Using Digital Comics to Develop Digital Literacy: Fostering Functionally, Critically, and Rhetorically Literate Students

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Abstract

Literacy scholarship has established the importance of teaching, supporting, and facilitating digital literacy education for 21st century students. Stuart Selber goes a step further, arguing that students must be functionally (using digital technology), critically (questioning digital technology), and rhetorically (producing effective digital texts) literate. In this article, we suggest that digital comics can be an effective text that supports Selber's digital literacy framework. First, we address the importance of digital literacy before providing an overview of Selber's framework. Then, we examine different kinds of digital comics available to instructors and teachers. Finally, we summarize how we have used digital comics to meet Selber's digital literacy requirements.

Scholarship over the last decade—coupled with common sense—has made it abundantly clear that students today are living in an increasingly digital world, where mastery of digital tools and skills is not simply a luxury, but a necessity. Some of these skills include making meaning from multimedia texts, creating multimedia texts, problem-solving digital impasses, critically thinking about digital identity, and so forth (Eshet-Alkalai, 2004). Students who are adept at utilizing digital tools are empowered, as that ability opens up the opportunity to challenge current representations of knowledge (Gainer, 2012). Given this, there has been a significant push for teachers and instructors at many levels, and in many disciplines, to teach digital literacy.

Even with this push to teach and to broaden our notions of digital literacy, it seems, anecdotally, that many instructors have struggled to find appropriate gateway texts to facilitate computer literacy instruction in an engaging, meaningful fashion. Often, instructors gravitate towards digital texts students are more than likely familiar with—Facebook, Twitter, and wikis, for example (see Buck, 2012; Lankshear & Knobel, 2008; and others)—only to find students are resistant to serious and critical reflection on how to use this technology that they use every day. This resistance is not a reason to abandon using these text types, however, in this article we offer a different digital text as a possible way to introduce students to academic analysis of digital literacy: digital comics. As an engaging, but perhaps unfamiliar text-type, digital comics have the potential to help students develop a variety of literacy skills; they also avoid the potential issue of students resisting analysis of familiar platforms. Digital comics can blend not only the two distinct modalities of image and word but also sound, motion, video, and user-participation to form a cohesive narrative, story, or

argument. Using Selber's (2004) framework of digital literacy, we will show how digital comics can be used to address students' digital literacy education. We first discuss the importance of digital literacy before offering a detailed overview of our chosen digital literacy framework, Stuart Selber's "multiliteracies." Then, we discuss different kinds of digital comics available to instructors and teachers; this is followed by an overview of how we have used digital comics to meet Selber's digital literacy requirements.

DIGITAL LITERACY

As a result of the rapid growth of digital tools and the digital world in which we live, the skills necessary to work within that digital world also continue to expand. Moreover, students today have the ability to compose multimodal texts and to share those texts with audiences around the world. Many of these opportunities have, however, largely been relegated to non-school spaces. There have been ongoing debates over this digital divide between in-school and out-of-school settings, and schools and colleges have largely been slow to challenge the status quo and to fully incorporate multimodal and digital literacy into curricula. Given the importance of fostering literate, 21st century citizens, it is vital for educators to rethink their instruction to align with digital literacy requirements and students' literacy practices (Lea, 2013; McKee-Waddell, 2015). One way to begin this is through the inclusion of digital tools into composition and literacy instruction, which will help foster digital literacy.

In the past decade or so, a number of scholars have put forth definitions and descriptions of digital literacy. Gainer (2012), for example, broadly defined it as "integral to the organization, support, and maintenance of democratic movements" (p. 15), and Eshet-Alkalai (2004) described it as "survival skill in the digital era" (p. 102). Providing a more focused lens, Visser (2012) defined digital literacy as "the ability to use information and communication technologies to find, evaluate, and communicate information, requiring both cognitive and technical skills" (para. 2). And beginning to note the layers and complexity involved, Ng (2012) offered, "the multiplicity of literacies associated with the use of digital technologies" (p. 1006). The evolution of the definition suggests that digital literacy is more than the skill to use digital or technological tools. It is, instead, a variety of complex skills, such as cognitive, emotional, and sociological, that are requisite for interacting with digital environments. Moreover, digital literacies can take different shapes and forms, such as technical skills vs. mastery of ideas and operational vs. conceptual, requiring those responsible for literacy instruction to help students move from the skills of reading and writing to those of making meaning from and understanding information, regardless of the way in which it is presented (Goodfellow, 2011; Lankshear & Knobel, 2008; Lea, 2013).

