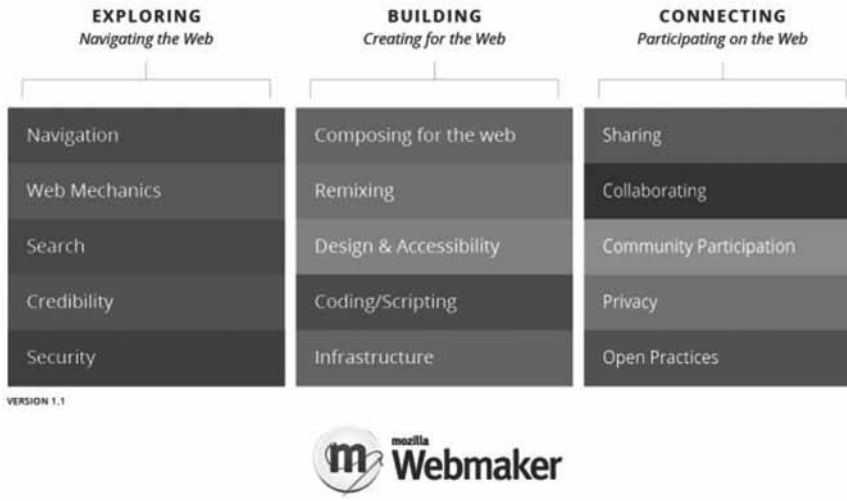

Fig. 2. Web Literacy Map

The purpose of the Web Literacy Map was to provide *descriptive*, as opposed to *prescriptive* guidance for educators (Belshaw et al., 2013). For point of comparison, the ORMS model was designed to provide prescriptive guidance on how to make these web literacies and competencies happen in the classroom. Additionally, many frameworks, such as digital literacy, media literacy and information literacy have considered the skills required for the web. However, these frameworks have attempted to make sense of the web using previous metaphors, rather than understanding the explicit affordances of the web as a networked medium. This is where the web literacy initiative diverges as it attempts not to merely understand, but to *build* a better web. This in turn identifies opportunities to empower all individuals as critical readers and writers in online spaces, not just students in specific learning contexts.

The goal of the web literacy frameworks is to encourage mentors in digital and web literacies to align their teaching and learning materials regardless of theory, perspectives, goals, or geography. This is framed by Frank (2001) and Bigum's (2002) notion of "the internet *as* literacy." This is in contrast with other approaches that are identified as the internet *for* literacy, literacy *for* the internet, or literacy *on* the internet. The focus of this crowd sourced framework is a source of guidance that is approachable and accessible for all learners and citizens of the globe. This practical and theoretical work has gone through several iterations, but the most current version of the web literacy frameworks focuses on the knowledge, skills, and competencies required to read, write and participate on the web. See Fig. 3 to review version 2.0 of the web literacy frameworks.

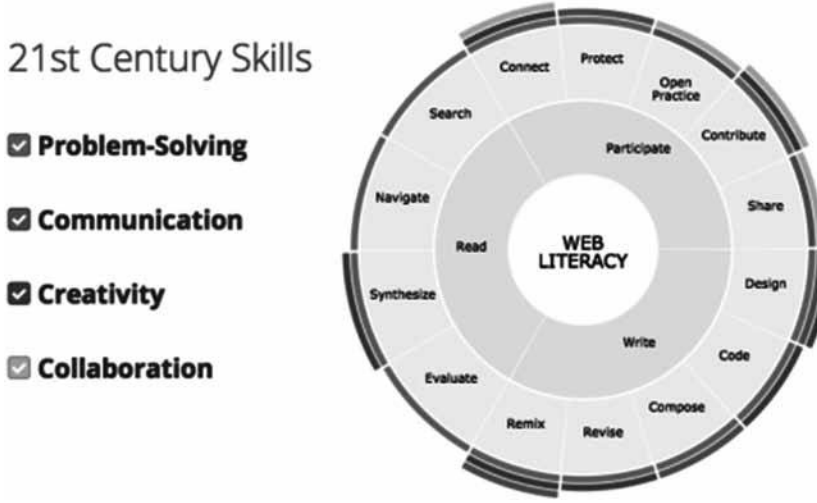

Fig. 3. Web Literacy Framework Version 2.0

Read

Reading on the web can be viewed as "exploring," or "navigating the web." Just as traditional reading requires knowledge of the text and concepts of print, reading online requires a basic understanding of web mechanics. Good online readers know the tools and strategies that can be used to search for and locate people, resources, and information. They then know how to judge the credibility of these sources. Recasting the reader as a navigator has important implications and involves so much more than the traditional comprehension (Leu, O'Byrne, Zawilinski, McVerry, & Everett-Cacopardo, 2009). This strand connects with online reading comprehension as identified in the ORMS model.

Competencies under reading include reading the web and the use of web tools for navigation (i.e., search, navigate, synthesize, evaluate). Good online readers can also search for and locate people, resources, and information. They then know how to judge the credibility, bias, and perspective of these sources. Finally, exploring the web requires an understanding of security in order to keep content, identity, and systems safe.

