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Repeated Listening as a Method to Improve Reading Fluency and Comprehension

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Abstract

Decades ago, research indicated that using listening methods could be superior to reading methods for language acquisition with younger and lower skilled readers. Acknowledging that children first learn language aurally, practice it orally, and eventually read its text, this pilot study explored the efficacy of a repeated listening method to improve reading fluency and comprehension. Seventy-five second grade students were randomly assigned to three conditions, reading while listening (RWL), listening only (LO), and reading only (RO). The RWL and LO read and/or listened to seven complete stories in the MP3 audio format repeatedly (each story four times) over a seven week period, while the RO group engaged in silent reading. A pretest/posttest design measured the gains using DIBELS for reading fluency and EasyCBM for reading comprehension. Results showed that the Listening Only group gained the most in fluency, and the Reading Only group gained the most in comprehension, although none of the differences between the groups were significant. Refinements in the listening program, using ubiquitous technology such as smartphones, tablets and MP3 devices as well as using stories matched to a student's reading rate and lexile level are suggested to increase the effectiveness of a listening only program.

Keywords: literacy, listening, reading, fluency, comprehension, audiobooks

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Elementary classroom teachers employ numerous strategies to develop competent readers, including reading aloud, reading along, reading silently, reading while listening, and repeated reading – all methods that have been studied extensively and shown to be effective in various studies for improving reading fluency and comprehension. Notwithstanding any school's early emphasis on reading text, educators might well consider that reading is that component of literacy that extends a child's pre-literate aural stage of language learning. Strictly speaking, for the purposes of communication and learning from others, language is first experienced aurally and then practiced orally as a child acquires a culture's primary orality (i.e., untouched by literacy, Ong, 2012) or its primary discourse (Gee, 1998) which exist in the natural, oral mode.

The study of orality uses anthropological records to investigate how oral language develops into literate language. In the early years before acquiring the skill of reading and writing, children's understandings of a culture's cognitive and social meanings are experienced through an oral medium. Essentially, by being immersed in a culture, children first learn language by continuous listening. Building upon one's natural settings, Cook-Gumperz and Gumperz (1981) proposed that children need a "saturation" of literary experiences in culturally neutral ways "in order to transform, for themselves, the *rhythms* of spoken language into the written modes" (p. 108). The vehicle for expansion of language beyond the boundaries of oral tradition is writing, which might well be considered to be complementary to oral speech. As Ong (2012) states, "Written texts all have to be related somehow directly or indirectly, to the world of sound, the natural habitat of language, to yield their meanings. 'Reading' a text means converting it to sound, aloud or in the imagination…" (p. 8). In reading, the translation requiring competence in knowing the sound units of letters (phonemes) in a text becomes the challenge for

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the beginning reader to develop fluency and comprehension. As Fries (1963) observed, the graphic representations (alone) of text lack the spoken language signals of stress, intonation and tone, all of which must be supplied by the reader automatically and fluidly in the service of comprehension.

Throughout the 20th century, educational researchers have explored the connection between listening and reading. In a comprehensive report that outlined a model for the acquisition and development of auding (listening) and reading, Sticht, Beck, Hauke, Kleinman, and James' (1974) review of 31 research reports (from 1917 to 1970) supported the effectiveness of listening for all age levels, which included students from first-grade to college students and out-of-school adults. One prominent conclusion of their review was that "in the early years of schooling, languaging by auding was more effective than languaging by reading for receiving communication, whereas these processes became equally effective sometime around the seventh or eighth grades" (p. 122).

Dozens of studies were conducted in the 1970s and 1980s to understand differences between reading and listening conditions based on grade level (first grade–college), reading ability (low-high), modality (listening, oral reading, reading while listening), material used (e.g., sentences, passages, narratives, expository, etc.) and the variable measured (e.g., comprehension, recall, inference, etc.). Reporting on the results of 70 studies during these two decades that directly compared reading and listening, Jahandarie (1999) made the following conclusion:

> To summarize, the general pattern of findings among younger and poorer readers indicates a comprehension and recall superiority for both listening and oral reading over

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> silent reading and reading while listening. With more skilled groups of readers, silent reading becomes superior to listening and oral reading (p. 194).

From these studies and others (Guthrie & Tyler, 1976; Horowitz & Samuels, 1985; Perelle, 1975; Swalm, 1972) it's apparent that listening holds advantages over reading for younger and less skilled readers. However, in recent decades (21st century), testing listening methodologies is not as prevalent in the research on reading.

In contemporary classrooms, listening to a story (with and without an accompanying text) might be performed at a class station, or as part of a small group or a whole class read-aloud/read-along activity, but perhaps not as a structured, prescribed and measured *listening* program. It is the position of this paper that elementary educators in particular may be underutilizing the power of spoken texts to improve literacy by using a simple method and a ubiquitous technology–listening repeatedly to digital audio texts in an MP3 format. Thus, to exploit both the accessibility of technology in the form of digital audio, and the natural advantage that children gain through oral speech, the current study explores the efficacy of listening to digital audio texts to improve reading fluency and comprehension.

Repeated Reading and Listening as Methodologies

Reading fluency refers to "a level of accuracy and rate, where decoding is relatively effortless; where oral reading is smooth and accurate with correct prosody; and where attention can be allocated to comprehension" (Wolf & Katzir-Cohen, 2001, p. 219). For practitioners, the familiar adage 'practice makes perfect' is undeniably appropriate to the acquisition of reading skills, and for researchers, the benefit of practice has been studied extensively in the form of using various repeated reading and listening methods. Based on a theory of automatic

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information processing, LaBerge and Samuels (1974) and Samuels (1979) postulated that the process of repeated reading develops automaticity, and is not unlike the psychomotor learning that occurs when an athlete or musician practices isolated skills in service of a future performance. Some of Samuels' research involved children reading 50-200 word passages repeatedly until fluency was achieved, at which point a new passage was attempted. Typically, students improved by over 50% by the fifth passage, based on the number of times a passage needed to be read to meet a target of 85 words per minute. In contrast, Schreiber (1980) argued that the effectiveness of repeated reading for reading fluency is not fully explained by the practice effect, rather, repeated reading assists a reader's prosodic reading development (e.g., stress, intonation) as the reader unconsciously learns and makes use of syntactic structures (e.g., patterns of sentences and phrases).

Studies incorporating both repeated reading and listening modalities have tested various methods to improve children's reading rate and comprehension, such as assisted reading, i.e., modeled live, using audio tape or computers (Littleton, Wood, & Chera, 2006; Oakley & Jay, 2008), and unassisted reading, i.e., no modeling (Homan, Klesius, & Hite, 1993; Lo, Cooke, & Starling, 2011; Rasinski, 1990), while using nontransfer passages, i.e., using the same material when assessing, and transfer passages, i.e., using new material when assessing (Chomsky, 1978; Dowhower 1987; McGee & Schickedanz, 2007; Therrien, 2004).

For example, Dowhower (1987) used repetition in both assisted (using audio tapes and tutors) and unassisted (practicing independently) reading conditions to study the effects on second grade students' reading rate, word recognition and comprehension, on nontransfer and transfer words, sentences, and passages. Over a series of practice and testing sequences for five

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passages, Dowhower found a nearly similar amount of improvement in both non-transfer and transfer conditions, but she observed a positive cumulative *practice effect* in the later sequences of her experiment. Additionally, Therrien's (2004) meta-analysis of 33 studies of nontransfer/transfer passages showed improvement in reading fluency and comprehension from repeated reading in both type of conditions, but the largest effect sizes were found in the fluency rate improvement using non transfer passages (using the same material when assessing).

Along with Samuels, another pioneer in the repeated reading/listening methodology was Carol Chomsky (1978), who maintained that emerging readers would benefit from being inundated with language, especially in cases where their home environments lacked significant exposure to literature. Working with third grade children, Chomsky gave children audiotape players, and the children listened to the stories while following along with a physical copy of the book; they were also provided some tutoring in the form of word and sentence analysis. By using complete stories and by giving children the choice to listen to any story as much as they wanted, Chomsky's study exemplified a whole language approach (see Goodman, 1992), which emphasizes narrative comprehension, and deemphasizes decoding. Chomsky found that children's reading fluency scores improved along with their confidence as the numerous repetitions enabled them to nearly "memorize" the stories.

The *repeated listening method* employed in the current study is not is easily found in the literature, particularly when it involves listening to complete stories for an explicit number of times *without* an accompanying text, and using test passages that were independent of the texts (i.e., the transfer concept). Utilizing *audio only* as a *reading* development method is intriguing when one considers that for all children, communicative language is first learned through

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listening to speech, shaping their original form of language – their primary orality. Although an audiobook is not exactly live speech (as in discourse), it is essentially recorded spoken text, and by representing the characteristics of speech – such as the narrator's prosody, and tone, etc. (see Smiley, Oakley, Worthen, Campione, & Brown, 1977) – audiobooks may mitigate the prosodic challenges for an emerging reader and promote fluency.

There are several practical and research advantages to using audiobooks in a digital format. First, although many classrooms are still equipped with usable, but antiquated tape players, or even CD players, the availability of audiobooks in the MP3 format utilizes ubiquitous mobile devices, e.g., MP3 players, tablets, and smartphones. Second, MP3 audiobooks are widely available for free, downloaded from the public library or websites like Project Gutenberg, and Lit2go. Third, considering the practical circumstances, listening to a story using headphones or earbuds, offers a unique, 'inside the head' experience, but in terms of the actual physiological activation in the brain when listening, medical researchers are discovering some interesting parallels to the brain's processing of language while reading.

Listening, Comprehension and the Brain

With the development of functional magnetic resonating imaging (fMRI), it's possible to capture digital images of brain activity while listening to words, phrases and stories. Numerous researchers have demonstrated that auditory narrative comprehension (i.e., the ability to understand spoken material) shares overlapping circuits with reading and reading comprehension (Berl, et al., 2010; Horowitz-Kraus, Vannest, & Holland, 2013; Jobard, Vigneau, Mazoyer, & Tzourio-Mazoyer, 2007). For example, Berl et al. (2010) measured brain area activation and hemispheric laterality of 36 children (7-12 years old) who listened to and read stories while

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being scanned. All the children completed post-scan comprehension tests, which provided verification of the children actually processing the content while in the scanner. For both types of story conditions, researchers found "robust activation along the superior temporal sulcus as well as less extensive activation in the left inferior frontal gyrus and right cerebellum" (p. 121), prompting them to refer to this conjunction as the "comprehension cortex". Essentially, the same areas of the brain were activated while doing both tasks, but slightly more of the brain's overall network was recruited when reading, likely due to higher level language processing and working memory.

Children's brain activity at a pre-literal oral stage relates to brain functions at a more skilled stage of reading. In their longitudinal study, Horowitz-Kraus et al. (2013) used five audio stories with sixteen children to examine the relationship between auditory narrative comprehension when the children were five to seven years old with their reading comprehension at age eleven. In addition to confirming the overlapping neural circuits for listening and reading, mentioned earlier, the children's auditory narrative comprehension at age five to seven positively correlated with reading comprehension at age eleven. When the children were older, Horowitz-Kraus et al. (2013) found additional activity in the occipital lobe, something that was expected for the visual task of reading, but the evidence also pointed toward the development of visualization in the readers at their later age.

Hearing and reading words and phrases in various domains (e.g., metaphors, direct and indirect speech, odor-related words) can also activate specific brain regions to a greater or lesser extent. For example, in a study investigating conceptual metaphor theory, comprehension of metaphors activated sensory areas of the cerebral cortex when listening to phrases that contain

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textural words, such as 'rough day', or 'slimy person' (Lacey, Stilla, & Sathian, 2012). The brain also registers more activity when hearing sentences that are phrased as direct speech, e.g., Mary said, "I'm hungry", versus indirect speech, e.g., "Mary said she was hungry" (Yao, Belin, & Scheepers (2012). Gonzalez et al. (2006) found that reading words like cinnamon, and garlic stimulates the olfactory region of the brain, indicating that words with strong sensory characteristics activate the brain as if a person was actually experiencing the events. Combined with studies that demonstrated the overlapping circuits of reading and listening mentioned previously , one wonders if *listening* to odor-related words might follow a similar pattern. Regardless, the collection of brain studies mentioned above indicates that listening to words and stories is an active cognitive activity that is closely related to the task of reading and comprehension.

Method

This experimental study took place in a Title I public elementary school in the Pacific Northwest, with the cooperation of three classroom teachers who collaborated on their reading program to provide comparable reading instruction to all students. To create equivalent groups, 75 second grade students were ranked according to their scores on a DIBELS pretest for oral reading fluency. In groups of three (highest three, next highest three, etc.), students were then randomly assigned to one of three reading conditions–Reading While Listening (RWL), Listening Only (LO) and Reading Only (RO). ANOVA established that the three groups of 25 students were statistically equivalent. To measure reading comprehension, an additional pretest using the EasyCBM assessment was also administered, but it was not used as a factor for the group assignment.

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Over the course of seven weeks, seven children's books were used by both the RWL and the LO group, with the children covering one story title per week. The story titles were specifically chosen for grade level appropriateness, length and engagement. The stories were all rated at grade levels two–four, with an average length of twelve minutes so that each title could be listened to as a complete story within the twenty minutes allotted to the intervention. Each story was read/listened to once a day, four times per week. The stories were purchased in the MP3 format, and loaded onto low-cost MP3 devices with an individual device for each child in both the RWL and the LO groups. For the two groups listening to the stories (RWL and LO) earbuds were used, and each RWL student also had a physical copy of the story to read along while listening. To assist students in the RWL group who might need assistance keeping pace with the narrator, a bell sound was inserted into the MP3 file to indicate when the students should turn the page of the physical book. The students in the LO group listened to the identical story used by the RWL group each week, but without the physical book. The students assigned to the RO group were in the control condition, and were engaged with silent reading of a book of their choice in the school library, under supervision of a classroom teacher.

Protocol

The random assignment to the three groups required shuffling the students from their regular classrooms to different classrooms at the start of the activity. Each day at a specified time, the students would relocate to the classroom assigned to their reading condition. In their assigned classroom, the RWL and LO groups would go to a plastic bin, locate their personal pouch that contained their MP3 device, find an empty seat, put in their earbuds and get the device ready to start the story. The students in the RWL would also gather up the book with the

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same title in order to read along while listening. For the RWL group, a teacher and a research assistant would assist the children who had difficulty getting the book, MP3 device and earbuds set up for use. The RWL and LO groups were provided two "training days" before the start of the seven week program, to learn how to use the MP3 devices and get set up at their desks. The RO group (the control) would go to the school library and read any book of their choice for approximately 12 minutes each day (matching the time that the other groups were reading/listening). The students in the RO were not asked to do repeated reading of the same material as the other two groups. Each of the three groups was monitored by one of the second grade teachers involved in the study, and the fidelity of the reading and listening activities was checked daily by the researcher and a research assistant.

Results

At the end of seven weeks, all students were tested again on both the DIBELS for oral reading fluency and EasyCBM for reading comprehension. DIBELS was administered by the school's reading specialist, and the EasyCBM posttest using different but equivalent passages to the pretest was administered by the classroom teachers. ANOVA was used to analyze the difference in gain between the groups after the posttests. The measured gains in reading fluency and reading comprehension after seven weeks of the intervention are presented in Table 1.

Table 1: Gains in Reading Fluency and Comprehension

Group	n	Fluency (wpm)	Comprehension (%)
Listening Only	23	24	4
Reading Only	23	19	6.5
Reading & Listening	24	18	-1

$p > .05$

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On the measure of oral reading fluency, the largest gain was made by the Listening Only group – an average improvement of 24 words per minute. The second largest gain was made by the Reading Only group – an average improvement of 19 words per minute. The smallest gain was made by the Reading While Listening group – an average improvement of 18 words per minute. None of the differences between the groups were statistically significant.

On the measure of reading comprehension, the largest gain was made by the Reading Only group, which had an average gain of 6.5%, which represented a higher percentage of correct answers on the EasyCBM assessment. The second largest gain was made by the Listening Only group, which had an average gain of 4%, and the Reading While Listening Group registered an average loss of 1% in the comprehension assessment. Once again, none of the differences between the groups were statistically significant. Of the original 25 students assigned to each group, five students (two from LO, two from RO, and one from RWL) did not complete the posttest, and therefore they were removed from the analysis.

Discussion

It has been well documented in previous studies that listening to spoken text, by itself or in conjunction with reading can improve reading fluency and comprehension, and that younger and lower performing students, in particular, can benefit from listening to a greater extent than reading (Jahandarie, 1999; Sticht et al., 1974). Furthermore, listening comprehension, the active process whereby individuals construct meaning from what they hear, and make connections with what they already know, has been shown to be a predictor of reading comprehension in students' later grades (Cadime et al., 2017). As stated earlier, learning language naturally as part of one's family and culture (in the pre-literacy stage) is surprisingly effective. In support of this

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understanding, Chomsky (1972) demonstrated that children's native language competence (e.g., grammar, syntax) at age six approaches adult level competence; growing up, a child practices with language, listening and speaking repeatedly to learn sounds, words, sentence structure, etc., in a natural way.