The implementation of digital tools can engage students, inspire composition, promote critical thinking and lifelong learning, and open new avenues to structure, organize, and publish student texts (McKee-Waddell, 2015), even when the tools used are less familiar to students. That said, students need intentional, explicit instruction with specific tools and with digital literacy concepts. Over the previous decade, researchers, however, have argued that teachers have struggled to adapt their instruction to address digital natives (Prensky, 2001), that is, students who have grown up in the digital age, and to promote digital literacy (Lea, 2013). Thus, it is important to teachers to build upon established literacy frameworks in order to effectively integrate into classroom instruction

the affordances of the digital environment in which students live. It is equally important to remember that digital composition continues to evolve, and educators require new instructional ideas and approaches. Here, we ground our work in the necessity to further the discussion of classroom applications and in Selber's (2004) three-pronged literacy framework. We use Selber specifically because he accounts for layered learning and literacy practices and acknowledges multiple positions and levels of literacy skills, which he calls metaphors. In this article, we offer an overview of Selber's framework.

STUART SELBER'S *MULTILITERACIES FOR A DIGITAL AGE*

In *Multiliteracies for a Digital Age*, Selber (2004) argued that there are "three subject positions connected to the literacy landscape: students as users of technology, students as questioners of technology, and students as producers of technology" (p. 25). As such, he offered three metaphors or filters to view these subject positions: functional, critical, and rhetorical literacy. The crux of his argument is that "Students who are not adequately exposed to all three literacy categories will find it difficult to participate fully and meaningfully in technological activities" (p. 24). Functional literacy is focused with effective employment, critical literacy with informed critique, and rhetorical literacy with reflective praxis.

According to Selber, a functionally computer-literate student must be able to use computers in achieving educational goals; understand the social conventions that help determine computer use; use and understand the specialized discourse of computers; effectively manage his or her online world; and finally, solve "technological impasses" (p. 45). Selber succinctly described the functionally literate student as "[understanding] what computers are generally good at, using advanced software features that are often ignored, and customizing interfaces" (p. 46). Functional literacy, then, encompasses anything from working within Microsoft Word to customizing a desktop/laptop layout to something as "simple" as naming files. While functional literacy is often viewed in a negative light, Selber maintained that functional literacy is a necessary pre-cursor to achieve and consider critical and rhetorical literacy.

Selber begins discussing Critical Digital Literacy by citing Douglas Noble, who asserted, "The technical focus [in computer literacy] shifts attention away from social questions and portrays computers as something to learn rather than something to think about" (as cited in Selber, 2004, p. 75). Selber believed the critical lens is one way to remedy this issue; specifically, he positioned critical computer literacy as a way to "recognize and question the politics of computers" (p. 75). He went on to say:

As a rule…students are not encouraged to ask important questions when it comes to technology development and use: What is lost as well as gained? Who profits? Who is left behind and for what reasons? What is privileged in terms of literacy and learning and cultural capital? What political and cultural values and assumptions are embedded in hardware and software? (p. 81)

By posing these questions to students, Selber believed that instructors can mitigate the possibility of having droves of "indoctrinated consumers of material culture" (p. 95) and instead inspire careful social critics who are able to discern power relations in technological contexts.

Finally, Selber discussed the rhetorical lens of digital literacy. He posited that one facet of digital literacy should require students to be creators of 21st century texts, specifically one that uses digital tools. It is not enough for students to know how to use digital tools, or for students to be able to be engaged social critics of said digital tools, but they should be able to use the digital tools to create rhetorically savvy texts. He noted that it is important for teachers to frame digital creation "as a rhetorical activity, one that includes persuasion, deliberation, reflection, social action, and an ability to analyze metaphors" (p. 182). By combining all three subject positions—functional, critical, and rhetorical—he believed teachers can effectively train students to become informed, digital citizens.