Write

Writing on the web enables one to build and create content to make meaning. New genres that blend texts and tools have emerged on the open web (O'Byrne, 2013) and are often referred to as making. The competencies of the writing strand reflect the emphasis on making. Learning, especially building the web (making), involves constructing new content. Good online writers pick up tools while composing text through creating and curating content. In turn, the content they remix and modify drives the open web. New modalities have risen in prominence (Cope

& Kalantzis, 2000; Rowsell & Walsh, 2011) and the code that powers the web has emerged as a new genre for writing and communication (Alexander & Levine, 2008). This strand connects with online content construction as identified in the ORMS model.

The competencies of the writing strand reflect this emphasis on making (i.e., design, compose, code, revise, remix). This philosophy is reflected in the competencies because we are all makers and pick up tools while composing text through creating and curating content. Furthermore, remixing and modifying content drives the open web. Seasoned webmakers learn to design accessible online spaces, code websites, script programs, and support the open web infrastructure.

Participate

Participating on the open web includes connecting with the communities that share, build, and sustain meaningful content online. A healthy online community requires knowing how to create, publish and link content, and understanding of security in order to keep content, identity, and systems safe. Communities build and sustain the web (Hildreth & Kimble, 2004). Jon Udell (Weinberger, 2002) defined the "web as a loose federation of documents — many small pieces loosely joined." It takes a community of shared interest to publish and link to this content. This strand connects with online collaborative inquiry as identified in the ORMS model.

Thus, the competencies under the connecting strand encompass the values of not only participating in, but also protecting the open web (i.e., share, collaborate, connect, secure, open). Sharing is essential to creating the many small pieces of the web and requires collaborating as both a mentor and an apprentice while sharing and creating resources in different spaces. Connecting in these spaces, by becoming more involved in their specific practices, is essential to participation online.

Making this Happen in the Classroom

Implementation of the ORMS model required a modification of the Internet Reciprocal Teaching (IRT) model that was previously used to teach online reading comprehension (Leu et al., 2008). IRT takes advantage of the modeling of reading comprehension as espoused in Reciprocal Teaching (Palinscar & Brown, 1984), but extends it by bringing in the power and ubiquity of the Internet. IRT focuses on empowerment of students by having them share novel and potentially powerful strategies they use or have learned as they interact online. The ORMS model is also informed by IRT as it places students in the leadership role as they see themselves as experts with insight to share in the process.

The ORMS model moved away from the focus on online reading comprehension in the IRT model research by adding the layer of writing and participation online. This was operationalized in instruction by focusing on moving students from consumers of content, to curators of content, to finally creators of content. Content in this piece is defined as text matter of a document or publication

in a form that is digital or online. These perspectives did not have to operate in a sequence, nor should they be viewed as mutually exclusive. Students were given opportunities to work iteratively and move across each of these perspectives depending on their work process and purpose. I use the term "move" as I discuss these perspectives as a large percentage of students routinely consume online information in their normal work process. Whereas even fewer students act as a curator, and an even smaller amount regularly create and share digital content.

Consumers

The first perspective involves students primarily reading online content and materials. This may take the form of students reading blogs, wikis, and social networks for personal and academic pursuits. Students read across multiple modes of information that includes text, images, video, audio, and other graphical representations. These graphical representations may include charts, graphs, infographics, and maps. Critical evaluation of online information is a focus in this perspective as they examine the credibility and relevance of online information while acting as a healthy skeptic. It is also important that students synthesize across these varied modes and formats.

Curators

The second perspective involves students curating online content as they search and sift through online texts. Curation is defined as pulling together, sifting through, and selecting specific content for presentation to others. This may take the form of students reading and archiving webpages before sharing or commenting on this content. In this process, students are deciding whether these materials are credible and/or relevant to the purpose of their inquiry. This process occurs on two levels as students are gradually learning more about a topic as they read more content; they are also modifying their evaluations of new content as they learn more. Over time, they become more of an expert on the topic and the process involved as they build their own credibility on a subject.

Creators

The third perspective involves having students construct or create digital content. There are many parallels between online content construction and the writing process as students plan, generate, organize, compose, and revise digital work product. This may take the form of students editing a wiki, building a website, or producing a stop-motion video for the class YouTube channel. In this process, students are encoding and decoding meaning by constructing, redesigning, and re-inventing texts. Students write, compose, and create through play and expression with digital texts and tools. The tools and practices used in this perspective are varied as students may choose to write a blog post, capture video for a public service announcement, or edit code for an app. Students also need to be considerate of the purpose and audience for the work they create.

Implications of the ORMS Model in Instruction

As indicated earlier, the web literacy map is intended to be descriptive as opposed to prescriptive. The ORMS model is built to provide prescriptive guidance for educators trying to bring the web literacy map into their classroom. This work demonstrates a need for a reconsideration of the pedagogical dynamics that occur in a classroom, including: (a) an expansion of how teachers prepare their lesson plans, (b) an understanding of how teachers assemble outside sources of data and examples, and (c) the interaction between students and teachers (Miller, 2007). These changes require an expanded view of "text" to include visual, digital and other multimodal formats and training in ICT tool use. This expansion of text requires a reconsideration of theoretical framing of research and our understanding of literacy (Leu et al., 2009) to provide a richer and more complex definition of literacy.