However, in most contemporary classrooms, has incorporating the listening modality been overlooked as a *method* in developing literacy? The current study's exploration using 'listened to' stories was an attempt to take advantage of children's natural listening skills, and perhaps even their visualization of a story's events and characters. The concept of repetition, used in previous studies (e.g., Dowhower, 1987; Homan et al., 1993; McGee & Schickedanz, 2007; Rasinski, 1990; Samuels, 1979), was applied in two groups in the current study that engaged with repeated listening, with the expectation that repeated listening to rhythms and syntax of language would improve fluency. The largest reading fluency gain of the three groups was by the Listening Only group (24 words per minute), a positive result that might be explained by either the mode of listening or the repetition that may have had an inculcation effect. The practice effect is consistent with Sticht et al.'s (1974) view that both auding and reading "consist of elements and processes that provide for predictability. For example, spelling patterns, grammatical structure, and syntactical rules exhibit certain regularities and entail certain invariants which suggest what will follow" (p. 77).

On the other hand, the worst results in both reading fluency and reading comprehension were achieved by the Reading While listening Group. What might explain this seemingly poor result, as most educators would predict that the RWL group would benefit the most because the students could follow along in the book while listening? It's conceivable that for some students

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at this second grade level, the reading while listening method may have presented a type of cognitive overload, as they needed to follow along and turn pages while reading and listening. Broadbent's (1958) single channel hypothesis proposed that a person who is presented with two types of stimuli at once, will selectively attend to only one of them at a time, although taking in low level information from two (or more) sources is feasible. Others have made similar suggestions, citing cognitive load theory to explain circumstances where multiple simultaneous inputs are detrimental to learning (Plass, Moreno, & Brunken, 2010). Another explanation might be that some students might have been still growing out of the decoding phase, and they might have had difficulty keeping pace with a professional reader of the digital recording. A child's reading rate may be inadequate for the listening task, whereby one must follow the pace of a professional narrator. In previous studies comparing a student's reading rate to a narrator's speaking rate, with first and third grade children (McMahon, 1983) and middle school children (Neville, 1975) results showed that the best performances by the children were evident when the narrator's rate on an audiotape *matched* the child's own oral reading rate.

The differences in the average scores between the three groups were not statistically significant, so it cannot be claimed that listening is *better* than reading to improve fluency, but results show the methods may often yield similar results. Others have shown similar (inconclusive) results when comparing modalities. In a recent study, college students' retention performance was comparable, whether they listened to an audiobook, read from an electronic tablet, or read while listening (Rogowsky, Calhoun, & Tallal, 2016). In our current study, results indicated that the Listening Only group gained the most in fluency, and the Reading Only group improved the most in comprehension. Considering comprehension, a student reading silently has the opportunity to read at her own pace, and even backtrack to reread or review story events for

clarity and understanding. Under the conditions of this current study, the Listening Only group did not have rewind or review opportunities, and the pace of the audio recording was not customized to each student's reading rate. Further research is recommended to determine if refinements in the listening methodology can improve the results.

The limitations of this study, such as controlling for a selected story's lexile text level, a student's lexile reading level, the reading rate of the narrator, and even the level of comfort using earbuds represent improvements that can be accounted for in further studies. For example, to improve reading fluency, an audiotext could be chosen that would be just above each student's reading level and the speaking rate of the story's narrator (to be called the "listening rate") would be taken into consideration. In a future study, better fitting, noise-cancelling headphones would be highly recommended, as children in this study would sometimes be observed adjusting the earbuds during the listening session. Educators might consider structuring a listening period where all children employ quality headphones to eliminate noise distractions, based on the single channel hypothesis (Broadbent, 1958; Plass et al., 2010).

In second language studies, researchers know that encountering words beyond one's vocabulary creates attention problems that interfere with comprehension (Rost, 2016). To nurture comprehension, a preview of a story's vocabulary, themes and concepts, not unlike what is found in most basal readers might be used, or perhaps using a group practice reading, coupled with two or three times listening only might be most effective. Geva, Galili, Katzir, and Shany (2017) demonstrated that not only were fourth grade Hebrew students "more successful in inferring novel word meanings when they listened to narratives than when they read these narratives on their own" (p. 1938), but their success in both modalities was positively related to vocabulary

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ability and reading ability. The current study did not identify second language learners (e.g., native Spanish speakers), or students with learning disabilities (e.g., dyslexia), but there should be an obvious benefit of listening to literature (repeatedly) for these student populations. Finally, employing a standardized instrument like the EasyCBM was a valuable gauge of the skill of comprehension using transfer passages, but it would also be interesting to measure comprehension using questions based on the same stories the children listened to repeatedly (i.e., nontransfer passages).

The results of this study are not conclusive, but are encouraging, that repeated *listening* to complete stories can be as useful as *reading* stories to improve reading fluency and comprehension. If, in learning to read, the child is transferring his knowledge from one modality (aural) to another (visual), as Schreiber (1980) and others have suggested, it's reasonable to assume that repeated listening can facilitate that transfer – provided the child's vocabulary is approximately matched to the reading level. Sticht et al. (1974) proposed that, in "learning to read, the child uses the same cognitive content and languaging competencies used earlier in auding, plus the additional competencies involved in decoding print-to-language" (p. 122). Especially for the lower elementary grades, a listening only program utilizes the child's natural mode of language learning. Both educators and parents should be aware of the numerous digital audiobooks available as free downloads on the Internet, on websites such as Project Gutenberg, Lit2Go, LibriVox, and even most public libraries. Low cost MP3 devices ($30-$60) are equipped with 8-32 gigabytes of storage, capable of storing hundreds of audiobooks. Making language learning available and affordable to all socioeconomic levels might help resolve the foreseeable "linguistic incompatibility" between some homes and schools (Akinnaso, 1982). Children love stories, and they should be encouraged to listen to as many stories as they want, as many times as

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they want, and the ubiquity of digital audiotexts facilitates those opportunities.

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Supporting the Development of Upper Elementary School Students' Online Research and Comprehension Skills Through a Reframed Guided Reading Framework

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Abstract

Today's students are increasingly required to use skills when conducting online research for academic purposes. However, students may be unable to transfer their reading skills with printed texts to reading online texts in upper grades and beyond. Strategic actions required for online research are extended to account for the unique, complex reading environment of the Internet as readers locate, navigate, evaluate, and synthesize information across multimodal sources. The guided reading framework, a popular instructional framework that is widely adopted in U.S. elementary schools, lends itself to supporting students' use of strategic actions as they conduct online research. Informed by theory and practice related to new literacies, digital literacies, reading development, and 21st century literacy demands, this manuscript proposes an instructional framework that utilizes the structure of a traditional guided reading lesson with printed texts to teach online reading and research skills in the upper elementary grades. Specific instructive examples, teacher tools, and additional instructional supports are provided to aid teachers' use of the Online Guided Reading Framework as they work to develop students' strategies for online inquires.

Keywords: digital literacy, online research and comprehension skills, Internet inquiry, guided reading

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Today, 21st century technologies have transformed the way we acquire information. With technology at their fingertips, many readers likely turn to the Internet, obviously a widely used source for locating information, gaining new knowledge, and being entertained. The same is true for many of our students. Students from ages 8 to 18 spend more time reading on a screen than reading traditional printed texts (Rideout, Foehr, & Roberts, 2010). However, they are doing so with little guidance and support from schools (Hutchison & Reinking, 2011). Without specific instruction and experiences learning how to read, comprehend, and research in digital contexts, students may be unable to (a) transfer some of the skills they learned to use with printed texts to online texts and (b) learn new skills that are specific to reading and comprehending online.

According to Leu and his colleagues (2015), the achievement gap in literacy is increasing and may be even larger than the data indicates. Current national assessments measure offline printed text reading skills, but do not account for online reading and research tasks. In a study that assessed skills critical to online research and reading, Leu et al. (2015) noted that seventh grade students from an economically advantaged school performed nearly two times higher than students from an economically challenged school. However, even students in the economically advantaged school were only able to respond correctly to half of the tasks and prompts (Leu et al., 2015). These research findings necessitate a change in instruction that better prepares students with effective online research and reading skills.

Since students are increasingly required to conduct research in middle and secondary schools, instruction in online research skills must begin in the elementary grades. As traditional reading and research skills develop throughout elementary school, students must begin to use

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more complicated and multiple types of text including those online. They must receive continued guidance and support in developing their digital literacy skills as they shift to online research and reading (Castek & Dwyer, 2018; Leu et al., 2015). In this manuscript, we propose an Online Guided Reading Framework (Van Allen, 2016) that utilizes the structure of a traditional guided reading lesson with printed texts to teach online reading and research skills in the upper elementary grades (ages 9-12).

Theoretical Foundations

When considering the design of the Online Guided Reading Framework (Van Allen, 2016), two theoretical perspectives guided our approach. First, we drew upon New Literacies theory (Leu, Kinzer, Coiro, Castek, & Henry 2017) to consider how technology is influencing literacy education in the 21st century and the instructional practices associated with the digital literacies required of 21st century readers and researchers. Second, we adapted the guided reading framework design (Fountas & Pinnell, 2001, 2012) as a context for teaching online research and comprehension skills through explicit modeling and strategic prompting (Van Allen, 2016).

New Literacies Theory

Rapidly developing multimodal texts and new technologies are continually shifting our definition of literacy. Each new technology and/or text type results in the development of specialized digital literacy skills, discourses, and social practices (Leu et al., 2017). In order to account for and explain the ever-changing nature of these new literacies, Leu et al. (2017) proposed a dual level theory, uppercase New Literacies theory and lowercase new literacies theory. Lowercase new literacies theory explores new technologies, programs, and text types, by

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studying the knowledge, skills, and dispositions that surround these specific areas of new literacies. Therefore, lowercase new literacies are endlessly changing and growing in response to the shifting landscape of technology. Lowercase new literacies theory is informed by the broad "common and consistent patterns being found in lowercase literacies and lines of research" (Leu et al., 2017, p. 4) of uppercase New Literacies theory. The common assumptions and principles of uppercase New Literacies theory guided our understanding of how these new literacies are altering our worldview and how we educate students in today's world.

Although uppercase New Literacies theory helps educators understand the way that online research and comprehension skills are changing instructional approaches and content taught, lowercase new literacies theory helps educators understand the attributes of online research and comprehension skills that need to be taught to students directly or indirectly.

Many researchers have concluded that reading texts on screen, especially when conducting research, incorporates more multilayered, complex skills and strategies than when reading traditional printed texts (Afflerbach & Cho, 2010; Coiro & Dobler, 2007; Harrison, 2018; Leu et al., 2008). One of the most important differences in the new literacies of online reading and research is the understanding that each individual reader self-directs his or her construction of knowledge through online texts (Leu et al., 2017). No two readers will follow the same exact pattern of hyperlinked text as they inform their understanding of a topic or problem, making text construction a unique and self-directed process. Additionally, as readers choose and navigate their own reading path, they must stay focused as most online texts are full of distractions that take a reader away from the inquiry, from targeted advertising to hyperlinks (Coiro & Dobler, 2007).

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While some of the same strategies can be used when reading both traditional and online texts, readers must also employ additional skills, strategies, dispositions, and practices that are specific to online texts (Afflerbach & Cho, 2010; Harrison, 2018; Leu & Maykel, 2016). These additional skills, and strategies expand and build upon traditional reading strategies in complex ways, ensuring that online reading comprehension is not isomorphic with offline reading comprehension (Coiro & Dobler, 2007; Leu et al., 2017). Specifically, reading on the Internet requires readers to:

1) Define important questions or problems
2) Search for and locate information
3) Critically evaluate information
4) Synthesize information from multiple sources in a variety of text formats (video, audio, etc.)
5) Read and write to communicate findings (Leu et al., 2017)

These skills and strategies must be directly taught to students in collaborative environments to improve students' comprehension of and learning through online texts. Components of the Online Guided Reading Framework (Van Allen, 2016) were designed to facilitate support in developing students skills and strategies for online inquiries.

Guided Reading

Guided reading is a popular instructional framework that is widely adopted and used in United States (U.S.) elementary schools. Guiding reading usually takes place in a small student group format and it has a specific, almost prescriptive structure for providing differentiated teaching that is aimed to support students' developing reading proficiency (Fountas & Pinnell,

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2001). The purpose of guided reading is to provide scaffolded instruction and support prompts to students as they interact with printed text in order to guide them to reading independence. Each lesson typically focuses on a key reading skill, strategy, or behavior and consists of three parts (Before/During/After reading), which incorporate specific teaching strategies. Before reading the teacher introduces the texts to students using key vocabulary that students may find challenging. During reading the teacher prompts and supports individual students for strategic reading actions while the student is reading the text. After reading the teacher leads the group in a discussion about the text and provides targeted teaching points by modeling and prompting use of a key reading skill, strategy, or behavior. Throughout the lesson, the teacher continually focuses on the specific needs of the small group (Fountas & Pinnell, 2001).

Despite its pervasive use in schools across the U.S., the research base surrounding the guided reading approach is limited. Yet, research indicates that when used as intended and as a component of a balanced literacy program, guided reading is effective in supporting students' independent use of strategic reading actions (Young, 2018; Fountas & Pinnell, n.d.; Montero, Newmaster, & Ledger, 2014). Young (2018) found that guided reading was more effective than a balanced literacy approach alone in supporting second grade students' independent reading levels, attributing the positive results to increased rigor and instructional time that a guided reading approach provides. Montero et al. (2014) found that a guided reading approach significantly supported English print literacy development of adolescent English Language Learners who had received little previous experience with literacy instruction, resulting in an average gain of eight reading levels over a six-month period. Another study conducted with at-risk second graders found that guided reading supported the development of word reading skills (Denton et al., 2014). Similarly, Nayak and Sylva (2013) conducted an experimental study in

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Hong Kong evaluating guided reading as a supplemental English reading intervention. The children were randomly assigned to a guided reading intervention, an intervention that used e-books with no teacher-led instruction, or a no treatment control group (Nayak & Sylva, 2013). These authors found that the children in the guided reading intervention made the most significant growth in reading comprehension and reading accuracy; at the same time, there were no significant differences in student growth between the guided reading and e-book interventions (Nayak & Sylva, 2013).

Studies on guided reading also indicate that effectiveness is dependent upon teachers' understanding of the purpose of guided reading and their implementation of the guided reading approach. Ford and Opitz (2008) surveyed 1,500 teachers who indicated they were knowledgeable about guided reading instruction. The results indicated uneven application of guided reading in instruction, including the purposes for conducting guided reading in classrooms, how teachers group students for instruction, and the emphasis of instruction that occurs during guided reading (Ford & Opitz, 2008). Others have also found that implementation of guided reading varies widely within classrooms from a focus on isolated skills to a more critical look at texts from multiple perspectives (Fisher, 2008; Fletcher, Greenwood, Grimely, Parkhill, & Davis, 2012; Wall, 2014). These varied approaches may lead to inconsistent results of guided reading in individual classrooms and schools, indicating the need for ongoing support and discussion regarding guided reading implementation in schools today (Denton et al., 2014).

Technology use during guided reading. Few studies have been conducted to investigate the use of digital devices within guided reading instruction. One research study investigated the use of Nearpod, an app for the iPad that allows users to create interactive

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presentations with videos, polls, slides, and quizzes, in a fourth-grade guided reading group lesson (Delacruz, 2014). The students in the study connected to a teacher-designed presentation of a text that utilized the device's drawing tool, quizzes, and polls during the guided reading lesson (Delacruz, 2014). Results of the study showed that Nearpod was a valuable tool because students found the interactivity engaging and the teacher found it easy to monitor student comprehension throughout the lesson (Delacruz, 2014). Another study investigated the impact of Internet Guided Reading on second-grade students' ability to locate and evaluate information on the Internet (Salyer, 2015). Using an approach similar to guided reading, the author found that students became more skilled, strategic online readers who were better able to ask questions, use search engines, read and evaluate search results, preview texts in different modes, predict information in websites, and synthesize information across sources (Salyer, 2015).

What is the connection between guided reading, online research, and comprehension skills? First and foremost, the complexity of skills involved in online research requires readers to engage in strategic actions to effectively interact with the text. Within the guided reading framework, Fountas and Pinnell (2012) provide a system of strategic actions that depicts how readers process traditional texts as they think within, beyond, and about the text they are reading. More traditional reading processes like word solving, fluency, and self-monitoring strategies are addressed when thinking within the text. Thinking beyond the text and about the text address critical thinking skills, such as making predictions, making connections, synthesizing information across texts, inferring, analyzing, and critiquing the text. Teachers use this system of strategic processes to assess students' use of these strategies within traditional texts through close observation of students' reading behaviors, discussions about the text, and writing about the text (Fountas & Pinnell, 2012).

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To a degree, the thinking processes represented in the system of strategic actions mirror the strategic thinking also required by online inquiries (Fountas & Pinnell, 2012). However, strategic actions required for online research and comprehension are extended to account for the unique, complex reading environment of the Internet. For example, when searching for information in a traditional text, one is limited to the relevant information presented in the article or book. Alternatively, when searching for information on the Internet, one has to sift through numerous sources and countless search results to find, analyze, evaluate, and synthesize relevant information.

The design of the guided reading framework lends itself to guiding and supporting students' use of strategic actions, whether in traditional printed text or through newer modes of text on the Internet (Fountas & Pinnell, 2012). Explicit modeling and strategic prompting provided by the teacher through the guided reading framework are essential elements of teaching online research and comprehension skills (Leu et al., 2008). However, there are many key differences between traditional reading and online research that will reflect differences in the structure of a guided reading lesson when used to teach students online research and comprehension skills. Considering that strategic actions apply to reading comprehension of both traditional and digital literacies, we utilized the design of the guided reading framework to frame our thinking when designing a supportive learning environment for teaching online research and comprehension skills through explicit modeling and strategic prompting.