DIGITAL COMICS

As a result of a different medium of delivery, it is not surprising that digital comics often work to challenge the boundaries of how a comic can relate a narrative. Unrestricted from the constraints of the page—and the subsequent organizational and narrative grid—digital comics are free to explore the parameters of what it means to be a comic "book" (though book is used here in the loosest sense possible). Though it would be foolish to try and articulate all the different kinds of strategies for producing digital comics—as the styles and strategies are nearly endless—we offer here three different popular strategies, which also serve as categories, for delivering digital comics: remediated comics, ergodic-hypercomics, and multimedia comics.

The first category of digital comics that we discuss is remediated comics. Here, we borrow from Bolter and Grusin's (1999) concept of remediation which suggests "new media" (such as digital comics) is actually best understood as "refashioned and improved version[s] of other media" (p. 27). This refashioning, or remediation, is a necessary step in order for the media to be acceptable and understood for whatever social and economic climate our society is in; that is, Bolter and Grusin suggested that new media needs to refashion older, perhaps more recognizable, media in order to be effectively received and understood by users. For Bolter and Grusin, remediation manifests itself in two ways: immediacy and hypermediacy. Immediacy is "a style of visual representation whose goal is to make the viewer forget the medium" (p. 272). Conversely, hypermediacy is "a style of visual representation whose goal is to remind the viewer of the medium" (p. 272).

Simply put, we use the term *remediated comics* for digital comics that recreate (as accurately as possible) their print-based counterparts—the anatomy of the traditional print-based comics discussed are found in an identical form in the digital universe. Remediated comics can be seen in a wide-range of comics being released; it is perhaps the most prevalent form of digital comic. For example, publishers such as Marvel, DC, Image, and IDW, among others, offer copious digital catalogs of their print-based releases. Instead of going to a local comic shop, a user can download (with a username and password) the same content for their computer or mobile device. Additionally, third-party services, such as Comixology, offer these "remediated" comics for a discounted price.

Remediation is a useful concept to think of these digital comics. Clearly, these comics embody Bolter and Grusin's (1999) idea of immediacy: by offering the same content and form as print-based comics, it seems likely these digital comics are aiming to make readers forget they are consuming

their comic narrative on a tablet instead of reading a print-based floppy. Additionally, it bears noting that part of Bolter and Grusin's remediation is the idea that "new media" (digital comics, in this case) not only refashions old media (print comics), but improves upon it. In this regard, many of the remediated digital comic platforms, such as the aforementioned third-party Comixology, strive to improve the comic reading experience by offering a "guided view." This allows readers to "view a comic on a panel-by-panel basis suitable for mobile devices in a way that mimics the natural motion of the user's eye through the comic" (Comixology, 2016). Additionally, some might consider these remediated comics as improvements over their print counterparts because they take up less physical space, can be accessed on a variety of devices at any time, and are immensely portable.

Where remediated comics look to keep the integrity of the print comic intact, *ergodic hypercomics* aim to challenge the traditional comic sequential storytelling strategies. We borrow the title for this category from both comic and new media theory. To start, hypercomics are "comics with a multicursal narrative...In hypercomics, the choices made by the reader may determine the sequence in which the events are encountered, the outcome of events, or the point of view through which events are seen" (Merlin-Goodbrey, 2010, p. 1). Hypercomics are directly informed by the tenets of ergodic literature, a theoretical framework that Aarseth (1999) proposed to better understand digital media. Aarseth defined ergodic texts as those that require "nontrivial effort...to allow the reader to traverse the text" (p. 1). Aarseth (1997) also argued that in ergodic literature, the "sequence of signs does not emerge in a fixed, predetermined order decided by the instigator of the work, but is instead one actualization among many potential routes..." (p. 33). Thus, ergodic literature demands a significant effort on the part of the reader/user to construct the narrative; moreover, it suggests that the narrative will be different for each reader/user based on the decisions they make.