This reframing and problematizing of pedagogy demands flexibility on the part of the instructor as they develop and test new methods of instruction while still dealing with classroom management issues. This of course does not take into account the requirements placed on educators by administrators and school districts, and the impact this has on the willingness of teachers to experiment. Given the lack of traditional classroom structure that might be experienced while working in the ORMS model, instructors should be more flexible and tolerant as students become actively engaged in the learning process (Mishra & Koehler, 2006). This means that a certain appreciation is required for the complexities, pitfalls, advantages, and limitations inherent when using online information in an instructional model. Given the deictic nature of the Internet, a constant reconsideration must occur to account for the continual development of new concepts, processes, and approaches (Leu, 2000). This ORMS model allows instructors and students to work collaboratively and continually define what it means to be able to read, write, and communicate effectively within the current milieu.

It should be noted that students have an equal responsibility to undertake the discipline, responsibility, and flexibility required to work as an active participant in an ICT-infused classroom. In this regard, students need to reconsider the concept of "school" as they assume an active role in the learning process. In these circumstances, not only does the instructor guide them through online learning activities, but they must also allow students to take the lead in instruction. Students need to display the trust and responsibility necessary to take a leadership role in the development and application of new learning or work product.

In this instructional model, students are able to bring the knowledge, skills, and dispositions that they employed outside of school into their classroom work. Students routinely utilize their smartphones and home computers, to text, share content, play games, and seek information online. In many ways, students may be more adroit in the use of technology than their teachers; however, they may lack the judgment, common sense, and experience level to use these resources in a responsible manner (Bennett, Maton, & Kervin, 2008). The ORMS instructional model, and the three perspectives used in implementation (i.e., consumer, curator, creator) educates instructors and students in the value of ICTs and how they

can be effectively used in the classroom. Students actively engage in the process of "doing" literacy and redefine "what counts as literacy" (Alvermann, 2002). This work allows instructors to expand the traditional understandings of text and literacy while legitimizing and valuing different kinds of texts, learning, and interactions that occur within the classroom.

Because this process was influenced by elements of cognitive apprenticeship, the important modeling and structural stages were included to provide situations wherein the apprentice studies the techniques of experts (Collins & Brown, 1988). Students were encouraged to think about their own learning as a means to improving their ability relative to that of an expert using the process of "abstracted replay" (Collins & Brown, 1988). By reflecting on the expert work of others as a goal, instruction is presented in a manner not to overwhelm or confuse students (Herrington & Oliver, 1999). The implicit goal of this is to guide students to the knowledge and skills they needed to move from a novice level to an expert level. This view of apprenticeship creates an environment in which students were required to recognize their knowledge and skills in the context of being a novice or expert as a reader and writer of online information.

Finally, this study included elements of situated activity in which students were required to actively participate in a community of practice to acquire the full socio-cultural practices of the community (Lee & McLoughlin, 2007). Instructional practice should provide students with opportunities to critiquing and synthesizing information while consuming content, evaluating and archiving while curating content, and finally replicating these lessons learned when creating content. These skills affect the context and content that impact on a student's ability to critically and construct examine text. The ORMS model empowered online readers and writers as they evaluated truth, relevance, quality, impact, and claims made while contemporaneously evaluating the usefulness of these texts and spaces.

CONCLUSION

The work discussed in this chapter, and the included instructional model and theoretical framework describe opportunities to engage students in the process of critically reading and writing online information. This provides new opportunities when incorporated into a classroom that uses ICTs to change the way in which our students read, write, and communicate (Myers & Beach, 2004). Through intentional instructional decisions, educators may be provided opportunities to empower students as they encode and decode meaning utilizing the reader/writer nature of the online informational space. Understanding the computational concepts upon which countless digital applications run offers children the opportunity to no longer simply "read" such media but to become more discerning end users and potentially innovative "writers" of new media themselves.

This work also points to a need for instructors and classroom practices to shift their roles to adjust to these changes in literacy and technology and their impact on the classroom (Leu et al., 2008). Perhaps there is a need to better understand

the individual instructor dispositions necessary to successfully negotiate this instructional model and these learning frameworks. This instructional model and the web literacy frameworks also identify opportunities for teachers to learn to employ these skills in their practice. Having the opportunity to participate in the development of these skills should be a fundamental component of classroom instruction as it relates to teacher development.

In 1970, Paulo Friere envisioned schools as critical spaces where students could be empowered to interrogate and question social circumstances through the use of discourse about issues of high interest and relevance to their lives. During the same time period, through a confluence of events, the early stages of what would soon become the Internet took root. By using online spaces to empower all learners as critical readers and writers of information, educators can work with students to synthesize and critique power systems and dissect truths while facilitating classroom discourse. By enabling all individuals with the opportunity to read, write, and participate online, we can bring about true knowledge construction. As Friere suggested, "knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other" (Friere, 1970, p. 72).

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