Integrating the Digital Literacies Into an After-School Program:
A Structural Analysis of Teachers' Lessons

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ABSTRACT

The structure of lessons where teachers integrated the digital literacies is examined here. Twelve graduate teachers participating in an after-school practica were observed over a six-week period. This manuscript identifies the structure of their lessons and describes the kinds of digital literacies children learned when completing them. Teachers used the digital literacies to develop children's oral reading fluency, help them compose multimedia texts, and provide them extended time to read and write on the web. Our observations suggest that children, even those with difficulties learning to read and write, became engaged in learning when they have opportunities to read and write with the digital literacies. We explain that the digital literacies can be successfully integrated into lessons designed to help struggling learners in after-school programs, and the lessons examined here offer examples of how this can be accomplished.

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In the manuscript we examine the structure of teachers' after-school literacy lessons in which the digital literacies are integrated. Structure plays an important role in everyday life, and research has shown that schools have structural features that are widely associated with students' learning. For example, school and class sizes (Graue, Hatch, Rao, & Oen, 2007; Jacob & Rockoff, 2012), integrated or discrete curricula (Applebee, Adler, & Flihan, 2007), scheduling of

subject areas and time spent in school (Bloom, 1974; Carroll, 1963; Lee & Burkham, 2003; Walberg, 1988), and single sex or coeducational buildings (Younger & Warrington, 2006) represent some structural features long associated with children's academic achievement.

Reading lessons have particular structures, too. The Directed Reading Activity (Betts, 1946) is one of the oldest and best-known lesson structures. Directed reading lessons begin with pre-teaching of vocabulary, then eliciting students' prior knowledge about topics to be read, teaching of a skill, setting purposes for reading, having students read silently, discussing and checking children's comprehension, and closing with follow-up or extension activities.

Reading Recovery has another well-known lesson structure (Clay, 1985), which is widely used in early intervention programs in the primary grades. Its structure consists of a variety of instructional activities including rereading an old favorite, reading of yesterday's new book and taking a running record, working with letters, writing a story, reassembling a cut-up story, and reading a new book.

Readers' and writers' workshops have their distinct lesson structures, too (Atwell, 1987). The structure of a workshop traditionally begins with "status of the class," a daily mini-lesson followed by sustained time for reading and writing, as well as teacher-student conferences. Workshops close with students sharing their responses to literature or written drafts with one another. Larson (2007) identifies the structure of a digital workshop for teacher candidates that is patterned on Atwell's workshop model of teaching and learning: Students (1) read online text; (2) compose in digital journals, (3) participate in online discussions, and (4) produce technology-based multimedia projects.

Structure is also associated with teachers' lesson planning. Smith and Wilhelm (2002), for example, discuss the importance of using a three-part structure to present literacy lessons to students: frontloading activities include the teaching strategies teachers use to activate students' prior knowledge and engage them in the literacy topic; guiding activities pertain to those strategies that teachers use to help students comprehend and compose. Finally, unpacking activities are those strategies teachers use to help students analyze ideas and reflect on what they learned during their reading and/or writing.

The Digital Literacies

Ways of reading and writing are changing at a rate not seen since Gutenberg invented the printing press. In fact, use of the new digital technologies might even be considered this generation's defining moment (Coiro, Knobel, Lankshear,& Leu, 2008). Prensky (2001) describes today's students as *digital natives* who are as comfortable using the new literacies as they are using conventional print and traditional forms of communication (e.g., newspapers, television, and radio). Certainly Prensky's categorization of the school-age population is not inclusive of all students, but we still find it interesting because many of today's children effortlessly switch back and forth from digital to conventional reading and writing.

Students having grown up in the digital revolution are likely not to have ever seen library card catalogs, hardcopy indexes of *Books in Print*, or microfiche readers. In many cases they are more comfortable using tablet readers and other e-readers than reading hardcopy editions of newspapers and books. Today's students are even leaving conventional television and radio broadcasting networks and viewing their favorite programs on digital devices such as iPhones and tablet computers (Stelter, 2012).