The ergodic-hypercomic, then, has the following features: (a) multiple outcomes for the user/reader to experience (think of a digital *Choose Your Own Adventure*) and (b) user/readers need to engage in non-trivial effort, one which would require more participation than simply turning a page. An example of this kind of digital comic would be DC Comics' *Arkham Asylum* digital comics. Published using the Madefire platform, readers can literally choose which character's perspective through which they wish to see the story; they are also afforded the opportunity to make decisions, such as which actions to take, where to travel, and which characters to trust that will dictate the flow of the narrative. Though this comic is no longer available via the app store, other stories published by Madefire have a similar structure.

The last category of digital comics we overview here could be broadly termed as *multimedia comics*. These are comics that add additional modes of communication to the established print comic tradition of image and text; that is, these are comics that might add sound (e.g. background music, spoken dialogue/narration, sound effects, and so forth), motion, interactive puzzle games, and even background video (e.g. an image of a TV in the background is actually playing a TV show). These multimedia comics might even be hyperlinked, taking readers to dossiers of additional information related to the content of the comic or "behind the scenes" glimpses into how the comic was made, similar to extra features on a DVD.

As one can tell, this category allows for a great deal of possibility. To demonstrate the range, we briefly discuss two multimedia comics here. The first is *Nawlz*, created by Stu Campbell, more commonly known as Sutu. Campbell (2008) described his digital comic as "an interactive comic that combines text, illustration, music, animation, and interactivity to create a never-before-seen panoramic comic format" (n.p.). This, at times bizarre, story recounts the tales of Harley Chambers, a cyber-graffiti artist who has the ability to cast "reals" throughout the city—a "real" in this universe is a technological hallucination. The story is accompanied by a soundtrack of sorts, though it is mostly white-noise. Different interactions unlock different musical content, primarily in the form of sound effects. Additionally, motion is a key part of the story, and depending on how the reader interacts with the comic, the reader can access different motions. As the comic utilizes a panoramic format, the reader can still gaze upon recently read panels. Often, the motion unlocked modifies previously read panels, which forces the reader to go back and re-read that, now newly modified, panel. This creates a very surreal reading experience, one that challenges how comics are traditionally read.

Another example is Burwen and De Seve's (2011) *Operation Ajax: How the CIA Toppled Democracy in Iran*. This text combines sound, animation, live video footage, archival research, and word balloons to recreate the true story of the CIA's overthrow of Iran in 1953. This is a multimedia text in every sense of the word, as it utilizes alphabetic text, static visual images, dynamic visual images, sound, and animation. Much of the content is linked, so readers have the opportunity to access additional information if they want; however, they are not forced to depart from the "narrative proper" if they do not wish. This is an excellent example of how comics can make use of multiple media and the use of hyperlinks to take readers to additional content related to the story at hand.

TEACHING MODULES

In order to fully realize Selber's digital literacy instruction, we find it best to devote an entire unit to digital comics. In this unit, we read—and ultimately create—remediated, ergodic, and multimedia digital comics. In this section, we show how the reading and creating of these three digital comic types responsibly supports digital literacy instruction by focusing on Selber's (2004) functional, critical, and rhetorical subject positions.

READING DIGITAL COMICS

The importance of mentor texts in facilitating literacy instruction and fostering literacy development has been widely acknowledged. Mentor texts, as their name implies, can create a type of apprenticeship relationship between texts and readers, where the consumers learn from and with professionals and experts. Likewise, the use of mentor texts promotes an understanding of the relationship between writer (or composer or creator) and the audience. Regardless of the type of relationship forged, the use of mentor texts can help students develop the skills necessary to read closely and with a writer's eye. Ultimately, providing students intentional and meaningful opportunities to engage with powerful mentor texts helps them to analyze exemplars and use those experiences to emulate the critical and rhetorical approaches and elements utilized by their mentors. The inclusion of non-traditional mentor texts is equally important. This includes those texts that represent and support digital literacy, including digital comics. In fact, using well-crafted

digital mentor texts can have powerful effects on students' digital literacy development and the ways in which they interact (i.e., consume, create, and share information) in the 21st century. As a result of the noted benefits, we ground our work in the use of mentor texts, which drive students' experiences reading, analyzing, discussing, and composing digital comics (see Table 1 for a list of possible mentor texts).