Online Research and Reading Skills

In addition to the five processing practices required for effective online research previously noted in lowercase new literacies theory, online research and comprehension skills

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are affected by a student's disposition, or attitudes and beliefs, towards online reading (Coiro, 2012; Harrison, 2018; O'Byrne & McVerry, 2009; Wigfield, Guthrie, Tonks, & Perencevich, 2004). In particular, reflection, persistence, and collaboration have been identified as the three most significant dispositions required by online research (Castek & Dwyer, 2018; O'Byrne & McVerry, 2009). When searching for information on the Internet, online readers have to reflect on their current strategies often and try new approaches when they are unable to find relevant, reliable, and valid information (Coiro, 2011). In addition, online readers may have to search multiple key words and phrases to find answers to their questions and sort through a multitude of information to locate and evaluate information in relation to their question or problem. This requires a great deal of persistence. Finally, collaboration with others in real-time and online spaces is an essential skill for sharing new strategies for online research and discussing findings that result from online research (Harrison, 2018). Coiro, Sekeres, Castek, and Guzniczack (2014) found that in upper elementary grades students who effectively engaged with others cognitively and socially during a structured online inquiry demonstrated deeper understanding of the content, made stronger connections between texts and prior knowledge, and provided strong rationales in response to question prompts than students with less effective collaborations.

Instructional Approaches

Although many practical strategies have been proposed to guide students in applying strategies when engaging in online research and reading skills, two instructional approaches have been found effective: (a) a think-aloud process (Coiro, 2011) and (b) Internet Reciprocal Teaching (IRT) (Castek, 2013; Leu et al., 2008). Both of these instructional approaches

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complement each other and were used within the design of the Online Guided Reading Framework (Van Allen, 2016).

Coiro (2011) has recommended a think-aloud process consisting of modeling, guided practice, and reflection. To effectively design a think-aloud lesson, the teacher should "anticipate what students will struggle with most as they approach, navigate, monitor, and respond to the online text; and offer think-aloud models of the thinking and (viewing) strategies one would use to scaffold their understanding in these areas" (Coiro, 2011, p. 111). Within a lesson, teachers should model their thinking, prompt students in guided and collaborative practice of the skill or strategy, and engage students in reflection on using the skill or strategy. Ebner and Ehri (2013) examined how the use of a structured think-aloud procedure supported students' learning of new vocabulary on the Internet and found that students were more likely to stay on task and engage in metacognitive thinking about their Internet usage and vocabulary learning goals. Coiro (2011) also reported that frequent and repeated use of the think-aloud process helped students develop discourse specific language, which allowed them to recognize, label, and discuss the particular thinking strategies they used for online reading purposes.

Another instructional approach to teaching online research and reading skills that has been validated in research is Internet Reciprocal Teaching (IRT). Reciprocal teaching employs a gradual release of responsibility to engage students in collaborative discussions, cultivate metacognitive reading strategies, and results in improved reading comprehension (Palincscar & Brown, 1984; Rosenshine & Meister, 1994). Building off of the reciprocal teaching approach, IRT emphasizes the online reading strategies of questioning, locating, critically evaluating, synthesizing, and communicating to develop students' online research and comprehension skills

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(Leu et al., 2008). Salyer (2005) found this approach effective in the implementation of Internet guided reading lessons with second graders. Another study conducted with middle school students discovered that IRT resulted in immediate use of strategies to locate and evaluate online information (Colwell, Hunt-Barron, & Reinking, 2013). However, one challenge noted in this study was the students' failure to transfer these strategies to subsequent academic or personal Internet search tasks, indicating the need for ongoing support and guidance in these strategies to increase transfer (Colwell et al., 2013).

The Online Guided Reading Framework

The following proposed Online Guided Reading Framework (Van Allen, 2016) (see Figure 1) provides a flexible structure for teaching students in upper elementary school grades strategies specific to online research and comprehension skills. The modifications reflect and integrate the nature of online research and comprehension into the structure of a traditional guided reading lesson, while integrating think-alouds and components of the IRT approach. A full description of the framework follows with explicit examples from a fourth grade lesson on understanding the structure of a search engine results page and another fifth grade lesson on determining the credibility of information on a website.

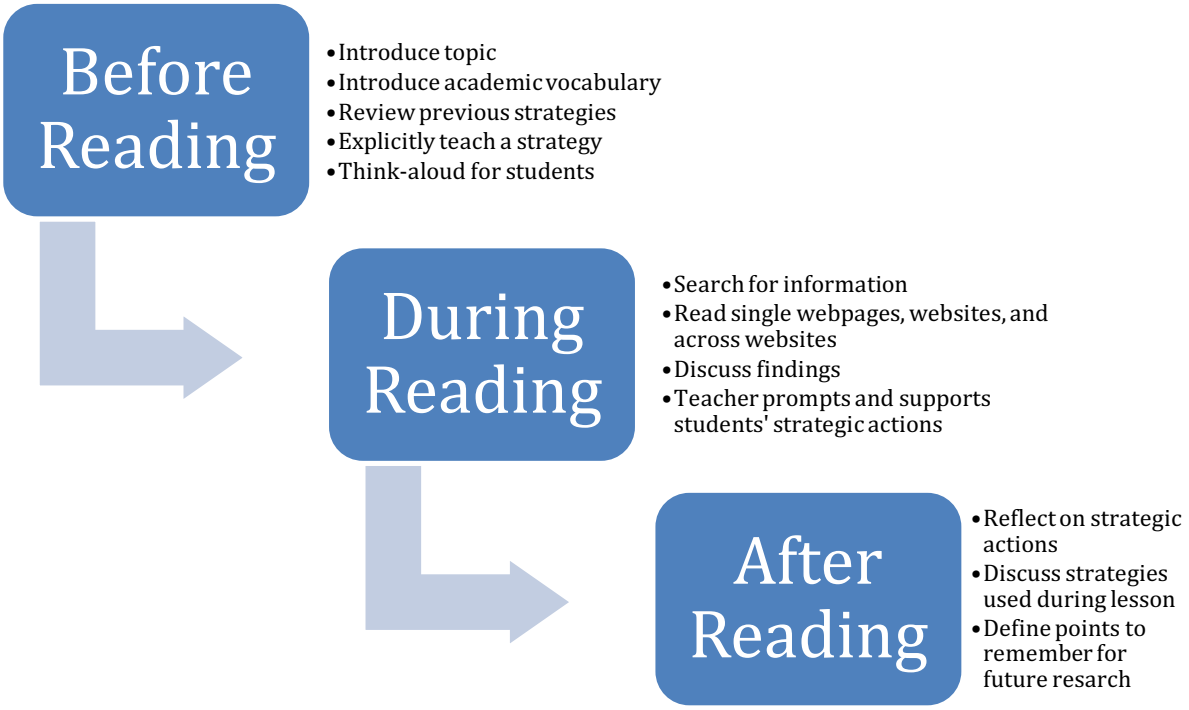

Figure 1. Online Guided Reading Framework

Teacher Preparation Before the Lessons

Grouping students. Some teachers may choose to conduct Online Guided Reading lessons with the small groups that have already been formed in their classrooms. However, other teachers may choose to first observe students' skills with online reading and research and group students based on their proficiency with the five previously discussed strategic actions for online research and reading. Leu et al. (2008) developed the Teaching Internet and Comprehension to Adolescents (TICA) checklist as part of a larger project that designed assessments for online research and comprehension skills. While addressing the five processing practices necessary for online research, the TICA checklist delineates sub-skills required by online readers. More specifically, the TICA checklist articulates foundational computers skills and explicit strategic

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actions necessary for each processing practice. In addition, these sub-skills are categorized into phases that progress from simpler to more complex skills (Leu et al., 2008). Teachers may find the TICA checklist to be a helpful tool as they identify student needs and form Online Guided Reading groups. The TICA checklist may be found at http://www.orca.uconn.edu/professional-development/understanding/tica-checklist/.

Choosing a topic. In addition to forming groups, teachers should choose a common topic or concept, rather than common text, to interact with during the lesson. Traditional static texts are more likely to be read page by page in a logical order determined by the author; whereas, Internet readers take a self-directed reading path as they navigate through a series of texts that relate to their topic (Afflerbach & Cho, 2010). During the lesson, students will visit varied Internet sources based around this common topic (Van Allen, 2016).

Choosing a topic that builds on content being studied in other subject areas is a beneficial way to develop and extend student knowledge of the topic. Topics may also develop from inquiries that are being conducted in other content areas or from student interests. For example, a teacher may chose an inquiry topic related to an upcoming social studies unit in order to provide her students with background knowledge. Alternatively, as students become more proficient with generating questions for research through the Online Guided Reading Framework, teachers may scaffold the process by having students generate their own questions or problems to research during these lessons.

Before Reading

Introduction. In an Online Guided Reading lesson, teachers may begin the first lesson of an inquiry by providing students with a brief overview about the topic or concept to be

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researched. Introducing students to unfamiliar, but integral key academic vocabulary and relevant background knowledge is crucial. Introductions to subsequent Online Guided Reading lessons within the same inquiry may review previous findings or previous online strategies students will use in the current lesson. As an example, a teacher may guide students to notice and note the key features of a search results page using appropriate academic vocabulary (ex. title, snippet, URL, sponsored link). Before beginning the next lesson, the teacher would prompt students to identify these features and their purposes during the introduction to the Online Guided Reading lesson (Van Allen, 2016).

Targeted teaching points. A typical guided reading lesson structure prompts teachers to provide targeted teaching points after students have read the text (Fountas & Pinnell, 2001). However, the Online Guided Reading Framework (Van Allen, 2016) prompts teachers to provide these targeted teaching points at the beginning of the lesson. These targeted teaching points should support online readers in using one of the five strategies previously noted for online research and comprehension (Leu et al., 2008). This is an essential piece of the lesson because it provides time for the teacher to build shared academic language among the group.

Think-alouds. Teachers may use think-alouds and modeling to provide these targeted teaching points. Coiro (2011) recommends the use of think-alouds when teaching online research and comprehension skills to explicitly model strategies, provide students with academic language, and promote metacognitive thinking about strategy use to improve students' comprehension of Internet texts. In a lesson on understanding key features of a search results page, teachers may direct students' attention to advertising links versus other links using the

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think-aloud in Table 1. The think-aloud during a lesson on determining credibility of a website may focus students' attention on questioning information that doesn't make sense (see Table 1).

Table 1: *Think-aloud Examples*

Lesson	Think-aloud
Identifying advertising links	Here I notice that these links look a bit different from the rest. I notice that these links have the word "ad" near them. These links are known as advertising links or sponsored links. Advertising or sponsored links are like advertisements on television. Companies paid to put these ads on search result pages to advertise their company or product. Often these links do not bring me to any useful information because they are trying to get me buy something or sign up for something, so I usually skip over them. Sometimes these types of links will have the word "ad" by them and other times these types of links will have the word "sponsored" by them.
Questioning information	I was doing a bit of research on the explorer Christopher Columbus and came across a website titled *All About Explorers* (https://www.allaboutexplorers.com/explorers/columbus/). As I was reading through the information about Christopher Columbus, I got confused. The website said that Christopher Columbus started sailing west with three ships in 1942. That didn't make sense to me because I know that my grandma was alive in 1942. It also stated that Christopher Columbus got the idea to go west from infomercials. I thought to myself, "What??? They had infomercials back then?" So, I decided to cross-check the facts on this website with another website that had a biography of Christopher Columbus (http://www.history.com/topics/exploration/christopher-columbus). What I found is that the *All About Explorers* website looked credible, but was full of inaccurate facts. Always remember to cross-check information with other sources, especially when it doesn't make sense.

During Reading

Just as with a traditional guided reading lesson, during an Online Guided Reading lesson students interact with text while receiving prompts and supports from the teacher. However, due to the nature of Internet texts, students will be interacting with and reading across multiple multimodal texts such as videos, podcasts, webpages, etc. Students will use the five strategies for online research and comprehension (although not necessarily in the same lesson): identifying

a problem or question, searching for and locating information, critically evaluating information, synthesizing information, and communicating information (Leu et al., 2008). In addition, students in the group will interact with different texts at the same time.

Teacher prompting. Frequent, immediate feedback greatly improves students' reading skills (Fountas & Pinnell, 2011). Therefore, the teachers' role during this portion of the lesson is to prompt and support individual students by modeling, guiding, or confirming their strategic actions. For example, during the lesson on understanding a search results page, teachers may use the suggested prompts identified in Table 2 to support students' strategic actions.

Table 2: *Suggested Prompts for Understanding A Search Results Page*

Model	Guide	Confirm
• Notice the title (point), snippet (point), and URL (point) for this search result. • Here I notice the word "ad" in front of this result. Remember that this means the link is an advertisement.	• Think about the symbol that differentiates an "ad" from a regular search result. • Where can you find the snippet that gives you information about the website? • Where can you find the website address or URL for the search result?	• You were able to identify which links were advertisement and those that were not. • You previewed the search result by reading the title and the snippet.

Another lesson on determining credibility may include use of the suggested prompts identified in Table 3.

Discussion. While they are reading, students should be encouraged to engage in discussion about the strategies they are using and their findings. For example, students should

be invited to constantly share what they are finding about the topic and help others navigate through the Internet sources (Van Allen, 2016). Coiro et al. (2014) found that when students in upper elementary grades discussed their strategies for inferring, integrating, evaluating, and interpreting information during online research their work was much more productive and resulted in increased student learning. Therefore, fluid discussion and collaboration among students is integral to an Online Guided Reading lesson.

Table 3: *Suggested Prompts for Determining Credibility of a Website*

Model	Guide	Confirm
• Notice any information that doesn't make sense. • I thought you just read another site that said . . ., does this information make sense with that? • Look for the author of the website and determine if the author is a trustworthy source. • Remember to cross-check the information with another trustworthy source.	• Does the information seem as though it makes sense? • Where else can you look to cross-check this information? • Is the information on this site accurate? Who is the author? • Is it clear that the author is an expert on the topic? Is it clear that the author is a trustworthy source?	• You identified information that didn't make sense on the webpage. • You found a reliable source to cross-check information between two websites. • You noticed that the author didn't seem trustworthy and used that as a clue to cross-check information.

To prompt discussion during the lesson on understanding a search results page, teachers may invite students to notice, describe, and discuss the purpose of features on their search results page with others. Discussion during a lesson on determining the credibility of a website may be prompted by inviting students to share specific examples and instances when they decided to

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cross-check information. Teachers may request that students explain why they decided to cross-check information indicating the particular clues led them to this decision. In addition, teachers may ask students to describe the steps they took to cross-check the information.

Throughout the during reading portion of the lesson, the teacher and students will move flexibly between reading, discussing, and teacher prompting as students engage in the strategies required for online research. The role of the teacher shifts from an active guide leading a structured lesson to a more responsive facilitator guiding, prompting, and supporting students throughout the lesson (Van Allen, 2016). Consequently, the role of the student also shifts as they take active ownership of their learning from somewhat responsive learners with limited control of the lesson to more dynamic learners with an increased emphasis on collaboration (Van Allen, 2016).

After Reading

During the final portion of the Online Guided Reading Framework (Van Allen, 2016), teachers should prompt students to reflect on their strategic actions after reading. The after reading portion of the lesson leads students to discuss the strategies they used throughout the lesson and concludes with one to three take-aways.

Reflective discussion. Research from Coiro (2011) indicates that skilled online readers often reflect on their online research strategies by "summing up key ideas, making connections, looking deeper, asking questions, and contributing their own ideas in response to the posed challenge" (p. 109). Reflection helps students communicate their thoughts and findings to others (Leu et al., 2008). Additionally, reflection develops metacognitive thinking skills imperative for online research. According to Pintrich (2002), "metacognitive knowledge includes knowledge of

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general strategies that might be used for different tasks, knowledge of the conditions under which the strategies are effective, and knowledge of self" (p. 219). Online readers must not only develop an array of strategies that they can flexibly apply when engaging in online inquiry, but also consider when to use specific strategies most effectively and when to enact a different strategy (Coiro & Dobler, 2007; Millis, 2016). Metacognitive thinking requires students to engage in an interactive and ongoing process of reflection and action, requiring online readers to continually think about their strategy use as they also engage in the five processing practices (Coiro & Dobler, 2007; Millis, 2016). In a study conducted with adolescents who were searching for information, Bowler (2010) found that students actively sought reflective discussions with others to clarify thinking throughout their inquiry.

In order to prompt reflective discussion, teachers should require students to use specific academic language previously introduced during the targeted teaching points and/or previous lessons. To invite reflection during the understanding search engine results lesson, teachers may ask students "What feature did you find most useful on the search results page? Why?" In addition, the teacher should guide students to specific points to remember. For example, in this lesson some key points to remember may be names of key features and how to tell the difference between an advertisement or sponsored link and those that are not. Therefore, teachers may require students to identify features of a search results page by name during the discussion.

When leading a reflective discussion on the determining the credibility of a website lesson, teachers may ask students, "What clues prompted you to cross-check information?" and "How did you differentiate between trustworthy sources and less credible sources?" During the discussion, teachers may lead students to identify key points that identify specific instances when

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one should cross-check information from a website, such as when the information doesn't make sense, when a website doesn't look or work like a typical website, or when the author is unknown. These key points should come directly from student experiences during the lessons and may be recorded on an anchor chart to be revisited in future lessons.