The digital literacies require reading strategies that differ from conventional reading and writing (Coiro & Dobler, 2007; Leu, 2011). The digital literacies are multimodal (New London Group, 2000) with users easily switching from one mode of communication to another. For example, readers might change from text-based reading, to listening to a podcast (e.g., mp3), to viewing online graphics and video (e.g., Quicktime) all within a few minutes of time.

The new literacies are fundamentally social (Leu et al., 2011) as users text, instant message, share photos and videos, post responses and ideas to websites and blogs, and coauthor documents on Google Docs or wikis. The multimodal and social elements of the digital literacies are transforming students' ways of reading and writing when they are out of school. It is inevitable that these same literacies will eventually become a regular part of classroom learning activities.

The new digital literacies are integrated throughout the Common Core State Standards (National Governors Association, 2010) and as adopted by New York State. Specifically, the digital literacies appear in the New York's Common Core Learning Standards (CCLS) (New York State Education Department, 2011). College and Career Anchor Standard 6 in Writing states that students "use technology, including the Internet, to produce and publish writing and interact and collaborate with others" (CCLS, 2011, p. 27), and Anchor Standard 8 asks that students "gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism" (CCLS, 2011, p. 27). Anchor Standard 7 in Reading requires students to "integrate and evaluate content presented in diverse media formats, including visually and quantitatively, as well as in words" (CCLS, 2011, p. 18). Today's students must learn to effectively use the digital literacies effectively if they are to become "career ready" for the twenty-first century. Although we would like to have seen digital literacies appear even *more* strongly in the CCSS, especially in reading, they are there. Efforts to have students read and write with the digital literacies should not be viewed as supplements to conventional literacy curricula. Instead, the digital literacies are essential to what it means to be a reader and writer in today's world.

The digital literacies offer potential for improving students' school performance, and there is accumulating evidence that they might be more engaging for some learners, particularly those who are struggling to read and write with conventional forms of print (Bennett, Pearson, Zimmerman, & Keane, 2011; Leu et al., 2007; Obrien, Beach, & Scharber, 2007). In this manuscript we describe and explain the lesson structures of an after-school program where the digital literacies were integrated into children's lessons. Lesson structures have the potential of maximizing students' attention to specific aspects of literacy (e.g., letter to sound correspondences, comprehension and composing), and for this reason we were interested the structural elements of an after-school digital literacy program serving struggling readers and writers. We were particularly interested in examining answers to the following questions:

- What are the structural elements of an after-school literacy program where the digital literacies are integrated?
- What kinds of digital literacies do children learn in the program?
- What do teachers say about teaching struggling readers and writers to use the digital literacies?

The After-School Literacy Program

The observations presented here are based on an after-school literacy practicum that Kay taught for graduate students. Pete served as an outsider observer of these lessons by describing and explaining their structures and patterns. Afterwards he shared his analyses with Kay, and as such she functioned as a member-check (Mirriam, 1998) of the identified patterns and structures. Such a method is consistent with those of others who work to integrate both "emic" and "etic" perspectives in the study of teaching and learning (Godina & McCoy, 2000). We believe the analyses presented here are sufficiently trustworthy (Lincoln & Guba, 1985) so that other teachers and teacher educators can make informed decisions about them. Moreover, we hope our analyses will contribute to others' thoughts and practices about integrating the digital literacies into intervention programs for children with difficulties learning to read and write and preparing new literacy specialists and coaches.

This after-school literacy practicum was part of a required program for teachers completing their master's degree in literacy education or literacy and special education. Twelve teachers who were previously certified in childhood education and three who were also certified in special education participated in the semester described here. Successful completion of the literacy practica made them eligible to be certified as literacy coaches and specialists in New York State. The State requires teachers to obtain 50 hours of supervised practica experience, and this particular course was the final practicum in the college's three-part sequence. The first two practica were more conventional in their use of reading and writing, but as the academic year progressed Kay required greater integration of the digital literacies. For the fall and spring semesters the children met after school once a week for 90-minute sessions with twelve teachers. The final semester took place during May and June. During it the same children (N=33) who had participated throughout the year met for two 120-minute weekly sessions. Kay paired the teachers so that they acquired collaborative skills that they might later need as literacy specialists and coaches in schools. The children were similarly placed in pairs, with older and younger children working together. This partnering of children offered an opportunity for the older ones to model and mentor the younger ones in using various strategies for reading and writing.