Table 1

Sample Mentor Texts and Applications for Creation of Digital Comics

Table 1			
Sample Mentor Texts and Applications for Creation of Digital Comics			
	Remediated Comics	Ergodic-Hyperomics	Multimedia Comics
Sample Mentor Texts	--Any comic from comixology.com	*--Hello World*	*--Nawlz*
		--Batman: Arkham Origins	*--Operation AJAX*
		--Dracula: The Interactive Comic	*--Tell Me Your Secrets*
			--Odysseé 2.0
		--Meanwhile	*--Priya's Shakti*
Application for Creation	--Prezi	--Wordpress	--PowerPoint
	--emaze	--Scratch	--Electricomics,
	--Academic Presenter	--inklewriter	--Adobe Flash

Reading digital texts is one way to begin a student's path towards realizing Selber's functional, critical, and rhetorical knowledge required for achieving digital literacy. For example, a certain kind of functional computer knowledge is needed to successfully navigate and ultimately read remediated, ergodic, and multimedia comics. For many remediated comics, students will need to learn how to download files, create passwords, save files, and, in some cases, learn how to use advanced tools such as "guided view." An even greater functional digital knowledge is needed to access ergodic or multimedia comics; here, students may need to ensure that Flash is properly installed on their device (as many multimedia comics rely on Flash), adjust settings (such as pop-up blockers, sound, and screen resolution) to allow the comic to run and be read smoothly and manipulate the interface (e.g. the haptic interface that relies on touch). While many teachers may take it for granted that students may know how to do this, our experience has shown that students are most unfamiliar with adjusting existing settings and how to ensure compatibility between interface and digital comic. We recommend that instructors spend some time on accessing all three digital comic types as a class before assigning students to read digital comics independently.

Critical literacy is also a key part of reading remediated, ergodic, and multimedia digital comics. For all three text-types, the conversation revolves around similar questions and themes; we usually engage students in this discussion after students have read all three digital comic types. First, we discuss the limitations of each digital comic, paying particular attention to how the platform—for instance, guided view in remediated comics—limits the reader/text interaction. From here, we ask students to consider how the platform changes and/or challenges the reader-text interaction; these conversations are usually either an extension of discussing limitations or a new conversation examining how these platforms allow for new reading opportunities. At the heart of this discussion is answering the question, "Why this platform?" However, it is also imperative that we consider who can or can't access these digital comics, which usually sparks an important dialogue about the digital divide.

We should also note that students begin their rhetorical digital literacy education through the reading of digital comics. Here, we invite students to conduct informal rhetorical analyses, paying particular attention to how the use of color, sound, motion, video, and so forth contributes to the construction of the narrative. Specifically, we're interested in challenging students to analyze how digital comics use various affordances rhetorically, paying particular attention to how these affordances help create a different reader/text interaction—and a different narrative—than their print-based counterpart. In short, students analyze these comics rhetorically to discuss how digital comics are created, consumed, and engaged with differently from traditional comics, and even other digital comics.

CREATING COMICS

Providing students opportunities to use mentor texts to better understand how authors think, write, and approach topics and audiences is just the beginning. Students must also be able to transfer that understanding to their own creation processes. In other words, being digitally literate requires more than just consumption skills; it requires the ability to create and to contribute to the digital world. Creating fosters development of communication skills, especially within the context of digital literacy. Moreover, engaging in creation is a vital part of learning, growing, and understanding oneself. And engaging in digital creation is equally as important. As a result, we provide our students multiple opportunities to do just that. Here, we share three of those instructional approaches. Before proceeding, however, it is important to note that there are a wealth of platforms and options available for creating digital comics, but we highlight only three here, focusing on those that have worked well for us and our students and that align with and support Selber's framework for digital literacy.