Discussion

In this paper, we first introduced Online Guided Reading (Van Allen, 2016) as a context for developing upper elementary students' online research and comprehension skills. Second, we presented an argument for using the Online Guided Reading Framework in connection to the already familiar guided reading instructional context. Third, we presented specific instructional scenarios that described in detail the decisions and actions teachers can take to engage students in reading online and teaching them how to read and comprehend digital texts found on the Internet. It is important to remember that the Online Guided Reading Framework is intended for use in upper elementary classrooms with students (ages 9-12) who have previously developed sufficient decoding, fluency, and comprehension skills with print texts to be able to then to navigate more complex texts, such as those found on the Internet. Research has shown that reading digital texts and researching in digital contexts, require additional reading, comprehension, and metacognitive skills (e.g., Coiro, 2011; Coiro & Dobler, 2007). Students with reading difficulties will require additional instructional supports to support their reading, comprehension, and research skills.

Accommodations for Students with Reading Difficulties

Depending on how students will be grouped for instructional purposes, students within each group may have varied reading abilities. Given that the instruction will be solely focused

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on Internet research and online reading comprehension skills, further support may be needed for readers who have difficulties with accessing the text. Although the framework implies that readers will need to have a sufficient level of metacognitive skills and reader independence before they can navigate digital texts on the Internet, those whose reading skills are one to a few grades below level may need to use assistive technology tools. For example, text-to-speech software reads digital text aloud easing challenges for students who struggle to decode text fluently and has been found to positively affect reading comprehension for students with disabilities (Wood, Moxley, Tighe, & Wagner, 2017). Annotation software allows users to highlight and make notes on digital texts mitigating challenges for students who struggle with comprehension skills and vocabulary deficiencies (Chen & Yen, 2013). Translation software may be useful for English Language Learners who are proficient readers in their native language. In addition, Google Chrome has many extensions and apps available that dynamically level text passages, allow students to quickly look up unknown words or check spelling of keywords, and more (Martin, n.d.).

Other Considerations

In addition, the Online Guided Reading Framework (Van Allen, 2016) is not intended to replace traditional guided reading groups in upper elementary classrooms. Rather, teachers could strategically use the Online Guided Reading Framework to develop digital literacy skills that complement class, group, and individual projects. As teachers guide students through content area inquiries, they may notice students or particular groups of students struggling to locate information, identify reliable information, understand information on websites, analyze information from videos or Infographics, etc. Rather than devoting time out of limited content

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area instruction, they may choose to shift the focus of their small group reading instruction to support these skills that are also addressed in literacy standards. The framework could also be applied to lessons on finding specific, targeted information within print-based texts, rather than reading the whole print-based text for general understanding.

Classroom Lesson in Focus

The excerpts from a lesson in focus provided in Table 4 show how one fourth-grade teacher utilized her guided reading groups to preview content from an upcoming social studies unit. This lesson was implemented with a group of six high performing students reading above their grade instructional level (two Black students, two Hispanic students, one White student, and one Asian student) in a low-income school. While the participating students had not previously conducted online inquiries in this classroom, they were familiar with the technology because they often used classroom laptops to take assessments and engage with school-mandated instructional programs. In addition, the teacher utilized the guided reading framework as the main format of small group instruction daily, so both the teachers and students were familiar with the structure of the lesson. This example was taken from a lesson implemented during the first inquiry unit in which the teacher explicitly taught online research and comprehension skills to this group of students.

The teacher decided to have students conduct an inquiry that explored the early history of Florida since the subject was more complex than others they had been studying (Van Allen, 2016) and resulted in an inquiry to answer the essential questions "Which countries have controlled Florida?" and "How did their control or actions affect others?" (Van Allen, 2016). Prior to this lesson in focus, the group had learned about different text features of webpages and

how these features could guide a reader to find information quickly. In this lesson, the teacher was focusing on hyperlinks and how hyperlinks could be helpful in diving deeper into an inquiry, but may also distract a reader from their focus questions.

Table 4: *A Classroom Lesson in Focus*

Steps	Teacher Actions	Student Actions
Introduction	Reminded students of key features of a webpage the group previously identified to help a reader navigate through a webpage.	
		Students identified the menu, search bar, and headings on a Wikipedia page.
	Pulled up a Wikipedia webpage and had students identify the features by name.	
Teaching Points	Asked students to notice the words that were different from the others	
		A student called others' attention to the blue words that were underlined
	Identified words written in blue and underlined as hyperlinks. Asked students, "What does it mean?	
		One student noted "They take you to another place that has information about the words."
	Identified a hyperlink in the text on the Wikipedia page – Spain. Prompted students to determine what information the hyperlink would provide.	
		A student exclaimed "Oh! It will take us to another webpage and we will be able to see what it talks

		about for Spain or for Great Britain or whatever it says."
	Told students to continue to search for answers to their question "Which countries have controlled Florida?" using hyperlinks to find more specific information.	
Teacher Prompting		Students began searching using key words written on a chart from a previous lesson.
	Noticed that a student was clicking through many hyperlinks and had lost focus in his search. Asked student, "What's your question? What are you looking for?"	
		Student repeated back the question.
	Continued to prompt, "Does this site give you any information about it?"	
		Student said no and explained how he followed a lot of hyperlinks and got lost.
	Reminded student to keep the question in mind when reading because it's easy to get in trouble with hyperlinks. Directed student to restart his search.	
Discussion		A student said, "Check this out! I didn't know Cuba controlled Florida. Another student across the table said, "That doesn't make sense."
	Prompted, "Why doesn't it make sense?	
		Student responded, "I'm looking at this timeline on the Florida Wikipedia page and Cuba isn't on there." Shared the webpage with the student who initially commented on Cuba.

		A different student recommended, "Why don't you do another search on Cuba's history to check that timeline?"
		The student searched for Cuba and read through a couple of pages. A few minutes later she responded, "Oh, I see. Spain traded Florida to Great Britain for Cuba."
Reflection	Brought the group back together to discuss strategies they used during their searches.	
		Students discussed what they learned to answer their inquiry questions and made notes in their notebooks.
		Students shared how they used hyperlinks.
	Noted that a couple of students got lost when they were following hyperlinks. Explained, "We just keep clicking to learn about things, but it's not what we need to focus on."	
		One student explained that he followed too many hyperlinks and got off task.
	Reminded students to always keep their question in their mind.	

While this particular teacher did not incorporate traditional texts within this inquiry unit, there was potential to guide students through printed texts as well. For example, the teacher could have helped students develop prior knowledge of the topic while conducting a traditional guided reading lesson using leveled printed texts. Using leveled texts specifically focused on

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Florida's early history as an introduction to the inquiry unit would have helped students understand key knowledge of the topic they could use to develop more efficient search terms and verify accuracy of the information they found in the Internet texts. Incorporating Online Guided Reading lessons with traditional guided reading lessons during an inquiry guides students to understand that information can come from a wide variety of sources and allows them to flexibly develop key reading strategies for comprehending different modes of text.

Conclusions and Recommendations

Digital literacy skills are essential "for successful civic participation in a global environment" (International Reading Association, 2009, p. 1). Many literacy and educational organizations continue to state the need to prepare students with sufficient digital literacy skills in researching, managing, and processing information from multiple sources, and communicating findings effectively in a variety of formats (International Reading Association, 2009; Organisation for Economic Co-operation and Development (OECD), 2018; Partnership for 21st Century Skills, n.d.). Research and classroom practice warrant an instructional framework that facilitates the development of the skills students will need to read, critically evaluate, and comprehend digital texts and information. Adapted from a powerful, widely used framework, the Online Guided Reading Framework (Van Allen, 2016) provides students with the supports they need to successfully navigate the complexities of online research and comprehension, making it a complementary instructional approach to address these skills in upper elementary classrooms. The Online Guided Reading Framework (Van Allen, 2016) provides instructional guidance related to supporting the development of upper elementary school students' key digital literacy skills required for online research. Teachers from across the world can adopt and adapt

this framework to meet digital literacy initiatives and educational standards. The framework utilizes internationally-recognized issues and demands related to teaching and supporting students' digital literacy needs in upper elementary grades.

In addition to the Online Guided Reading Framework (Van Allen, 2016), teachers need to be provided with professional development on how to integrate technology in new and meaningful ways within their current curriculum. According to the 2017 *Technology Counts* report (Education Week, 2017), although mobile learning devices, technology, and high-speed connectivity are more present in schools today, there are digital disparities making the achievement gap greater (Harold, 2017; Morrell, 2017). A major reason for this gap is the lack of teacher preparation and professional knowledge in knowing how to navigate digital environments and integrate technology in powerful ways within their curriculum (Harold, 2017). Teacher preparation and curriculum design are areas of need for closing the digital divide and best preparing students to be literate in the 21st century.

Future Research

While research on developing students' knowledge of online research and comprehension skills continues to develop within the field, little research has been conducted on guided reading and digital literacies. How does a guided reading context impact student learning of digital literacy skills? Additionally, since the emphasis of guided reading is developing strategic actions, more research is needed to understand the metacognitive skills required for online research and reading. Furthermore, formative and summative assessments of digital literacy skills are greatly needed if work in this area is to continue. How can teachers assess and monitor students' strategic use of online research and comprehension skills to inform instruction?

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Where, when, and how can teachers support the development of elementary age students' digital literacy skills?

Despite challenges that teachers, schools, and school districts in the United States and abroad face regarding technology access and integration efforts, teachers in upper elementary classrooms can implement research-based principles about modeling and scaffolding students' online research and comprehension skills that are vital to their academic learning, career preparedness, and civic engagement.

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Developing a Community of Academic Writers: Using Social Media to Support Academic Accountability, Motivation, and Productivity

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Abstract

This qualitative study investigated the use of Facebook as an online social network site as a support tool for graduate students' and faculty's writing accountability, motivation, and productivity. The purpose of the study was to explore writing practices while using a Facebook group as a physical and virtual place to provide support and accountability. Data came from the Facebook group's postings and responses from group members to an online questionnaire. Through a sociocultural lens, the research team explored the social environment of the community, and the results suggest that the Facebook group offered participants a platform to support one another, while providing peer accountability and building a community for their academic writing. Overall, the qualitative data analysis showed evidence that group membership allowed for building a community, including face-to-face contact, with fellow academic writers.

Keywords: *academic writing; writing communities; writing groups; Online Social Networks; Facebook; writing accountability; writing productivity*

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Introduction

There is a large table in the back corner of a bustling coffee shop. The table is covered with six laptops, coffee, endless water bottles, binders, journal articles, highlighters, snacks, and other supplies to help those present be productive writers for many hours. This was a common occurrence for members of the writing group. Members would work and write at local coffee shops or restaurants to work individually and as a group on projects, class assignments, research papers, data analysis, manuscripts, and dissertations. It is the story and research of the authors and other members of an accountable writing group that serves the purpose for this manuscript and the research focused on: How do informal writing groups provide accountability and support for graduate students and junior faculty?

The previous vignette sets the scene of graduate level schoolwork and the demands of completing a graduate degree. Whereas, completing a doctoral degree is an arduous task on its own, and challenges are further compounded when writing and publication expectations are added; however, graduate students and writing often go hand in hand for students at the doctoral level. According to Golde in 2005 nearly 40%, while more recently Cassuto (2013) stated nearly 50% of all students who begin a doctoral degree never achieve it. Part of the attrition may be attributed to the fact that graduate students are engaged in a number of different competing systems: completing required coursework, teaching, researching, fulfilling dissertation requirements, and ultimately completing their degree. Finally, they reach the next step in the process, the job search (Lundell & Beach, 2003).

Despite the numerous expectations placed on graduate students, the expectation to write with the intention to publish remains a paradox. With an increased emphasis on academic writing

and the expectations to publish in higher education, essentially in the frame of the *publish or perish* mantra, there is a need for writing productivity through accountability and collaboration. Throughout the process of earning an advanced degree, students are faced with trials and high expectations, which may be met with anxiety (Beaz, 2005), lack of motivation (Bandura, 1989; Teranishi Martinez, Kock, & Cass, 2011), stress, and work overload.

Given these demands and the important role that academic writing plays in degree completion, many graduate students seek support that can be provided by writing groups. Writing groups are social media platforms provide students with additional support, in this instance graduate students had a place (virtually and physically) to give and receive support for their writing, but often it is much more than that. Therefore, the present study examined the use of an online social network (i.e., Facebook) to provide a "place" or third space that provided support for graduate students in their academic writing. Specifically, the current study investigated how an online Facebook group (virtually and physically) offered participants peer support and accountability for their academic writing and the demands of their graduate programs through the use of social constructivism, when the learner is interacting with another person or persons (Vygotsky, 1978, 1986; Wells, 1999).

As we illustrated in the opening vignette, writing and writing with others was an important component of this group. The group was a community of graduate students working toward a common goal, and the goal of completing their graduate degree. Fortunately, either purposefully or accidently this group formed and provided many of it's members with a place, either face-to-face, virtual, or a combination of both to work and write with others.

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Therefore, members of the group saw the value of this group and from there the project evolved. We evaluated discussion posts from the Facebook group wall and open-ended questionnaire responses completed by members of the group to explore the participating graduate students experiences and to develop an understanding of their unique use of social media sites such as Facebook as a tool to support writing accountability and productivity. Through qualitative methods, we were interested in the meaning people have constructed, that is "how people make sense of their world and the experiences they have in the world" (Merriam, 2009, p. 13). Specifically, the research questions guiding this study were: (a) How do graduate students perceive their writing experiences through the use of a social networking writing group? and (b) How do informal writing groups provide accountability and support for graduate students?

Review of the Literature

While research on writing and writing groups is broad (Catterall, Ross, Aitchison, & Burgin, 2011; Page, Edwards, & Wilson, 2012; Maher, Seaton, McMullen, Fitzgerald, Otsuji, & Lee, 2013), there are several specific areas of related research we will use as our focus. First, we discuss writing and writing groups. Next, we review published research on the role of writing groups in higher education. Last, we use research to make connections between writing and writing groups to 21st century literacies and social media and how social media in higher education.

Writing and Writing Groups

Writing is a complex and challenging cognitive process (Elbow, 1998). Because it is so complex, learning to write is not an easy process or task and is a unique mode of learning (Emig, 1977). Often academics, both students and faculty, feel overwhelmed by writing tasks that may

impact an individual's productivity and results in low writing productivity (Belcher, 2009; Boice, 1990).

The action of writing may be considered an individual task, that of the writer, but "writing is constructed as a social practice" (Catterall et al., 2011, p. 1). In their study, Maher Fallucca, and Halasz (2008) used their writing group "as a place where social and emotional support [were] shared" (p. 265). In relation to the current study and other related writing groups, often they are communities of students and/or faculty that have been implemented to provide members with additional support, accountability, feedback, and to be with a group of individuals that understand the situation and the process.

Boosting Productivity Through Writing Groups in Higher Education

Writing and writing groups are two elements of importance to success in higher education and academia. It is no surprise that researchers are interested in researching how writing groups' help with writing productivity. Formally or informally, writing groups, physically or virtually provide a space for writers to write with other writers. As a form of communication, writing has been influenced by technology and according to Yancey (2004) this influence has increased.

Researchers (Larcombe, McCosker, & O'Loughlin, 2007; Maher et al., 2008; 2013) suggest that for writing groups to be effective they need to provide a safe environment, which allows participants to both share their experiences and express themselves freely. Writing groups or writing support groups (Kinnucan-Welsch, Seery, Adams, Bowman, & Joseph, 2000) are a necessity for making the journey toward completion (e.g., degree). In addition, writing groups need direction, ground rules, values, and visions. According to Aitchison (2009) writing groups

promote an academic literacies approach and provide opportunities for active engagement and participation.

Academic literacy is a perspective that views reading and writing as a social practice that varies within the "context, culture, and genre" (Lea & Street, 2006, p. 386). Likewise to this study and the integration of an informal writing group's use of social media, Lea and Street (1998) posit that academic literacy allows individuals to learn and adapt to "new ways of knowing" and view literacy " from a cultural and social practice" (pp. 157-158).

Davis, Provost, and Clark (2012) stated, "supportive writing groups establish shared goals and values, while maintaining individual members' interests ... Writing groups not only provide communities of support with like-minded individuals, but may also be a means of acculturation into academe for junior faculty" (p. 446). Writing groups help acclimate budding scholars, either graduate students or junior faculty, by developing into the new role as a writer.

Whether it is a writing group or a survival group, there is a necessity for a community of individuals who are under similar paralyzing pressure during graduate school, with similar levels of stress, who are financially burdened and struggling to live and face loneliness, working to juggle all aspects of employment, teaching, family, in conjunction with "academic and personal worlds" (Hadjioannou, Shelton, Fu, & Dhanarattigannon, 2007, p. 166). Communities, face-to-face or virtual, can provide support and scaffolding needed for successful completion of the journey.

To illustrate this point, in a student-led doctoral group, Hadjioannou and colleagues (2007) found the benefits of an academic writing group supported many facets of the academic endeavor. Such areas included: Peer advising, editing, and revising as writers with the foci for

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developing necessary skills to become successful academic writers. The group developed a process that was equitable for all members. In addition to writing, the group also provided emotional support.