Many of these teachers taught during the day in surrounding school districts and were experienced in working with children. Several of the teachers said they were skilled with digital whiteboards because they used them in their classrooms during the day. Yet few of the teachers had used digital literacies in their reading and language arts lessons before this practicum.

The after-school program took place at Eisenhower Elementary (pseudonym), which is located in a small northeastern city with 400 children attending it during the day. About 42% of the school population was eligible for free and/or reduced lunch. Eighty-nine percent (89%) of its children were identified as white, 6% as African American and 4% as Latino. Fifty-four percent (54%) and 67% of the fourth and fifth graders respectively passed the statewide exam in reading and the language arts. First and second-floor classrooms as well as the school library served as the tutoring spaces. Each of classrooms and the library contained four desktop computers (PCs) that were connected to the Internet and used in the after-school program.

Pete observed and collected data twice a week for six weeks, representing nearly 20 hours of lesson observations. The data collection included descriptions of the lessons and notes taken from informal and unplanned discussions with the teachers and children. All of Pete's field notes were placed into Dropbox (www.dropbox.com) so that they were accessible for Kay to

view them. Kay made additional lesson artifacts from the lessons available for him (e.g., teachers submitted their lessons into the course's management system [Moodle] and Kay shared them with her students' permission). These written plans included the teachers' objectives, their rationales (which included evidence from children's previous lesson performances and connections to the research literature), standards addressed (including the NET*S technology standards [ISTE, 2007]), procedures for implementing their lessons, ties to the principles of Universal Design for Learning (UDL), and their personal reflections about the lesson outcomes. The lesson plan structure was influenced by Kay's expectations that students write objectives that were evaluated to inform instructional choices. Similarly, her requirement for evidenced based practice (Saville, 2009) and concomitant professional peer-reviewed citations required that tutors examine student needs as they consulted the professional literature. She required that students demonstrate their understanding of access based on learners' needs in a variety of ways through their consideration of UDL (www.cast.org); this consideration might be expressed in a listing of multiple means of expression, representation and engagement or in paragraph form tied to each tutee.

All of the participating children received teacher and parent support for attending the after-school program. The children's classroom or specialist teachers recommended them to the program. The teachers viewed the after-school program as an opportunity for the children to accelerate their literacy learning. Some of the children lacked Internet access at home and attending the after-school program motivated them to come. Even on the nicest of spring days many of the children eagerly attended the clinic while wearing their baseball or soccer uniforms for games they would play that evening.

Children said they rarely used technology during the regular school day. We learned that Eisenhower Elementary did not have classroom SmartBoards, and the children said they only used the computer lab once each week for practicing test-taking skills for their ELA and math exams.

What is the Typical Structure of a Digital Literacy Lesson?

Although the teachers exhibited variability in how they planned their 120-minute lessons with the children, one lesson structure constituted a consistent pattern identified in Figure 1.

Lesson Openings

When children entered the after-school program they often went to a desktop computer where they worked on the previous session's webquest (Dodge, 2001). They often answered Kay's "challenge questions." Her challenge tasks pertained to a thematic unit about Alaska that all of the children were studying. On the first session of each week the teachers emailed their children to share the "challenge questions" that Kay prepared for them. An example of one of Kay's challenge questions was one in which children were to search for information about Alaska. It read as follows:

> Hello students, I am very proud of your work last week. What is the capitol Alaska? Send me the answer. Then make an Animoto video containing at least four images with title, names, music, and at least four images. These are worth two coupons.

Figure 1:
Typical Structure of a Digital Lesson

1. *Lesson Openings*: Children completed "challenge" tasks (i.e. technology challenge questions related to the webquest theme) provided by the clinic instructor or they continued completing tasks presented in the previous lesson's webquests.
2. *Fluency Practice*: Children completed running records using a digital recorder, such as Audacity.
3. *Graphica*: Children composed graphic panels with a comic creator website such as Kerpoof or Make Belief Comix. Often these graphics related to books they finished reading or learning activities they completed.
4. *Composing and Comprehending*: This typically involved collaborative work on a webquest. The webquests required children to search for information, read, answer questions, write, and compose multimedia texts (e.g., Animoto, PowerPoint with narration).