FUNCTIONAL LITERACY. Selber (2004) discussed functional literacy as the ability to consider the affordances of computer technologies and to use that consideration to make decisions about how to use computers to solve problems and to create. It is in this spirit that we introduce three platforms for making digital comics: Prezi, to help students create remediated comics with a "guided view"; WordPress, to create ergodic hyper-comics that allow readers to shape their own narrative; and PowerPoint to create multimedia comics that make use of sound (narration and sound effects), motion (transitions from image to image), image, and text. These three platforms offer users a

variety of nuanced opportunities to develop a range of functional literacy skills (see Figure 1 for unique and overlapping functional knowledge associated with the three platforms). When using Prezi, students must first be able to create an account. They must also consider a variety of licensing options, often after a 14-day free trial, which range in price and access, such as access to image editing tools, offline access, and training from Prezi; functional knowledge of the application might help them determine which licensing option they choose. Additionally, Prezi requires users to understand not only how to include content, but also how to create paths, utilize zooming, create transitions, and interact with editing tools. Finally, students must consider publication issues, such as how and where to embed and/or link to across other platforms, and sharing options, which include privacy settings and accessibility for outside audience members.

WordPress requires students to ask additional functional questions. Students must consider the affordances of working with WordPress entirely online or installing the tool on their device; to that end, they need to decide whether they want to use the free tool or the fee-based tool, which gives them access to more affordances. Additional requisite functional knowledge for interacting with WordPress includes how to select appropriate themes, upload content, and interact with the administration and editing tools. To fully consider the platform, students must also examine and learn how to use the additional plugin options (e.g., Wordfence Security, Google Analytics, widget bundles, and MailChimp).

PowerPoint, similar to Prezi, requires students to examine the functionality of a platform designed for presentations. Unlike Prezi, however, where the path is determined entirely by the composer, students using PowerPoint need not consider path creation, as the path is pre-determined, but they must understand and be able to select from a variety of available templates and themes. To create with PowerPoint, students must also consider the process of deciding between slide types, inserting content, including color, and utilizing transitions. In addition to creation, users must also assess the navigation and editing tools. Finally, because PowerPoint is a tool used entirely offline, students must consider this constraint against their ultimate purpose. In other words, students composing with PowerPoint must also search for and evaluate compatible platforms for publishing and sharing their work.

As part of their functional evaluations, students must also consider what they have learned from reading the digital comics assigned in class, how they would like to use the technology to shape their readers' experiences, and how to compose using their understanding of the platform and their own rhetorical intent. Their rhetorical goals, in many ways, facilitate their functional literacy training. That is, students need to learn how to use effectively the tools embedded in the platforms to create a rhetorically effective document. In this way, their functional literacy education is becoming something greater than simply learning skills—for example, how to add motion or how to add sound effects using computer software. Students are realizing that certain software tools and features enable them to make powerful rhetorical digital texts. Only by understanding how to use these tools, though, will that be possible.

Figure 1: Functional Skills Related to the Three Platforms

CRITICAL LITERACY. Selber (2004) described critical literacy as the ability to recognize, critique, and react to social and power relations embedded in technology settings and contexts. We have found that responding to these issues as a class invites some engaging conversation amongst students. These conversations are started with us explaining why we have chosen to use the platforms of Prezi, WordPress, and PowerPoint for the creation of their digital comic projects. For example, we point out that Prezi offers a variety of benefits. First, we point out that users can upload a variety of content (e.g., text, images), rather than having to create within the platform only. Next we emphasize that Prezi offers myriad options for creating and creativity, while still providing a helpful frame; these tools allow students to create a pre-determined viewing path (mimicking the Guided View in Comixology), including movement, zooming, transition, size, etc. Finally, and perhaps most importantly, we note that Prezi is free to anyone who takes the time to create a user-name and password.