Social Media Research in Higher Education

In recent years researchers have become interested in the role social media plays in education (Aydin, 2012; Khine, 2015; Ritter & Delen, 2013; Tess, 2013) and technology and social media "infiltrating the educational arena" (Chen & Bryer, 2012, p. 88) that have yielded conflicting results.

For example, the research teams of Irwin, Ball, Desbrow, and Leveritt (2012) and Ophus and Abbitt (2009) investigated topics looking at student perceptions and use of Facebook within the context of classroom instruction. According to Irwin and colleagues (2012) their participants initially had positive perceptions of Facebook as an effective learning tool; however, post-questionnaire results indicated slightly less positive responses. Similarly, research by Ophus and Abbitt (2009) reported like results to Irwin et al. (2012) stating that students' perceptions were positive toward the use of Facebook in higher education courses.

Additionally, research by Sánchez, Cortijo, and Javed (2014) stated that Facebook provides connections and builds "academic communities" (p. 142). Such modes of communication and organization provide a common place for members to communicate, ask questions, and share resources and materials.

In other recent work, Guy (2012) conducted a review of literature on the use of social media for academic practice. In the review, she synthesized research technology use and other "social media by students of color, and potential inequities in the use of social media for

academic practice" (Guy, 2012, p. 2). Guy concluded that, "social media holds promise for academia' and 'many of the studies reported a willingness among students to incorporate social media into their learning experiences" (2012, p. 15).

Whereas, research by Manca and Raniertit (2013) questioned Facebook's educational value. In their critical review, they evaluated the studies that researched "Facebook as a learning environment" (p. 490). Their systematic review of 1,383 articles regarding the education value of Facebook yielded only 23 studies in the final analysis. Of those 23 studies, 17 studies used a private closed group, allowing group members to "share resources, post a comment, write on the wall, discuss" (p. 491), working in much the same way as the group in the current study. However, none of the final studies in higher education were directly related to writing or writing groups. Also, the majority of the studies in the Manca and Raniertit (2013) systematic review of Facebook focused on classroom, teacher initiated, settings rather than an organic student initiated setting such as this study.

Recently, Tess (2013) published a much-needed comprehensive literature review on the role social media (i.e., Facebook, MySpace, LinkedIn, Blog, Twitter) plays in higher education courses. He found that technology is being used in educational situations to support teaching and learning; however, by conducting this review he has uncovered "more questions than it has answered" (Tess, 2013, p. A66).

As evidenced by the research and reviews, social media and technology quickly became a part of education. Thus, it is important to have a foundation on the research that has been previously conducted and the statistics connected with technology, particularly Facebook. For example, according to digital information websites (e.g., Digital Information World, 2015; Pew

Research Center, 2019), as of the third quarter of 2018, there were nearly 2.271 billion monthly Facebook users worldwide, up from 1.65 billion the previous year, which has nearly doubled since we started this project in 2013 (The Statistics Portal, 2019). With so many users, it is not surprising that Facebook is increasingly visible in education (Tess, 2013).

As researchers we know that this is not an exhaustive review of literature in this area, but acknowledge that an thorough search was done in for published research in the area of writing, writing groups, writing accountability, and social media outlets, and these searches yielded no new or current research, thus our conclusion is that writing accountability and writing groups is new and still developing. It is a phenomenon that is making traction, but the gap in the research is still prevalent.

Methodology

This project and group came about when students in a graduate program sought to establish a support system that would help them navigate the demands of their graduate program. The result of this support system was the formation of an online Facebook group that offered accountability and support for graduate students' writing. Ultimately, the writing group developed out of necessity, but further developed through the multiple uses of social media as an essential part of life, which has made its way into the educational realm (Tess, 2013).

Context and Participants

The initial invitation for the Facebook accountability writing group was sent out by the first author to 19 peers and graduate students at the local university. Over time, the group grew to 31 members, with 30 females and one male. During the time that serves as the focus of this study, the participants' ages ranged from 26 to 62 years, and their areas of study included

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Computer Science, Education (e.g., Bilingual, Curriculum and Instruction, Literacy, Mathematics, History, Science), Educational Psychology, Human Resource Development, Higher Education, Health and Kinesiology, Rural Public Health, and Sociology. The majority of the group's members (n = 28) of the writing group were pursuing their doctoral degree (and were either at the beginning or nearing the end), one member had recently completed her degree and was working as a visiting assistant professor at the same university, and two other members were completing their master's degree at a large research institution located in the southwestern United States.

Out of convenience and the first author's need for writing accountability while completing the research and writing for her dissertation, during the summer of 2012 an online "closed"[1] Facebook writing group was formed. Similar to many graduate students taking on research projects, particularly dissertations, the lead author of this project, Chelsea (all names are pseudonyms) had difficulty staying motivated, finding a place to work, and retaining a sense of purpose for her writing and productivity. To alleviate these challenges, she created a closed Facebook group titled, "writing accountability group!!!" Once she made the group, she shared and posted the following introduction to peers within her university network:

> [Hello] fellow grad school friends ... My plan was to start this at the beginning of the summer, but [time] just got away from me. I made this group and invited you for these reasons: 1. You're in grad school, 2. We need accountability, 3. No matter what level,

[1] An administrator or member manages a closed Facebook group and additional members must be approved prior to joining. Also, only group members can post and/or see content posted by members of the group.

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> stage, or year you are at, we all could use a friend in a similar situation-who is working! So my thoughts are to work at specific locations 3 to 4 times a week. These are not gab sessions, but a time to work (write, read, edit) where you might be able to ask for help or might just like having the accountability of someone working near by! Tuesday –Bakery[2] (11-3) Wednesday – Crush (4-8) and Thursday – Books (11-3). (Facebook description, July 8, 2012)

Once the post and invitation was made, the Facebook group was formed. The group was used as a platform to meet and check-in with peers. The majority of the time, members would use the group's wall as a place to post where they were working and writing, share what they were planning to work on, or to communicate with the group by posting comments or asking questions. The authors of this particular piece were members of the Facebook group who entered with no foresight of conducting a research project; rather they used the group message board and the face-to-face writing opportunities as a tool to help with their academic writing and accountability while completing their degrees. At the time of the research the four authors were all full-time doctoral students at the same large research university. The first author, Chelsea was in her final year of her program working toward completing her dissertation in literacy education. Ann, the second author was working on her dissertation proposal, followed up data collecting. Misty, the third author was also analyzing data and writing her dissertation. The final author, Oliver was new to the program and taking courses. Since completing this study all four have graduated and teach at the university level.

[2] Pseudonyms have been used for all locations used in the study.

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Data Collection

The authors quickly realized that using the Facebook group for academic writing and accountability was unique in the context of research. Through qualitative methods the authors were able to engage multiple-perspectives of academic writing and writing accountability via the online Facebook group and an online questionnaire.

Data sources for the study consisted of the group members' posts and responses from the closed Facebook group and an online questionnaire. Although data were collected from the Facebook group posts, other factors may have contributed to the accountability and productivity of these novice scholars including face-to-face group writing opportunities, phone calls, and other online platforms (e.g., Facebook chat, email, text, Skype, Google Hangouts). However, the establishment of the Facebook group was the precursor and instigator to any other outlets of writing accountability.

The primary data for this qualitative study consisted of: (a) Facebook posts from a closed writing group titled "writing accountability group!!!; and (b) an online post-questionnaire with open-ended questions. Posts on the Facebook group's wall varied, which included where members were working, how long they would be working, and what they were working on. The posts and threads from the group's wall for the duration approximate 13 months (July 8, 2012 through August 13, 2013) totaled 1,478 posts and threads. The posts (n = 1,478) were retrieved from the Facebook group wall and then downloaded into an excel file for itemizing and analysis.

The post-questionnaire was developed using Qualtrics and disseminated at the end of the academic school year (June 2013) to the group by posting an invitation to participate on the

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Facebook group's wall. The questionnaire included descriptive and demographic details (e.g., age, year in program, area of study) and open-ended questions that pertained to the group, writing practices, and the member's perceptions and experiences as a member of the Facebook writing group. Examples of open-ended questions include: (a) Describe how you used the Facebook group, (b) Did you check in or participate in the group?, (c) When did you check in or participate in group discussions?, (d) Did the Facebook group support your productivity?, and, (e) Did the Facebook group hold you accountable for your work?

Data Analysis

For this qualitative study our data analysis was focused on the data from the postings, threads, and questionnaire responses. The Facebook posts and threads obtained from the online platform totaled 1,478 responses. Data analysis consisted of a two-round coding process (Saldaña, 2009). During the first round of analysis, the first and third authors independently conducted open coding of the postings and threads. The same process was completed for the questionnaire responses. After the first round, the same authors met and discussed their findings of the coding. Nearly 30 codes emerged (e.g., announcement, update, accomplishment, needing encouragement, giving encouragement, asking a question, posting location, etc.). These codes were narrowed to the most prevalent themes from the data, which are discussed later in more detail. Next, we re-analyzed the data to ensure credibility of the analysis. For example, the first and third author discussed the individual coding, compared codes, and clarified interpretations (Corbin & Strauss, 1990). Upon completion of coding, all discrepancies were discussed and resolved.

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A total of 1,478 postings were coded and categorized from all 31-group members. After the first round of coding and discussion, seven possible themes were identified from the codes: (a) Updates and location of where member is working, (b) Announcements and information, (c) Giving encouragement, trying to motivate group members, (d) Needing support and encouragement, having difficulties, (e) Asking questions, could be work, location, or personal in nature, and (f) Other information, new members, invited members, group goal setting. Upon further coding, analysis and dialogue among authors, themes were negotiated, resulting in three cohesive themes: (a) Accountability: Encouragement, motivation, and support, (b) Accomplishments: Making progress and productivity, and (c) challenges.

In addition to Facebook posts, the same two authors analyzed the online questionnaire responses developed from Qualtrics that was posted with a hyperlink invitation to participate on the Facebook group wall. Of the original 31 members in the accountability group, 18 members began the questionnaire and 13 participants completed the questionnaire. In order to provide anonymity for all members of the group, self-selected pseudonyms are used for members, those that did not provide a pseudonym one was provided. The same analysis process was used for the data obtained from the questionnaire, the authors performed coding separately, then examined and discussed the coding schemes together until agreement was reached (Strauss & Corbin, 1998). The questionnaire data represented similar themes and findings as the Facebook wall post. The questionnaire data are represented in five themes: (a) Facebook utility, (b) Accountability, (c) Motivation, (d) Productivity, (e) Writing groups (face-to-face and online).

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Findings

As previously stated, the goal of this study was to learn about graduate students participation and experience in a writing group that was supported through a social media site such as Facebook. Through the coding and analysis several themes were identified from the data sources. The analysis revealed codes that encapsulate the themes, originally there were seven themes and after further aggregation there were a total of three emergent themes are depicted in Table 1.Therefore, the following themes guided our analysis: (a) Accountability: encouragement, motivation, and support, (b) Accomplishments: Making progress and productivity, and (c) challenges. An additional theme is included from the data analyzed from the questionnaire: (d) Writing groups (face-to-face and online). The following sections will review the results from each of the themes.

Table 1

Facebook Group Research Themes

Themes	Descriptions
Accountability: encouragement, motivation, and support	Facebook group members made posts that influenced or motivated the individuals which included posts from other individuals that either supported or encouraged other graduate students who were part of the accountability group
Accomplishments: making progress and productivity	The Facebook group members post reflect areas of productivity and making progress as well as encouraging their fellow classmates

Challenges	The Facebook group members expressed the difficulties and challenges they experienced while writing.

Accountability: Encouragement, Motivation, and Support

This theme focused on how the participants used the writing group as a form of accountability. These posts included types of encouragement and motivation, throughout the posts, participants expressed the factors that influenced, pushed, or supported them to complete the various graduate school tasks. For example, Chelsea posted "After a morning of 'me' time ... the writing resumes. Thank you Hannah for your excellent work and help on one of our proposals." Other similar posts reflect members' productivity, Kyle writes, "I just want to announce, 37 pages, 9583 words later, I finished Dr. [Davies'] question. On to the last professor's question and hoping to get these all turned in by 11:59 PM Thursday! Here Kyle directly addressed the group, "Thanks for the support!" Other constructive posts consisted of: "how's the writing?" or a statement like, "Have a productive day!"

Other comments posted by members of the group included, "thank you to everyone who keeps checking in ... I hope your reading, writing, and research is going well?" Another way members would offer motivation would be to ask how a friend/group member was doing. Many of the posts included words of encouragement and support for those who had deadlines approaching, or included a quick shout out to the entire group to keep pushing or sharing with the group tips and/or advice. Smita used the accountability group as a form of self-accountability, "it held me accountable to myself more than it did to other group members. I learned to set goals and achieve them."

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Members also used the group for checking in and appreciated it when others from the group would do the same. Supported by Chantel's response, "having people call for check-ins and knowing that I wanted to be able to do it helped make me feel like I needed to actually be productive." Similarly, Oliver used the accountability as an internal and external motivation, "I didn't want to slack off if I felt others would know!" Other posts provided both accountability and updates; for example, Toni responded to a thread "I can't make it tonight ... thanks for your efforts! Looking forward to next Wed!!"

Accountability comes in all forms, and this group was no exception. Although there was a lot of work and writing being completed, there was also the need for fun and jokes. Jokes included, memes from *Grammarly*, referencing the character Daenerys Targaryen from the hit HBO television series *Game of Thrones* stating—"where are my edits?" Other members shared pictures that visualized the changing looks of a graduate student (as an Owl)—first semester all bright-eyed and ready to learn and at the last semester the owl is exhausted, with eyes that are red with bags under them and in clothes that are far from clean. These satire visuals often served as a reminder to the group that we are working hard, but we are not alone in this process.

Although the majority of this research focuses on the posts and the use of the Facebook group, the virtual group often brought the members together physically. By positing where they were working, other members in the group would regularly check the group's Facebook wall to find out where members were working. Oliver posted, "the Bakery is full of awesome today - way to rock!" One early morning, Ann posted "headed to Bakery...where is everybody?" About an hour and half later Oliver responded, Samantha and I are here too now!" The Bakery was a popular spot among the group because food was a helpful resource. However, face-to-face meet-

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ups did not only occur at restaurants and coffee shops; often members would open up their home to members of the group. For example, Samantha said, "Working at home today! The kitchen table has been taken over by books! If you know my address, feel free to stop by!" The next day, Chelsea posted, "Working at the [home of] Samantha!!!! Feel free to join us!"

Proximity and location was a key tool of this group and the members. Regularly, members could check the group's wall to see if and when members were working. Smita posted, "I'm working at Crush." Chelsea responded, "me too!" To their surprise, they were both there working, but had yet to see one another. On another occasion, Smita and Erin checked in that they were working at Crush, a few hours later Erin posted, "still @ Crush," this was often a theme – one afternoon Smita posted that she was working at the Bakery, when Hera replied to the post, "Smita, I'm here too [smiley face]." At other times members would post in advance; for example, Samantha wrote "I'm headed to Crush around 10" and Hannah replied to the post, "I'll be there in the afternoon" *(posted at 6:35 a.m.), and a follow up post from Oliver stated "I'm headed there as soon as I get some stuff printed." Often posting where members were working was seen as motivation. One morning Chelsea and Samantha checked in at Crush, when Hannah replied to the post, "FINE! I'll shower and head over! Stop guilting me [smiley face]." But on that particular day the group at Crush continued to grow and other members such as, Oliver, Roger, and Erin joined the writing session.

These conversations and posts are examples of how group members' communication held each other accountable for their writing and allowed for the building of relationships.

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Accomplishments: Making Progress and Productivity

Accomplishments and making progress, the second theme from the data, were important components of working toward individual and group goals; this is particularly important when the goal is to graduate. Participants' posts about productivity were expressed through shared statements and accomplishments; for instance, Samantha posted "Minor victory - I've finally adapted to the "energy model" and have written every day for the past week! [Wow] to a minor success!" Other statements include when Ray-Ray shared, "Dissertation submitted!!! Signed, sealed and delivered!"

Posts included both small and large accomplishments. Kyle shared, "Finishing a session at my desk ... getting up early is so much easier when you go to bed early!" However, there were the larger celebrations to consider, "article is accepted! Thanks for all the encouragement along the way. I'll share the article once it is published." This was a huge feat for Ann. The announcements that rallied the members were posts like, "Congrats to Dr. Ray-Ray." The announcement of a group member successfully defending her dissertation was celebrated several times over the course of the year.

Members in the group indicated that without the support of their peers they would have not been as productive. Productivity was also demonstrated in the open-ended responses from the online questionnaire. Pink wrote, "I wanted to move forward, so when I saw others move forward ... I wanted to be where they [were]."

A particular question from the questionnaire directly asked members: "How did the Facebook group support your productivity." Seven group members shared their perceptions. Misty wrote, "Yes, I finished my dissertation within the timeframe I had set aside ... if I did not

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meet the individuals and friends in the Facebook group I would have not finished my dissertation in the timeframe that I wanted to." While Oliver shared that they "wrote more often" and Smita said, "I often shared with a few friends in the group what my progress was and they helped me remain motivated and encouraged me when I was weak and felt like giving up," Stevie acknowledged that she was not always active in posting, but often read the posts of other members and the posts "encouraged [her] to get busy [and be] productive." Another perspective rather than productivity was that of Pink's, "I saw [the group] more as a support group emotionally."