Children worked in small groups to complete their challenge tasks. In this example requiring the children to make Animoto videos (www.animoto.com), two boys watched as their third group member, Jewel (all learner names are pseudonyms), sat at the desktop computer and Googled for the name of Alaska's capital. Jewel copied and pasted the URL where the answer he was searching for was found into their Word document. Next the children went to the Animoto site. Their teachers sat down at the computer with them, and they created an account in Animoto. Teachers guided the children through the steps of composing an Animoto multimedia video. For instance, one of the teachers asked the children which of the background screens they would like to select for their video. She exchanged seats with Philip who searched for a photo to upload to their slideshow. The children realized, with the tutor's prompting, that they needed to insert four photos into their Animoto, not just one. So Philip went back to Google images and downloaded three more photos about Alaska. Then he successfully added the four photos to video while the other children watched and guided him in task completion. While Philip sat at the keyboard the other children excitedly pointed to a music file to upload. "Please don't touch it," the teacher explained as the video "rendered" on the Animoto site. "Can we see it in full mode?" one of boys asked. "No, let's send the URL to Dr. Kay first," the teacher explained. "Can we make a longer one?" one of the boys asked. "Later," the teacher explained.

After completing challenge tasks such as these, one of the teachers emailed the children's answers to Kay who awarded coupon points to them on the basis of the number of questions they answered correctly. These points would later be redeemed for prizes during the clinic's final literacy celebration that was to be held for their families in June.

Fluency Practice

The second structural element of teachers' lessons pertained to fluency practice. Fluency is widely established in research as an essential element of proficient reading (Allington, 1983; Miller & Schwanenflugel, 2008; National Reading Panel, 2000; Rasinski et al., 2005). Nearly all

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of the teachers used technology for assessing children's fluency and giving them opportunities to practice it. Erika, for instance, brought her personal laptop to school because she had previously downloaded Audacity (www.audacity.com) to it. She used Audacity to record children's oral reading while other children worked on other clinic activities, such as webquests or silent reading. Children particularly enjoyed Audacity because it provided a visual profile of their voices as they read out-loud.

Graphica

The third structural element of their lessons pertained to the children's composing graphic panels. Kay shared her own interest in graphic novels with the teachers. She discussed recent research of Thompson (2008) as well as articles appearing in *The Reading Teacher* (e.g., Calo, 2011; McVicker, 2007; Ranker, 2007) and *Language Arts* (e.g., Yang, 2008) showing the effectiveness of graphica with struggling readers. Kay received a modest grant from her college to purchase graphic novels, and she made them available to the teachers and children for their literacy lessons. Subsequently, she donated the books to the school library.

An example of a lesson with graphica is as follows: One day two teachers, Beth and Laurie, gathered their four children at a circular table. Beth placed large paper onto it with "KWL" written on the top asked the children what they knew about graphic novels. One of the children replied that he just read *Diary of a Wimpy Kid*. They were then asked what do graphic novels have above the characters when they were speaking, and one of the boys shyly asked, "Thought bubbles?" "That's right," Beth replied, "Is there anything we want to learn about graphic novels?" Jason wondered, "Do they [graphic novels] have to be true?" Laurie then showed some examples of graphic novels and explained that, "They are longer than regular books, and there are thought bubbles in them…certain bubbles mean different things…if the bubbles are jagged, it means there is action. If there is a cloud, it means what they're thinking." "Is there one place you see comics every day?" she asked. "Do graphic novels have to have a storyline?" "No, each page can be different," replied Jason. After they discussed these and other questions Laurie displayed a variety of graphic novels, and she asked the children to select one for silent reading.

After about 10 minutes of silent reading Beth directed the children back to the computer table. Make Belief Comix (www.makebeliefcomix.com) was bookmarked on one of the laptop computers, and the tutor displayed it to the children for them to use. She explained that the children would learn this site to compose their own comic pages; later she explained that she thought this was the most workable of the comic sites for children to learn. The teachers found that the children loved comics and for this reason they taught them how to compose their own graphica. Teachers used the website Kerpoof (www.kerpoof.com) for children's graphica as well.