From here, though, we invite students to critique and react to these choices. We first ask students to identify any limitations with the programs we've selected. For instance, students have pointed out that in the free version of Prezi, all presentations are archived as public. In other words, students

cannot choose to make their compositions private, which may or may not be a major concern, depending on the classroom level. We contrast Prezi with PowerPoint; people are often under the misconception that PowerPoint is free, but it is actually a part of the Microsoft Office Suite; by pursuing this line of questioning, we are hoping students are going to start a process that will inspire them to ask questions such as "Why is the Microsoft Office Suite on every school computer, and what impact does this have?" With WordPress, we can point out that there are two versions of the application: one is free and only requires a user-name and password to access; the other, though, requires a monthly fee. As a class, we can discuss what affordances are provided in the "free" version and the "fee-based" version of the application. Inherent in this, then, is a discussion of how people who can afford the fee-based version of the application are given more powerful tools to design websites. Thus, while the free version is still a useful tool, it does not "empower" an individual as much as the fee-based version, as the latter offers more affordances and authorial control. For instance, the fee-based version allows the user to actively and thoroughly edit the CSS code.

By actively asking students to identify limitations, we are hopefully going to have students become more conscientious users of technology, as opposed to using programs and software out of habit and/or convenience. To that end, we urge all of our students to find alternatives to the platforms we've selected; if they are inclined, students can use a different platform to create their digital comics, as long as they can critically demonstrate *why* they are making this choice. By using the tenets of Selber's critical literacy to guide conversations about access and power, digital comics works a gateway to becoming a more thoughtful digital citizen.

RHETORICAL LITERACY. Selber (2004) argued that rhetorical literacy involves being able to compose using 21st century, digital tools and rhetorical considerations. That is, once individuals have learned how to use a specific technology (functional literacy) and learned how to question the limitations of the application, particularly as it pertains to empowering the author (critical literacy), they are then prepared to create a rhetorically powerful digital text. To foster rhetorical literacy in our students, we task them with using the concept of remediation to create a digital comic of their own using Prezi, WordPress, and PowerPoint. In order to focus on digital literacy—specifically, playing with the different affordances each tool presents—we ask students to take an existing print comic (we supply several, culled from two free comic book day events held at local comic shops in May and October respectively) and remix it into the three digital comic types explored in the unit: remediated, ergodic hyper-comic, and multimedia comics. This assignment also demands students learn a new functional digital literacy skill: scanning and cropping images. We encourage students to use their "mentor texts"—the digital comics read earlier in the unit—as models for this composition assignment. Because of file size, we ask that students work only with two- to four-page selections from their comic (usually the splash page and the two following pages).

The affordances students work with for each project are unique. For remediated comics, students pay attention to creating a "guided view"; here, they need to consider the "path" they want readers to consume their comic. For ergodic-hypercomics, we ask students to hyperlink their comic using WordPress; that is, hyperlinks are embedded within the comic that readers must click to advance the narrative. Additionally, students are asked to provide links to websites, videos, or games that

have similar/related content to the comic they are re-working; these links are to be thoughtfully included in the panel itself. Finally, students are asked to productively use narration, motion (through the transitions feature of PowerPoint), and sound effects in their multimedia comics.

We also ask that students compose a short reflection that accompanies their three digital comic creations. This reflection asks them to articulate (a) what their rhetorical goals were with each remix, (b) how they strove to meet those goals, (c) which platform best facilitated their rhetorical goals, and (d) what they learned about digital comics and digital composition through their work. Husbye and Rust (2013) noted that a written reflection articulating student's "process and the design decisions made" (p. 138) helps keep students accountable, while also emphasizing that the *rhetoric* and the *thought process* behind the composition is valuable in helping the teacher interpret the text.

CONCLUSION

To live in and contribute to the digital world in which we live, students must first practice, develop, and effectively utilize digital literacy skills. In fact, there continues to be ongoing educational discussion to incorporate digital literacy instruction into existing curricula by designing meaningful opportunities for students to engage with digital contexts and to develop these digital skills. The goal of this article has been to offer digital comics as one way to introduce students to digital literacy and to provide them opportunities to grow as digital citizens. Coupled with Selber's framework, we offer educators instructional approaches using digital comics to foster functional, critical, and rhetorical literacy development within a digital context. As such, we discuss an instructional unit in which students read (as mentor texts) and create (as digital composers) three types of digital comics—remediated, ergodic, and multimedia—using three digital platforms with which we have experienced success: Prezi, WordPress, and PowerPoint. Within, we share how we use these texts and compositions to foster literacy development across functional, critical, and rhetorical levels; such efforts will contribute to students becoming digitally literate, 21st century citizens.