Members also stated how accomplishing these tasks allowed for them to make progress on other graduate school tasks and the completion of tasks was a motivator for others. For example, Pink shared, "Trying to finish the last course review for Phase 2. Not the end of data collection but a pivotal step and I want to wake up tomorrow WITHOUT it on my back." Productivity is essential for completion, as related by Misty: "I was able to set aside some time to write each day" and "primarily ... my peers encouraged me ... it was a tough year and I needed the accountability of friends."

Challenges

Although members of the group demonstrated productivity, motivation and support from their peers, there were also individual challenges along the way. For example, Ann needed support: "feeling very unmotivated today, but I'm working at home with two screens! Trying to keep up this momentum" and Chelsea expressed "Okay, I will admit it, I am completely unmotivated. Maybe someone can Pomodoro [a timing techniques to assist productivity (Cirillo, 2006)] with me tomorrow?" And Pink said, "Did someone say holiday? I'd give anything for a

real holiday. Collecting data and realizing that qualitative is so much harder." Other members indicated that they were unmotivated (e.g., finishing their data analysis or writing on their projects), but with support from members were able to push through.

External variables were also part of the struggle, such as Internet issues and overcrowded coffee shops prompted members to express frustrations, but also provided other members with updates. For example, Samantha, Oliver, and Hannah were trying to work but issues ensued—so Samantha shared with the group, "Alright, we've migrated to The Bakery on Main because [Planet] failed at the Internet and [Sunrise Coffee] had no seating."

Other challenges were related to time and whether or not the Facebook members should use their time to post on social media. These conflicts of interest were acknowledged in both the questionnaire and online posts. However, posting in general or reading the posts was used as a form of communication. Smita expressed "I wish there was more contact but that was my fault, for not being more available when the group would meet to write." On the other hand, Pink expressed that the group "can be an amazing support system and keep you from feeling alone in your frustrations." Whereas Hera said using Facebook can become "more of a distraction rather than a functioning tool." Members expressed that depending upon the situation, posting and using the group's wall was a good resource, whereas other times it was a gateway to distraction.

Writing Groups (Face-to-Face and Online/Virtually)

This theme represents the findings specifically from the questionnaire, directly signifying additional questions asked of the members about how they used or would recommend the use of writing groups for others. As a research team and members of the group, we felt it was important to find out if members were active participants in other writing groups in addition to this

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Facebook writing group. Of the 13 questionnaire responses, nine indicated that they were a member of at least one other online writing group or face-to-face writing group. Though the number is not representative of the entire group, it is important to acknowledge that having multiple resources, such as a writing group, can provide additional support and accountability. Members of this writing group acknowledged that they were involved in other writing groups, Ann said that she was in "another Facebook group but the participants were not as active in posting, so [she] didn't use it as often." While Misty wrote that she was in a "face-to-face group ... that met at a local coffeehouse," Oliver extended the connection, that this "Facebook group was a way to get a face-to-face group."

Writing groups come in many forms such as face-to-face, virtually, informal, and formal. According to members, this informal writing group afforded the members valuable experiences. Additionally, another question asked in the questionnaire sought to find out if members of this group would recommend an online writing group to other graduate student(s) and why. Eleven of the thirteen members responded that they would recommend an online writing group, supported by the written rationales in the open-ended portion of the question one member elaborated: Chantel said, "I would suggest that having someone who is going through the same types of things and understands the pressures he/she is experiencing is a major benefit."

Being part of a writing group is not just about writing, but also becomes a type of network and support system. As Misty shared, a writing group can "hold you accountable and it's motivating, especially when you feel as though you can't make it or write anymore." Similarly Chelsea wrote, "It is nice to have another form of accountability and individuals to

work with." Oliver, Smita, Toni, and Ray-Ray concurred that the group and members were a form of accountability and motivation.

On the contrary, a few members admitted that they were not in favor of an online writing group. Mary recommended that graduate students seek out "various writing support services/groups, [but] some students may respond to electronic groups [and] other may not." Hera said that she "would not start [an online writing group] because I get distracted." Additionally, Oliver prefers "the face-to-face contact, but [can] see how the online group [facilitates] that."

Discussion

As an informal space for writing, many members of the Facebook writing group perceived that the group supported their writing accountability and productivity. Members found the strategy a positive use of social media that contributed to a professional community. For the purpose of this research we sought to examine (a) How do graduate students perceive their writing experiences through the use of a social networking writing group? and (b) How do informal writing groups provide accountability and support for graduate students?

In general, we observed that this Facebook writing and accountability group provided members with additional opportunities and resources to write, work with others, get support, and produce academic writing. As a group of diverse individuals with various needs and backgrounds, this group provided members with a place to build personal and academic relationships. Many of the group members perceived that the Facebook group was a tool, as suggested by Pink who said it was used "to meet others who were working on their Ph.D.

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regardless of stage. I used it to tell others where I was, what I was working on, share good and bad days and solicit and give advice regarding the process."

Members were able to gain more insight about their own personal work habits, for example Smita shared that "It held me accountable to myself more than it did to group members. I learned to set goals and achieve them." While, Ann learned that she was not alone in the writing endeavors and Hannah expressed that the group showed her how much others were doing and motivated her to focus on her work. Misty didn't know she needed or wanted to be apart of such a group, but shared that "they were my accountability partners either online and sometime we met in person."

The Facebook group was also a place to provide support and get motivation. Samantha thought "posting successes [were] helpful." Ann said "the posting and comments were the most informative" and Oliver liked "the casual check-ins." Of the 13 members of the group that responded to this question in the questionnaire, 12 believed the group was a source of motivation. While writing and learning experiences were perceived and constructed differently by each of the members, many acknowledged the group was valuable for various reasons. Toni said she "appreciated the social aspect of being with a group that understood what I was doing and could relate to my work, my success and my frustrations." Ray-Ray expressed that the group was a "great motivator" and Pink thought that the experience and group was "very valuable." Additionally, Stevie said the group motivated her "to be productive [and] get busy working."

Members also conveyed their experiences about support and accountability. In the open-ended responses, Hannah shared that she was new to the town, school, and program, and "being shy made finding people to keep me motivated difficult, but the group helped me overcome some

of that shyness and really feel part of a community of writers." Oliver shared an example of being part of the group virtually, "If I knew others were working, I would want to be productive too, even if I couldn't work with them."

However, we found that not all of the members of this group saw it as an effective tool for motivation and/or accountability. According to the findings, this was a small minority of the group. For example, Hera said that overall the group did not motivate her "because goals were being met and I focused on what I didn't accomplish rather than what was." Whereas Liz wrote that the group did not motivate her because she was "not close with other participants and the conversations [were] not always connected to [her] own work." While Roger contributed, "I did not use the group for motivation. [But] I did not post to it or intentionally use it."

Additionally, some members did not find or seek accountability from the group. Samantha stated that, "I am I already am part of two accountability groups that meet face-to-face and email my writing log to an accountability partner. Ray-Ray shared that she "didn't give [the group] the opportunity to hold me accountable." We also understand that everyone has their own need and preference and some of the members found the use of a social media site to be more work or distracting. However, the majority of the active members found the use of the group and the members were helpful and supportive in their writing and academic productivity.

Limitations

Limitations are a part of every study and this one is no different. First, is the limitation of the chosen methodology for this study. As researchers we selected the methodology in which we thought would best help us investigate the research questions and evaluate the data for this study. But we understand that there may be other viable options for conducting this research and

analyzing the data. Additionally, in this study, we do not discuss the frequency of which member's posts and how often, albeit interesting data and information, this was not conducted and we believe that is another study in itself.

Another limitation is the validity of the questionnaire and the open-ended questions. As members of the group, they were asked to self-report. However, since the study was evaluating the members' perceptions of the Facebook group and their personal experiences, we felt this was a reasonable form of data collection.

Next, as participant researchers, we acknowledge our positionality and roles as members and researchers. First, we were members of the group; second, we were the researchers that analyzed the data generated from the group in which we (the authors) were contributing participants.

It also must be acknowledged that we, as researchers believe this research is relevant to current trends in academic research. However, we note that the limitation of published research in the area of writing, writing groups, writing accountability, with focus on social media outlets, such as Facebook over the past few years is minimal. Thus, the research on this phenomenon is necessary and the gap in the research albeit a limitation is important to future research.

Finally, as members have graduated or moved on, the group and the needs have also changed. Although many of the members remain friends, colleagues, writing partners, accountability partners, and continue to see the value in online writing groups, the group is no longer an active entity. It is acknowledged that other factors influence graduate student's and faculty's writing accountability, motivation, and productivity in academic writing. For example, other support systems such as face-to-face writing groups have previously demonstrated an

increase in writing productivity (Aitchison, 2009; 2010; Davis et al., 2012; Maher et al., 2008; 2013). As such, it is ambitious to suggest that this Facebook group was the sole factor in motivating, producing, and holding the members accountability in their writing. Nevertheless for the purpose of this study, the findings demonstrated that this particular Facebook group was an outlet to organize offline support systems as well as serve as tool to motivate members of this group to produce and hold one another accountable.

Conclusion

In this study we examined the online group's members' posts and threads from the Facebook writing accountability group's wall and looked at their experiences to further our understanding of the use of social media sites such as Facebook in helping graduate students and junior faculty develop as academic writers. We investigated the use of Facebook for this research as support for the group members' writing accountability, motivation, and productivity, for academic writing. In order to do so, our study analyzed themes through open coding (Strauss & Corbin, 1998). From these themes, the findings continue to support the need and the importance of writing groups, whether they are face-to-face or online, such as this study evaluated. Our research provides evidence that writing groups support students' academic writing and a place for structured writing (Maher et al., 2008). According to Aitchison (2010), "writing groups have long been a part of the educational landscape" (p. 83); however, that landscape is shifting and the virtual writing group in gaining in popularity.

The added dimension for this study was the online Facebook group. Our findings suggest that social media, particularly Facebook as a tool, provided writing group members with additional support for motivation and productivity. Likewise, Kabilan, Ahmad, and Abidin

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(2010) found that students who participated in the Facebook group increased "their motivation and positive attitude towards learning" (p. 185). Whereas Irwin et al. (2012) posits students have demonstrated their openness to "using Facebook for educational purposes" (p. 1228). While many members of this writing group expressed a connection between group membership and their writing motivation and productivity, others found the group distracting. Although Facebook was not originally designed or intended for educational settings (Sánchez et al., 2014), its uses continue to grow. As Schwartz (2009) explains:

> I now see Facebook as part of the larger commons, a space in which we stay connected. Facebook, instant messaging, and the like keep my metaphorical office door open. And that increases the potential for real time, face-to-face conversations that are rich with connections, depth, risk-taking, and growth. (p. 5)

Therefore, our goal was to contribute to the scope of research that not only focused on writing and writing groups, but also the use of social media as a tool to support academic writers.

From its inception (e.g., idea) to the present, the group has expanded from a local and virtual Facebook community at a large research institution in the southwest United States to *virtually* all over the world. Of the original members or still part of the Facebook group, we are proud to share the many accolades and accomplishments attained by the members, some as recent as March 2019. Such titles and positions include: 24 members have completed their doctorate degrees and are either teaching or working at a national or international institution; three have advanced to candidacy or ABD (all but dissertation) status; two that have completed their coursework and passed their comprehensive examinations; and two completed other degrees.

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Although these academic accomplishments presented in this study cannot be solely attributed to the member's participation in this writing group; however the group's members continues to be a support system for the members since many are no longer in the same vicinity and have moved thousands of miles away to start new academic positions upon completing their graduate degrees.

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Are We Preparing Students for the Web in the Wild? An Analysis of Features of Websites for Children

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Abstract

Research processes for most of today's learners include online searches. Readers must understand how to navigate online texts to conduct research effectively, while applying critical thinking to determine the reliability of online information. A systematic content analysis of teacher recommended children's websites revealed features of children's websites that sometimes differed from those designed for the general population on the "Wild Wide Web." This comparison uncovered differences that may not serve elementary students well in learning to conduct online research. Recommendations prompt teachers to consider searches beyond the "walled garden," as well as ways to handle the "messiness" of the internet explorations.

Keywords: web literacy, children's websites, hyperlinks, hyperlinked texts, online texts, online research

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Introduction

Imagine Daryl, a third grader, as he begins his research on a self-selected topic within a science unit on animals and their habitats. He is excited to get to "play" on a computer. As he begins his search, he proceeds to Google and types "dolphins" in the search bar. When asked how many search results were generated, he touches the screen, counts the websites that appeared on the screen, and replies that there were five. In actuality, the search generated 93 million results. When asked which of the websites looked like it would provide good information, he says, "The first one." He does not realize this site is an ad. When prompted to pick a site to try, he picks one on the Miami Dolphins, not understanding that a search for dolphins also generates results about a football team. After clicking on it, he realizes it is not one that will help his research, so he tries another more relevant website. While reading some of the online text, he mistakes a hyperlink for an online glossary entry, such as those found in an eBook. When exploring webpages, he seems confused by the amount of information on each page and does not know where to start. Daryl did not get frustrated--he loves searching the internet. However, his searches were inefficient and ineffective.

This scenario is typical of many we encounter as we observe students conducting internet searches. Although Daryl is familiar with the idea of "surfing the internet," he has spent much of his time using teacher-selected websites, designed to keep children safe. These websites, referred to in this article as "walled gardens," are designed to keep children in the hosts website by preventing links to outside sources. Time in walled garden environments has resulted in Daryl's development of pseudo concepts (Vygotsky, 1962) about how the Web works.

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Daryl is a composite of many children we encounter who realize the potential of the internet but have limited understanding of website features and internet searches. This trend has been recognized by others in the literacy community. The Progress in International Reading Literacy Study (PIRLS) recently included its first assessment of online reading, ePIRLS. While U.S. 4th graders ranked fifth out of 15 countries, online reading expert Donald Leu expressed concern about the construction of the test lacking the "messiness and complexity of the actual internet" (as cited in Herold, 2018, para 25). When taking the PIRLS, students were not asked to conduct an authentic search using a search engine or determine the reliability and validity of sources because the test's simulated class project uses preselected websites that have already been curated for reliability.

According to the Common Core State Standards (CCSS) (2010), third graders like Daryl are expected to "use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently" (para. 1). Yet, we consistently see misunderstandings about website features such hyperlinks, multimedia, menu bars, and embedded advertisements (Pilgrim, Vasinda, Bledsoe, & Martinez, 2018), unless explicitly taught. There is so much for students to understand and navigate in the "Wild Wide Web."

Syncing **Digital and Traditional Literacy Skills**

Because online information is readily available to children both in and out of the classroom as part of *the present,* it is time to move past the charge to prepare our students for the future. We need to prepare them for their future and *their present*, and "online reading and learning should be our focus" (Leu, Forzani, Timbrell, & Maykel, 2015, p. 139). The International Society for Technology in Education echoes and supports this recommendation

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with technology standards for *today's* students that identify digital skills which focus on learning through exploring and analyzing so that they can use technology to "work, live, and contribute to the social and civic fabric of their communities" (ISTE, 2012, para. 2). Yet, literacy research continues to find that overall, students' online reading skills are limited (Coiro, 2005; Coiro, Knobel, Lankshear, & Leu, 2008; Leu et al., 2015; November, 2008).

Increased use of the internet will continue to impact the role of the literacy teacher (Leu, Kinzer, Coiro, Castek, & Henry, 2013). The teacher's role in preparing students for research on the internet includes providing opportunities for student exposure to online information so they become proficient in today's literacies and the literacies of their future (International Reading Association, 2009; Leu, et al., 2015). Skills required for evaluating online information are often referred to as Web literacy skills (Leu et al., 2015; November, 2008) and encompass knowledge necessary for students to be productive and savvy consumers of this information, including the ability to locate online material and to synthesize and evaluate the material using specific criteria. Dalton (2015) emphasizes the importance of these skills and redefines the literacy teacher of today as a teacher of Web literacy. "Web literacy is huge. It's everything we do on the Web" (p. 605).

Children's Websites versus the Web in the Wild

Over the past two years, we have been collecting data to determine elementary students' knowledge of Web literacy skills (Pilgrim, et al, 2018). After noting consistent challenges students experience while navigating the internet, we wanted to understand how effectively they search and critically evaluate online information. This work led to the pursuit of websites to use with children in our data collection as we observed them navigating and evaluating information

on the Web. In our initial work, we noted that many text features on children's websites work differently than the way they work in what we have come to call the "***Wild*** Wide Web." For example, hyperlinked words sometimes linked to a glossary-like definition instead of another website. We wanted to know more about children's websites. This led us to explore the question: *How do children's information websites compare to adults' information websites?* To start, we searched for and chose a reliable and well-known website developed for both the general public that also had a website specifically designed for children. We analyzed and compared National Geographic (http://www.nationalgeographic.com/) and National Geographic Kids (NGK) (http://kids.nationalgeographic.com/) examining online text features, organization, and layout.

National Geographic (NG). NG's primary site's tagline is "A world leader in geography, cartography, and exploration". Throughout the site, users find engaging photographs and informative articles. A horizontal menu on the landing page included: Photo of the Day, TV, Perpetual Planet, Latest Stories and a search bar. A side bar contained a variety of topics: photography, video, science, travel, adventure, animals, environment, history, and cultures. A drop-down menu offered tabs to "Nat Geo Sites," including a link to their corresponding children's site.