Comprehending and Composing

During each session students read and composed online while completing webquests about the theme of Alaska. Teachers previously prepared the webquests using Dodge's (2001) format as their model. At the beginning of the semester the teachers decided on the Alaskan theme because they felt it would interest all the children, who were in second through fifth grade.

Their webquests included a variety of developmentally appropriate reading, writing, and language arts activities designed to meet their students reading levels and writing performance. The webquest activities required students to prepare maps of the Iditarod, read selected websites about Alaska, write answers to teacher questions about Alaskan elementary schools, describe life in an Inuit village, and create an Inuit mask. In one of these sessions the teachers opened-up their webquest and explained to the children that they needed to prepare a PowerPoint slideshow about Alaska's Denali National Park. Each child was required to prepare a four-slide PowerPoint presentation corresponding to the pages of an alphabet book they were making. The children's slides needed to contain annotated photos about the park.

In another lesson children took notes from webpages they were reading about Alaska. Each day they needed to write notes pertaining to different aspects of Alaskan culture (e.g. food, houses, clothes, school, etc.). These websites came from the teachers' webquests. The notes the children composed were often long, sometimes about a half a page in length about each of these topics. The teachers said the children would take the information from their notes and convert it into PowerPoint or Prezi (www.prezi.com) presentations for sharing time and in the Literacy Celebration they planned to hold in June.

Additional Features of the Digital Literacy Program

All of the teachers prepared lessons to fit the perceived needs of the children they tutored. Sometimes they preferred using conventional literacies for this reason. One pair of teachers, for instance, began their biweekly lessons with silent reading of printed books. As their children entered the after school program, they were directed to select yesterday's novel from their lesson basket and begin silent reading. These teachers placed an "Agenda" sheet on each of the children's desks to read when they entered their room. For example, one day the "Agenda" revealed the following structural elements:

1) Independent reading of conventional books
2) Acrostic poem about Alaska
3) Challenge question
4) Mini-lesson on graphic novels
5) Reading and writing with the Webquest about Alaska

After silent reading time the boys completed "role" sheets (summarizer, questioner, vocabulary master, illustrator) that organized their literature discussions of *Stone Fox* (Gardiner, 1980), which would occur another day. One of the teachers displayed her own acrostic poem about Alaska and explained how she composed it with the boys. She explained that they were to make their own acrostics about Alaska and then they would "type them up" on the computers. The teachers then taught a mini-lesson to the boys about inserting "speech bubbles" into their Word documents.

"Are there any more questions you have that we didn't answer yet?" "Look at your KWL and see if there is anything that you wanted to know and didn't answer." After several minutes, Amy asked, "So do you think you are good? You have enough information?" The two girls said, "Yes." So, Amy said, "Let's start reading our books." The moved to the other side of the room and began reading graphic novels.

Which Digital Technologies did the Children Learn to Use?

The teachers required all of the children to use many websites for using the new digital literacies. Several times children were required to produce a digital product with multimedia websites such as Animoto and Glogster (www.glogsteredu.com). Sometimes children edited photos about Alaska through websites such as PiZap (www.pizap.com). Teachers required the children to produce oral reading samples in Audacity, Audioboo (www.audioboo.fm), or GarageBand (www.apple.com/ilife/garageband), and all of the children participated in the creation of webpages, which displayed their work for other children and their families to view (www.freewebs.com). Additional digital technologies that children used included word processing, PowerPoint, email, blogging, word clouds (www.wordle.net), and other photo editing sites. Figure 2 contains a listing of the digital literacies the children used in the after-school program.

Figure 2:
Digital Technologies Used by the Children

Audacity	Picnik
Author websites	PiZap
Bookmarking	PowerPoint
Email (Google accounts)	Search engines
Keyboarding	Website development
Graphic novels websites	Word and speech bubbles
Multimedia sites	Wordle
Paint	

What the Teachers Said About the Digital Literacies

All of the teachers said that the children were more engaged with the digital literacies than when reading conventional books and writing on paper. Even on the warmest and sunniest spring days children's attendance remained good. They eagerly participated in the digital lessons presented to them. Teachers said that technology offered the children more choice in how they completed various assignments. Children used Audacity, Wordle, Picnik, PiZap, and Paint. Because everything they do has a lot of choice (e.g., they could select their own images) and with Audacity they practiced their speaking and fluency at the same time. One of the teachers, Jessica, explained that the children were "more attentive and engaged" when using technology instead of conventional reading and writing. "Technology is more interactive…it tests their skills but it is still reading and writing," she explained.