REFERENCES

Aarseth, E. (1999). Aporia and epiphany in *Doom* and *The Speaking Clock*: The temporality in ergodic art. In M.L. Ryan (Ed.), *Cyberspace textuality: Computer technology and literary theory* (pp. 31-42). Bloomington, IN: Indiana University Press.

Aarseth, E. (1997). *Cybertext.* Baltimore, MD: John Hopkins University Press.

Beechen, A. & Wagner, D. (2003). *Batman: Arkham origins*. Washington, DC: Madefire.

Bolter, J.D. & Grusin, R. (1999). *Remediation: Understanding new media*. Cambridge, MA: MIT Press.

Buck, A. (2012). Examining digital literacy practices on social network sites. *Research in the Teaching of English 47*(1), 9-38.

Burwen, D. & De Seve M. (2011). *Operation AJAX: How the CIA toppled democracy in Iran*. Cognito Comics. Retrieved from http://www.cognitocomics.com/operationajax/

Campbell, S. (2008). *Nawlz.* Digital Comic. Retrieved from www.nawlz.com.

Comixology. (2016). What is Comixology's guided view? Retrieved from https://support.comixology.com/customer/portal/articles/768035-what-is-comixology-s-guided-view™-technology-

Devineni, R., Goldman, D., & Vohra, P. (2014). *Priya's Shakti*. Digital Comic. Retrieved from http://www.priyashakti.com/.

Eshet-Alkalai, Y. (2004). Digital literacy: A conceptual framework for survival in the digital era. *Journal of Educational Multimedia and Hypermedia, 13*(1), 93-106.

Gainer, J. (2012). Critical thinking: Foundational for digital literacies and democracy. *Journal of Adolescent & Adult Literacy, 56*(1), 14-17.

Gibson, M. & Derfreitas, J. (2011). *Dracula: The interactive comic*. Retrieved from http://www.draculacomic.co.uk/.

Goodfellow, R. (2011). Literacy, literacies and the digital in higher education. *Teaching in Higher Education, 16*(1), 131-144.

Husbye, N.E. & Rust, J. (2013). Considering design: The challenges of assessing multimodal texts. In R.E. Ferdig & K.E. Pytash (Eds.), *Exploring multimodal composition and digital writing* (pp. 135-149). Hershey, PA: IGI Global.

Lankshear, C. & Knobel, M. (Eds.) (2008). *Digital literacies: Concepts, policies and practices*. New York, NY: Peter Lang.

Lea, M.R. (2013). Reclaiming literacies: Competing textual practices in a digital higher education. *Teaching in Higher Education, 18*(1), 106-118.

Lidster, J. & Orwell, M. (2016). *Tell me your secrets*. Digital Comic. Retrieved from http://www.bbc.co.uk/guides/z3b77hv.

McKee-Waddell, S. (2015). Digital literacy: Bridging the gap with digital writing tools. *Delta Kappa Gamma Bulletin: International Journal for Professional Educators, 82*(1), 26-31.

Merlin-Goodbrey, D. (2010). From comic to hyper-comic. Retrieved from *inter-disciplinary.net*.

Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & Education, 59*, 1065-1078.

Prensky, M. (2001). Digital natives, digital immigrants part 1. *On the Horizon, 9*(5), 1-6.

Prieur, C. & Malgras, V. (2016). *Odyssée 2.0*. Digital Comic. Retrieved from https://odysseedeuxpointzero.fr/.

Selber, S. (2004). *Multiliteracies for a digital age.* Carbondale, IL: Southern Illinois University Press.

Shiga, J. (2017). Meanwhile: An interactive comic. Zarfhome Software Consulting. Retrieved from http://zarfhome.com/meanwhile/

Visser, M. (2012). Digital literacy definition. *ALA Connect*. Retrieved from http://connect.ala.org/node/181197

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