The NG search tool enabled quests leading to resources both within and outside of the website. Hyperlinks embedded within each informative article led to additional pages within the site and outside of it. These additional linked articles also included hyperlinks connected to still more resources. Additionally, hyperlinked ads directed users to commercial sites outside of

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NG's organization as well as ads to subscribe to National Geographic magazine. Upon scrolling, readers can select videos or articles as well as "follow" NG on Facebook and Twitter.

National Geographic Kids (NGK). Although the "About Us" page on NGK stated, "We teach kids about the world and how it works, empowering them to success and make it a better place" (para. 1), the first entry when conducting a Google search for NGK advertised the following: "Play games, watch videos, learn about animals, and places, and get fun facts on the National Geographic Kids website." The menu bar reflected this statement as well. It had brightly-colored buttons with pictorial symbols for the following: Videos, Games, Animals, Shop, Subscribe, and Search. There was also a menu button in the upper left corner with dropdown options that offered the same menu items along with Homework Help and an Interactive World Map option. At first glance, one might think the only information to find on this site would be about animals, since there is a specific button for this information, but using the search bar, children can find information for geographic and social issues such as recycling, climate change, and endangered species. We explored the options linked to the animal menu button. These links were arranged in an array of colorful boxes that included a photo or realistic drawing of each animal as well as a "like" heart button. After clicking on several animal links and finding no hyperlinks within the texts, we clicked on the first 100 of the animal posts. Of these short articles, only 11% contained hyperlinked text leading to other webpages within the site. None included hyperlinks leading outside of the site. Using the search tool, we conducted a search on "climate change." Of the 10 online texts generated, 50% had hyperlinked text and 50% did not. As with the animal searches, the hyperlinks led to content within the site.

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NGK also included ads. These ads were hosted by NG for NGK commercial items and did not navigate away from the organization's site. NGK did not include links leading to social media but did include features that reflected social media platforms. For example, children may click on a heart icon to "like" a topic, just as Twitter users can click on a heart icon to like a tweet or Facebook users can react to a post.

Comparing More Children's Websites

Our National Geographic comparison of their primary and children's websites enabled us to develop initial criteria for a systematic analysis of additional children's websites to see if their resources and texts were reflective of typical resources and tools found on the Wild Wide Web. Using this information and the literature about online reading (Coiro & Dobler, 2007; Leu et al., 2015), we developed a checklist of online text features. Our checklist included information related to website domain, visuals, hyperlinks, copyright, ads, and other related appearance and navigation tools (Appendix A). To find additional websites to examine, we turned to our elementary teacher colleagues. Using a Facebook post, we asked teachers for recommendations of research websites used in their classrooms. A total of 30 website recommendations were collected. We conducted a content analysis on these websites (Appendix B). Some websites recommended by teachers were commercial, subscription-based sites requiring an account. In these cases, we created temporary accounts to access the website's content.

As we examined the recommended websites, we found that many included features that did not function in the same way as websites "in the wild." In addition, commonly used website features were absent. We noted differences in the following categories: audience and purpose, website features, appearance, and navigation tools.

Audience & Purpose

The children's websites targeted a wide range of grade levels. All but one website, How Stuff Works, targeted grades K-5. Although we asked for research websites, at least one third of these websites were designed to reinforce basic math, reading, or writing skills. Of those, 85% focused on science or math. Thirty-two percent included social studies content and 39.3% included Reading/English content. Twenty-five percent of the websites included cross-disciplinary skills practice (Figure 1).

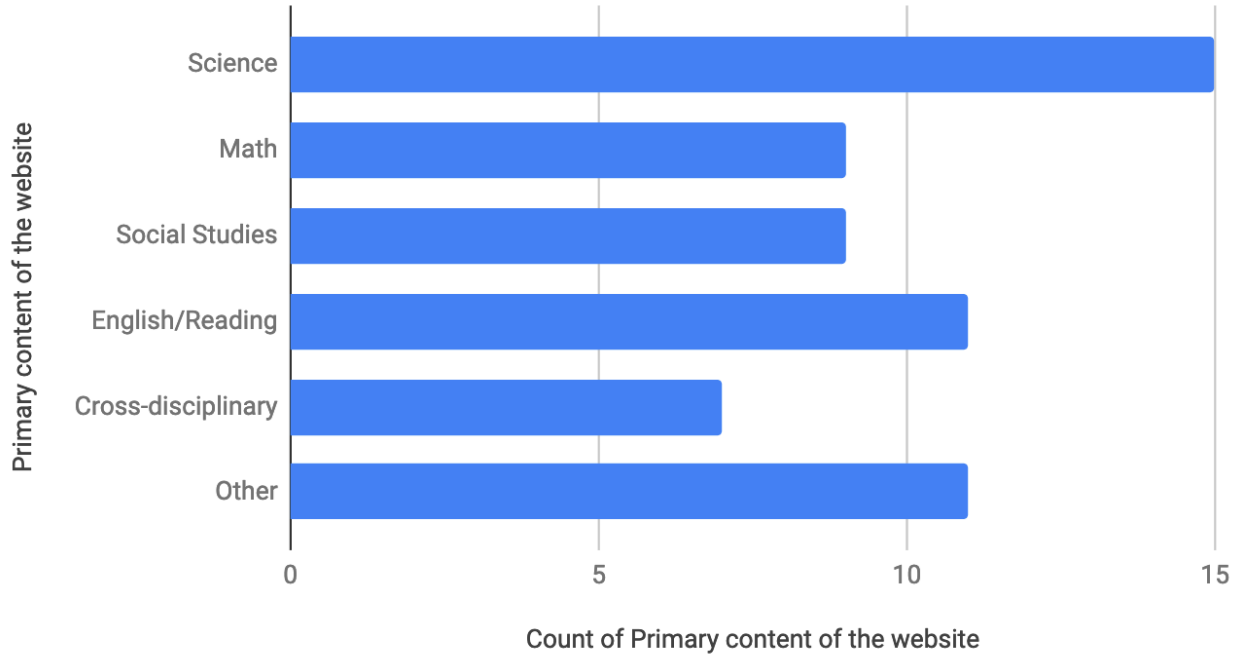

Figure 1. Educational content focus of children's websites

The purpose of the websites varied according to the nature of the website host. For example, teacher recommended sites like NASA Kids and National Geographic enable students to research science, geographical, and environmental topics. Teachers also recommended websites like Time for Kids, which offer a wide variety of informational texts. The purpose of

these websites is essentially to provide up-to-date, multimodal resources for teachers, parents, and students. According to the subscription-based Discovery Education (2017), their resources help transition "classrooms to a 21st-century learning environment, or to replace textbooks with modern digital resources" (para. 3). The primary purpose of most websites was for education or school purposes (66.7%), although 56% of website offerings included games and play. These websites use interactive games to reinforce skills taught in the classroom.

Subscription Sites. Almost 27 % of the recommended websites required a paid subscription and included login access for users. These commercial websites, such as Pebble Go and Discovery Education, are designed to provide safe searches as well as math and reading skill work from which teachers can collect assessment and achievement data. These subscriptions enabled personalized practice and learning through teacher management of learning systems. The sites tracked student and class progress. Even though safe researching was a component, it appeared many of these websites were used for skill practice rather than for informational searches.

It seemed that in order to protect students from outside content, site searches led to vetted content within the search engine. Of the subscription-based websites reviewed, the publisher information was located on all but one website. In order to determine the trustworthiness of a website, a user must be able to find information about the website, including author, publisher, and copyright information. Of the websites analyzed, 23.3% did not include an "about us" link or any other way to check the website for reliable information.

One popular subscription website was PebbleGo: The Emergent Reader Research Solution (https://pebblego.com/). The site developers claim that this resource builds a

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foundation of research skills. This site contains databases for animals, science, biographies, social studies, and dinosaurs, featuring leveled text and navigation designed for beginning researchers. The website searches are fairly reflective of a typical internet search, but the teacher maintains a safe environment by assigning topics included within the website databases. Searches generate minimal information. For example, if a student searches for "tiger" within the animal database, the results include tabbed information about the body, habitat, food, life cycle, fun facts, or related short excerpts. Students select from these tabs. If a student chooses "body," four sentences describing the tiger are provided on an easy readability. Searches provide students with a way to print or cite materials, which is a valuable research skill. Visuals are used, since the site focuses on young readers. Another valued feature is the text-to-speech reading option so emerging readers can use the website for research.

Website Features

Appearance. The content and features of children's websites reflected both visual and information differences. Children's websites were primarily cartoon-like (76.7%). Websites included life-like photos as well (66.7%), but the life-like photos were generally embedded within a cartoonish context. Less than one-third (27.6%) of children's websites included commercial ads, as often seen on adult pages.

As in websites for general use, some children's websites embedded social media or social media-like features. Almost 40% of the children's sites included icons which led to social media sites like Facebook or Twitter. In addition, one-third provided options for "liking," polling, or interacting with other children, similar to popular social media platforms.

Search tools. The whole point of researching is to get information. Adults search the internet scanning text to find needed information (Nielsen, 2010). We found that 50% of the websites included a search tool which enabled students to explore the site, represented by either a search box or magnifying glass icon. Yet, most of the searches on children's websites yielded multi-modal information, with very little informational text for children to read. For example, the NASA Kids' Club site (https://www.nasa.gov/specials/kidsclub/nowinspace/expedition56/index.html) provided visual entertainment with very few links to informational text. We encountered some reading material by clicking on "Find Out Who Is on the Space Station," which led to a slide with a photo of the astronauts, accompanied by 3 sentences describing the picture. Overall, only 43.3 % of the recommended websites included informational articles for children to read. CBS Kids, Canadian Geographic Kids, DOGO news, and Time for Kids all provided substantial informative articles for students to read.

One recommended website was a search engine designed for children. KidRex is a kid-friendly search engine, powered by Google. The search box has the appearance of a child's crayon drawing (Figure 2). The search engine works just like Google, where a search is typed in the box and results are generated based on keywords. KidRex searches "emphasize kid-related webpages from across the entire web and are powered by Google Custom Search™ and use Google SafeSearch™ technology" (www.kidrex.com, para.1). The website also screens out inappropriate content and excludes these sites from search results.

Figure 2. KidRex Search Engine

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Navigation

Website navigation involves knowledge about how to attend to information on a page when first arriving at a site (Coiro, 2005). Web pages contain unique features that may require knowledge of website layout and organization in order to navigate a page and to effectively locate information. Of the websites we examined, 80% of the websites required scrolling, 27.6% included commercials, 50% allowed students to search the site, 37.9% included Facebook or Twitter icons or messages, and 33.3% enabled "liking" features. Yet, 33.3 % of the websites were difficult to navigate. For example, we found it difficult to return to the home page on some sites. Other sites included navigation buttons not labeled with words. Scrolling, discerning ads from content, and recognizing social media are among many Web literacy skills students need in order to navigate the internet. The ability to locate author and publication information is essential as well, and in our analysis, 24% of the websites did not include copyright information.

Hyperlinks. In most general public websites, hyperlinks are words that appear to be a different color and take users to another place on a webpage or, most often, to a new webpage within the site or outside the site. The hyperlink is one of the distinguishing features of online texts (Warlick, 2009). About 33.3 % of the websites included hyperlinked words within the content of the website (Figure 3), but of these hyperlinks, only 33.3% took students to outside sources (Figure 4). So, in other words, only about 11% of hyperlinks in children's website function the same as they do in general websites. In the children's websites analyzed, we encountered "walled gardens," in which hyperlinked texts, if there were any, linked only to other texts within the host site.

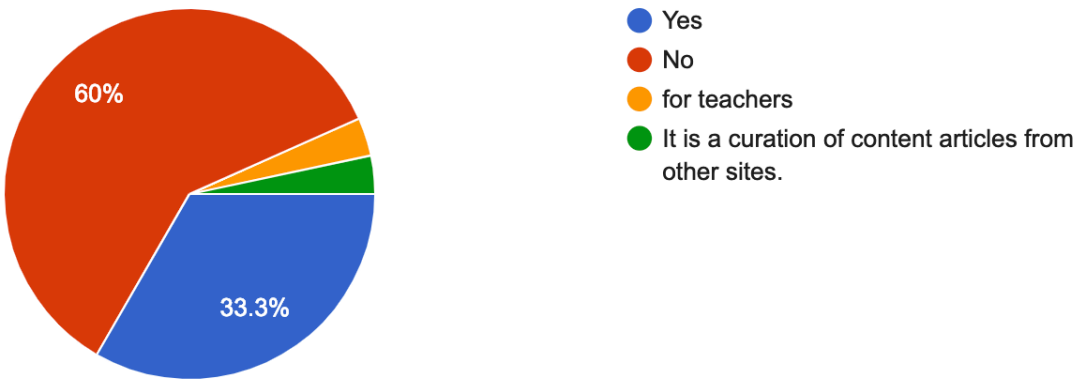

Figure 3. Children's websites that contain hyperlinks within text

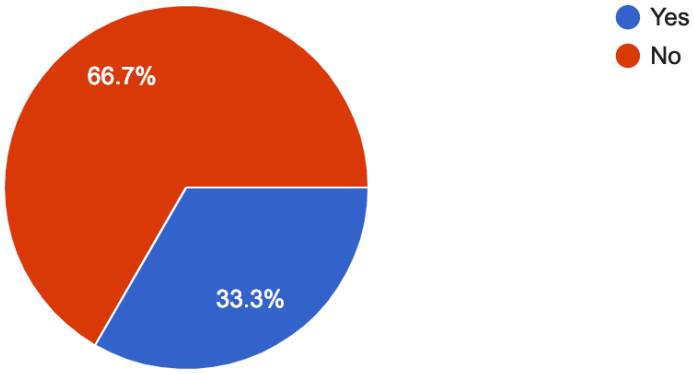

Figure 4. Hyperlinks in children's websites that lead to external web pages

We found that children's websites frequently used visuals or "buttons" to link to information, rather than hyperlinked words, for easier use, like the NGK animal buttons. These hyperlinks most often took users to another page within the site as a safe search design. Additionally, some hyperlinked words in many children's websites, such as Dallas Symphony Orchestra (DSO), provide definitions, which is more like an electronic dictionary feature on eBooks (Larson, 2015).

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Beyond the Walled Garden

According to Nielsen (2010), "little is known about how children actually use websites or how to design sites that will be easy for them to use" (para. 2). Designers typically create children's websites with entertainment and usability, including age appropriateness and ease of navigation, in mind (Nielsen, 2010). We found this to be true in our study. These children's websites are obviously on the World Wide Web, but they often do not function the same way as the Web in the wild, as there is little to navigate. Many lack the navigation features typically found on the internet, such as hyperlinks, copyrights, and ads, and recognizing these features and their functions is an important skill specific to online reading (Coiro & Dobler, 2007; Leu et al., 2015). Navigation differences could relate to other findings of the Nielsen Norman Group (2010), which reported that children visit websites for entertainment, are quick to judge and leave a site, do not use back arrows, and skim rather than read.

Although entertainment may be the initial goal for children's personal time online, they do spend some time researching, and standards across the globe articulate expectations that elementary-aged children should become proficient online readers and researchers (ISTE, 2012). Content in children specific websites was geared toward younger ages in terms of the amount of information provided. Expository text excerpts were short and simple. For example, on the National Geographic for Kids website, there is very little text about each animal as compared with a nonfiction picture book. According to Nielsen (2010), children are quick to judge and leave a site. This may have something to do with the appearance of many children's websites lacking abundant text.

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Findings from our study also indicate that the sites teachers recommended to us often reflected the use of neat and tidy walled gardens where the data bases are preselected, the information has already been vetted for reliability, and there are few distractions. In a walled garden environment, searches are restricted to content within the host's website (Technopedia, n.d.), which limits experience such as choosing resources and evaluating their trustworthiness and does not pose the same "messy" challenges of discerning between relevant content and ads or hyperlinks that lead away from a topic. This walled garden phenomenon was evident in our content analysis. Many websites required subscriptions or prevented students from leaving the host site, thus avoiding the "messiness" of the Wild Web. While we are not advocating for turning children loose in a complex online environment unequipped, we do recommend that teachers understand the potential effects of searches that lack the authentic challenges of the Wild Wide Web.

Hyperlinks and other "messy" online text features. The organization and text features of traditional, paper-based texts written for adults vary little from texts written specifically for children. The variation is in text complexity, but text features are dependable and consistent. Authors use features like examples, pictures, and descriptions to support the reader (Lapp, Moss, Grant, and Johnson, 2015). Therefore, it makes sense that websites designed for children should mimic the authentic features of the Wild Web, with text levels that are accessible for children, even if they stay in a walled garden. On websites in the wild, hyperlinks take readers to other pages within and outside the host site. When there are no hyperlinks in a children's website or when hyperlinks function as a glossary, students develop a pseudo concept about how hyperlinks work (Pilgrim, et al., 2018).

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In addition to offering access to further content, hyperlinks also offer the potential for distractions as they lead to more and more hyperlinked texts, related or unrelated to the research focus. Advertisements also pose distractions in the Wild Web, often appearing to be additional content, but leading to online commercials, instead. In order to gain understanding of website features and online text, students need some exposure to research in Wild Wide Web type environments, with all of its distractions and fallibility.

Opportunities to assess reliability and trustworthiness. There is no question that teaching students to discern the accuracy of online information is critical. If students remain in a walled garden, they do not receive opportunities to critically evaluate online information. Overall, only 44.8% of the teacher recommended websites mimicked websites in the wild. It seems logical that exposing students to authentically designed websites and explicitly teaching Web literacy skills would improve critical reading skills. This can be done with well-chosen online texts and adjustments in website design to mimic the Wild Web while still keeping children safe.