Teachers capitalized on the social nature of the digital literacies. That is, it was rare to see children working individually. Instead they often collaborated with others as they read, composed, and searched for information on the Internet. The children frequently worked together on PowerPoint slideshows and graphic panels. The children, many of whom would later become comfortable with these digital literacies, would send their compositions off for other children to see. Sometimes the children would email children in the other groups about the literacy projects they were completing.

Figure 3:
Learner Composing with Graphics

Figure 4:
Student Adds Music to His Graphic Creation

In June the after-school program closed with a "Literacy Celebration." About 75 children, teachers, and family members had gathered in the school cafeteria for the event. A large screen connected to a laptop computer was at the front of the room as teacher teams and their children alternated turns presenting their work. The first pair of teachers and their four children presented multimedia compositions about Alaska; the teachers first explained that children composed Animoto videos about well-known Alaskan mushers, and then each of the children's videos were shown to the audience. These video presentations integrated photos of the Iditarod with text and music. The teachers also said that the children also worked with PowerPoint, Wordle, and Make Belief Comix during the after-school program. The audience clapped as the children proudly stood alongside of the screen. The next group of teachers and children shared their work; this group shared research slides (PowerPoint) about Alaskan animals; the first child presented her slide about Alaskan wolves, the next about polar bears, another about the arctic fox, and the fourth about the Alaskan moose. Each of the slides contained audio narrations that the children had previously recorded. Again the audience applauded with many of the adults in the room taking photos and videos with cameras they had brought to the event. After all the children had presented, the children, their teachers, and family members enjoyed pizza and other refreshments.

Conclusion

Teachers in this after-school program integrated the digital literacies throughout their lessons. They used the digital literacies to develop children's oral reading fluency, to help them compose multimedia presentations and graphica, and to read and compose on the Internet. The after-school program helped children because more skilled with the digital literacies, and it provided the teachers the opportunity to learn to integrate these literacies into their own teaching.

The lessons and structures described here offer one example of how the digital literacies can be used in after-school programs with struggling readers and writers. Furthermore, our analyses illustrate how teachers can replace conventional forms of reading and writing with the digital literacies. Classroom and specialist teachers need to connect literacy activities used outside-of-school with those taught in their classrooms. Our experience with this after-school

program suggests that the digital skills that these teachers acquired will add to their understanding of the processes needed for teaching in today's schools. Knowledge of these literacies will be helpful in both regular classroom settings and when teaching children with difficulties learning to read and write well.

Figure 5:
Girl's Personal Invitation to the Literacy Celebration

Classroom teachers, even those with large class sizes, might integrate the new literacies into their teaching in a variety of ways. Most classrooms offer several operating computers for children. In such cases, children can use the computers as independent learning activities after their regular classroom work is complete. Children can complete webquests and other activities involving Internet research and problem-solving activities. Many children, even those in high poverty neighborhoods, have access to after-school programs similar to the one described here or libraries with Internet access; in such cases children might be given choice in their homework assignments, with at least one of the choices being use of the new literacies. Classroom teachers might find a building colleague with whom they can collaborate in developing strategies for technology integration; collaboration of this kind can be very beneficial in sharing ideas and overcoming challenges with the new literacies. Although we know that these are difficult times for classroom teachers, especially in terms of restricted budgets and pressures of statewide testing, teachers should consider attending conferences where they can learn ideas for technology integration. Ongoing professional development, even of experienced teachers, is long associated with increased effectiveness, enthusiasm for teaching, and improved student learning (Birman, Desimone, Porter, & Garet, 2000; Borko, 2004).

The digital literacies are evolving and changing in form, cost, and ease of use. We anticipate that they will become even more ubiquitous in everyday life both in and out of school (NCM Horizon Report K-12, 2012). Our analyses suggest the digital literacies can successfully be used to engage children in fluency practice, reading comprehension, composing, and multimedia learning activities. In the future we plan to collect empirical data of children's performance with the digital literacies in after school programs such as the one examined here.

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