Implications and Conclusions

While providing safe search environments is a priority in the classroom, authentic experiences with online information is important as well (Dwyer, 2015). One of our most concerning critiques of sites designed for kids is either the absence of hyperlinks or hyperlinks that don't function as those on the Wild Web. Websites used in the classroom should include hyperlinks that function as paths to other pages, rather than a glossary. We found that subscription sites like PebbleGo replicate authentic searches at a very basic level, but most provided limited exposure to features and navigation tools required for online reading.

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Additionally, subscription sites are expensive and may not be a resource for schools with limited budgets. Online reading expert, Jill Castek, expressed concerns about online search proficiency and access in her critique of the ePIRLS assessment, as students reporting the most access to the internet scored better in online reading (Herold, 2018). Therefore, search engines like KidRex, Google's kid-friendly search engine, serve as effective tools for authentic searches. National Geographic Kid's walled garden also has the potential to mimic authentic searches. It has ads for NGK products and when hyperlinks are present, they offer both relevant information and some tangentially related information that could be used to determining relevance to the task. A recommendation we offer to NGK is to include more hyperlinks in more of the provided texts.

Just as teachers carefully choose mentor texts for explicit teaching of reading and writing (Dorfman & Cappellini, 2017), online mentor texts are important. When teaching with online texts, it is wise to select texts with hyperlinks, ads, and other distracting features in order to model navigation of internet searches. Students like Daryl, our third grader searching for information about dolphins, benefit from the modeling of effective search strategies. Students need instruction on how to navigate past the distraction of ads and how to return to a previous page when finding themselves reading unrelated content through hyperlink link explorations. Modeling the use of back arrows, "About" tabs, copyright information, and other "messy" features is a part of literacy instruction in today's classroom.

Understanding the differences in websites designed for children and those of the general public helps us choose our online texts with greater knowledge and purpose. As educators, we have a responsibility to keep our young readers safe, and we also have a responsibility to equip them to handle the discoveries and distractions of wild online reading. Reiterating his concern

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about students' abilities to navigate a Wild Web, Leu concluded that the performance of US students does not likely demonstrate, "a level of performance adequate to be fully successful in learning during online inquiry" (Herold, 2018, para. 24). Learning to research online needs the same careful and explicit teaching we use for teaching research skills with paper texts, in contexts that mimic the Wild Wide Web.

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Appendix A

Children's Website Evaluation (Google Form)

Website Name

Website URL

Recommended by Teacher
Yes
No

Primary audience is children
Yes
No

Primary content of the website
Science
Math
Ss
Eng
Cross-disciplinary

Primary purpose of the website
Games/play
Education/School
Information/scholarly/content-related
Estimated grade/age level
Preschool-K
K-5
6-8
High School

Publisher
Found on home page

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Unable to locate

Domain
Education Institution, typically higher education (.edu)
Any organization (org)
Commercial (.com)
Government (.gov)
Military institution (.mil)
Academic institution (.ac, not in US)
Other

Visual/website material (check on answer which reflects the appearance of the website)
Cartoon-like
Life-like photos
Charts/graphs
Hyperlinks

Navigation of website
Description (optional)

Navigation of website:
Navigation requires use of a scroll bar
Navigation requires knowledge of the menu bar
Navigation requires the ability to click on buttons
Navigation requires knowledge of hyperlinks
Navigation requires reading skills
Other

Which of the following does the website use on the home pages as a website "menu?"
Buttons with visuals
Headings and subheadings students must read

The following questions required yes/no answers:

The website includes information articles students can read.

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If yes, do the links take students to outside sources?

The website contains commercials children can click on

The website contains videos students can watch

The web site enables students to search the website (search box)

The website contains icons leading to social media sites (FB, Twitter)

The website includes features such as “liking,” polling, or interaction with other children

The website provides speech to text capabilities

The read text is highlighted (follow-along text)

The website includes an “about us” or another way to check the website for readabilit9y

The home page or main menu is easy to locate

The website is comparable to sites adults use to find information on the internet (if applicable)

The website requires a subscription or login to use
Yes
No
Free trial option
Other

Ease of navigation (comments);

Note distractions (lots of noise, lots of busyness on page, movement, lack of movement):

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Appendix B

Name	Website	Login Required	Description
ABC Ya	www.abcya.com	Yes	Includes math and language arts games for children in K-5, sorted by grade level.
Animal facts - Canadian Geographic Kids	https://www.canadiangeographic.ca/kids	No	Shares animal fact sheets for many Canadian animals
BBC Kids	www.bbckids.ca	No	Provides free online games sponsored by BBC Canada and children's videos on demand (VOD) with subscription to local television company.
Brain Pop Jr.	https://jr.brainpop.com	Yes	Provides cross-disciplinary movies, quizzes, games, and activities for K-3 students.
Build with Chrome	www.buildwithchrome.com	No	Enables an online building platform.
CBS Kids	www.cbc.ca/kidscbc2	No	Includes educational games, videos, and informational articles for children.
DSO. Kids (Dallas Symphony Orchestra)	http://dsokids.com/	No	Provides games, music, classroom activities, and information about going to the symphony.
Discovery Education	www.discoveryeducation.com	Yes	Provides STEM content for teachers and students using instructional videos, skill builders, games, audio files, images, writing prompts, and encyclopedia articles.
DOGO News	http://www.dogonews.com/category/world		Provides a way for kids to engage with digital media. New news items are posted daily.
EcoKids	https://ecokids.ca/	No	Offers free environmental learning activities and resources for teachers, students, parents and communities.
Education Galaxy	www.educationgalaxy.com	Yes	Provides standards-based and teacher-managed platform for elementary

			student science assessment and activities
FunBrain	www.funbrain.com	No	Provides educational games that focus on math, reading, traditional games, and others.
Funology	www.funologycom	No	Provides parent/teacher resources with ideas to entertain kids offline.
GoNoodle	www.gonoodle.com	No	Provides hundreds of both fun and content-based videos with music and dancing, for designed to get students up and moving in the classroom or at home.
How Stuff Works	http://www.howstuffworks.com/	No	Answers and explanations of how the world actually works. Designed for all audiences- older children through adults.
KidRex Search Engine	www.Kidrex.org	No	Provides a safe-search option. This search engine is produced by Google.
Moby Max	www.mobymax.com	Yes	Addresses learning gaps in K-8 subjects, including math, reading, language, writing, and science. Students complete tasks and are rewarded with opportunities to play games.
NASA Kids	www.nasa.gov/audience/forkids/kidsclub/flash/#.V2VjfZMrJE6	No	Includes games and information about NASA.
National Geographic for Kids	http://kids.nationalgeographic.com/	No	Includes games, videos, and facts about animals and places.
Pebble Go: The Emergent Reader Research Solution	www.pebblego.com	Yes	Enables students to search for and read information about animals, science, biographies, or social studies (includes videos, citation information, and activities).
Prodigy	www.prodigygame.com	Yes	Provides teachers with a way to track students' progress on math skills as students move through assignments/ activities.
Reading A-Z	https://www.readinga-z.com	Yes	Provides teachers with information/resources about levelled

			books. Includes activities, worksheets, and stations which can be used with guided reading groups.
ReadingEggs	www.readingeggs.com	Yes	Provides games songs, and activities that promote basic reading skills.
Reflex Math	www.reflexmath.com	Yes	Promotes (and tracks) practice of math facts through a game-based approach.
Science Bob	https://sciencebob.com	No	Includes science information as well as ideas for classroom science experiments and projects.
Starfall	www.starfall.com	Yes	Promotes practice of reading ranging from emerging to advanced reading skills. The online materials include interactive features to engage students.
Sumdog	www.sumdog.com		Provides teachers with a way to track students' progress on math skills through game-based practice.
Time for Kids	www.timeforkids.com	No (some content requires login)	Includes some free digital news content and printables with graded reading levels.
Vocabulary Spelling City	www.spellingcity.com	Yes	Includes games and activities students use to practice reading/language arts skills.
Wonderopolis	http://wonderopolis.org/home		Includes daily postings of a new "wonder" with videos and articles to explore the topic in several ways.

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Designing Online Curriculum: Program Revisions and Knowledge Exchange

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Abstract

The article focuses on the importance of knowledge exchange and knowledge communities to create an online curriculum that moves from individual course design to shared curriculum design. It draws from current discussions on communities of practice, agoras, and knowledge societies, expanding on the notion that knowledge, in order to benefit society, has to be shared. It shows the results of a program redesign achieved through collaboration on online course learning outcomes as well as course design, and it concludes by arguing for continued assessment of current practices to encourage educators to think critically about their contributions to an open knowledge society.

Keywords: curriculum redesign, online graduate program, knowledge communities, open knowledge exchange, faculty collaboration, student learning, assessment practices.

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Introduction

Faculty share knowledge—formally and informally—on an ongoing basis. Many talk in hallways, in offices, and at department meetings. They publish articles on subject-specific issues. They go to conferences and discuss new developments in their fields of expertise. They are happy to receive feedback that will push their research in a new direction. However, when it comes to course re-design and curriculum revisions, faculty often consider requests for changes to an established syllabus as threatening teacher authority, and with it academic freedom. Mimeographed course syllabi, with only the semester and year changed, were part of the academic culture before computer technology made it easier to quickly update to a new semester. But despite the increased ease of making necessary changes, the substance of many courses often remains unchanged for many years. Participating in an open exchange of knowledge, although valued and promoted for research purposes and for discussing overall pedagogical approaches in the classroom, often stops before it impacts course and program redesign.

This approach to curricular discussions is not unusual. As Darling-Hammond and Hammerness (2005) pointed out in their research on teacher education programs, many programs offer "fragmented and incoherent courses," and they also lack "in a clear, shared conception of teaching among faculty" (p. 391). The online Master's program discussed in this paper faced the same issues. It did not provide students with critical knowledge that was reinforced throughout the program and that could be applied to their respective work situations and shared with their colleagues. As faculty, they were trained in specific subject areas; their dissertations and their continuous research provided them with expertise that they wanted to share with their students. However, they were not trained in providing students with an integrated curriculum that would

lead them from introductory knowledge to in-depth knowledge, and that would ensure that the knowledge they acquired could be applied and could be shared beyond the classroom.

To address opportunities for collaboration among diverse stakeholders, this article focuses on how the concepts of knowledge exchange and knowledge communities encouraged faculty, students, and administrators in the newly revised online graduate program in Rhetoric, Writing, and Digital Media Studies at Northern Arizona University to create a curriculum that moves from individual course design to shared curriculum design. The research used to contextualize this study focuses on communities of practice, agoras, and knowledge societies addressed by Lave and Wenger (1991), Wenger (1998a, 1998b), Drucker (1994, 2017), Echeverría (2010), Hughes and Unwin (2013), Peter and Deimann (2013), Rifkin (2014, 2014 March 15), and Masterman (2016). The article expands on the notion that knowledge needs to move from being abstract and individual towards becoming a common good that is shared in order to benefit society. The curriculum redesign results are based on a mixed methods participatory research approach, with participants collaborating on course learning outcomes as well as course redesign. The results show the need for continued assessment of current practices to encourage educators to think critically about their contributions to an open knowledge society.

Background on What Faculty Know About Working Together

Terms such as open access, open source, open education, and open research have been prominently featured in academic and public literature. Rifkin (2014), an economic and social theorist, told his readers that the "capitalist era is passing…not quickly, but inevitably. A new economic paradigm – the Collaborative Commons – is rising in its wake that will transform our way of life" (p. 1). This paradigm shift, he continues, is possible because "economic paradigms

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are just human constructs, not natural phenomena." (p. 2) Similarly, Suber (2012) pointed out that open access has become a driving force in the academic publishing community because "any digital content can be put online without price or permission barriers" (p. 4). The Gates Foundation (2018) included benefits for researchers, research, and society in their definition of open research, arguing that open research "reduces the barrier to collaborative research through data sharing, transparency and attribution" (Gates Foundation). Using this approach, information becomes available to users as part of a knowledge commons, increasing access to information that can be shared and used to create new knowledge by promoting discussion, interaction, and analysis on a local, national, and international level. However, academic institutions and publishing houses do not share a centralized structure for rewarding open and transparent research (Nosek et al., 2015). Additionally, Deimann (2014) in his critique on open education pointed out the oversimplification of the concept of transparency and equal access. Deiman used Walsh's (2011) research to point out that MIT's open courses retain their exclusivity by not providing university credit to non-matriculated students (p. 99). Deiman saw large MOOCs as a catalyst for "commercialization and commodification" (p. 105) that have led to continuous debates about "accreditation, certification and quality control" (p. 109), undermining definitions of "open" and encouraging academics and researchers to reconsider "claims of Open Education" (p. 110). Similarly, Masterman (2016), in her study of Open Educational Resources (OER) at the University of Oxford, concluded that institutions' initiatives rely on principles of governance. Institutions, she pointed out, need to encourage the integration of OER in the academic reward structure to support "open resources and open approaches to pedagogy." (p. 40).

The complex issues surrounding open educational practices and the sharing of knowledge are magnified by increased connectivity, or what Rifkin (2014, March 15) called a "formidable

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new technology infrastructure." We can share knowledge in digital spaces, and we can create open access venues through Web 2.0 technologies. However, such access increases the complexity of OER even more since, as Rifkin (2014, March 15) pointed out, it is important to learn "how to live together in an increasingly interdependent, collaborative, global commons." To make collaborative commons work, Rifkin (2014) emphasized the importance of effective management strategies, including clearly defined boundaries, rules that are established by commons members, consequences for undermining the rules, and recognition of the commons by outside authorities (p. 162). In other words, without institutional support structures, effective ways of managing the distribution and adaptation of knowledge by the members of the community, and outreach to members outside the community, increased accessibility cannot be achieved.

Rifkin's comments are a reminder that shared knowledge involves organizational structures that encourage the exchange of ideas, and that promote collaboration among its members. Such communities, also referred to as "communities of practice," (Lave and Wenger, 1991; Wenger 1998 a, 1998b) or "knowledge communities" (Echeverría, 2010), legitimize and highlight the importance of forming relationships that can be sustained over periods of time and that can lead to new and otherwise elusive knowledge. Participation in communities of practice, explained in more detail by Wenger (1998a), "refers not just to local events of engagement in certain activities with certain people, but to a more encompassing process of being active participants in the practices of social communities and constructing identities in relation to these communities" (p. 4). Knowledge distribution and adaptation within communities of practice, then, rely on the willingness of its members to contribute and redistribute information that can be used and adapted by the larger group.

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Javier Echeverría, in his 2010 article on "*Epistemopolis*: From Knowledge Communities to Knowledge Cities," continued the discussion on knowledge communities and includes the concept of knowledge cities, arguing that knowledge communities promote "specific kinds of knowledge" (p. 24), but do not necessarily share this knowledge in the agora – the space that allows for public distribution of knowledge. Knowledge sharing, he pointed out, needs to be organized in an "epistemopolis," or "knowledge city" where "different types of knowledge can be expressed freely and accessed by any citizen" (p. 24). This implies that it is not simply enough to promote distinct knowledge communities; instead, it is necessary to provide "complex forms of association that develop on a foundation of a plurality of shared knowledge among different communities, and that maintain public spaces for the free exchange of knowledge" (p. 23). This free exchange assumes that knowledge is not only consumed, but that it is produced, shared, assessed, and reconstituted by participants in the larger agora, leading from small communities to a larger knowledge society. This, according to the Gates Foundation (2018) and the UNESCO World Report (2005), is essential because otherwise, "knowledge societies will not really be worthy of the name unless the greatest possible number of individuals can become knowledge producers rather than mere consumers of already available knowledge" (UNESCO, p. 189).

The principles of communities of practice and knowledge communities guided the attempts to revise the online Master's program in Rhetoric, Writing, and Digital Media Studies. Faculty realized that a strong and cohesive program relied on individual and local knowledge that could be shared and that could contribute to building a knowledge community. This knowledge community could then become part of a broader knowledge society that operates on

the concept of the open *agora* where students contribute to and participate with communities outside their closely focused classroom and workplace communities.

Curriculum Redesign for Online Learning

Methods: A Case Study Approach to Learn from Stakeholders

Curriculum redesign for the rhetoric program takes place periodically, often seen as an imposition and undertaken to fulfill accreditation requirements. The Rhetoric, Writing, and Digital Media Studies (RWDMS) program performed a quick update and name change 15 years ago when the master's program in rhetoric, composition, and professional writing went fully online. At that time, the program encouraged students to choose any 36-hour combination of rhetoric, composition, and professional writing courses to satisfy degree requirements. The program was closely aligned with similar degrees outlined by Brown, Jackson, and Enos (2000) where "the vast majority of programs require a course in the history of rhetoric, rhetorical theory (classical to modern), theories of composition, and the teaching of composition (or writing)" (p. 238).

The RWDMS program fulfilled all the requirements for a mainstream program in rhetoric; however, faculty members realized that they had not taken the local context into consideration. Teacher-students in the program were not happy with the professional writing courses, and professional writing students did not care about the classroom focus in our rhetoric and composition courses. One over-arching program was split into two separate programs five years after going fully online, allowing for much flexibility and elective credits to accommodate everybody's needs. The course offerings stayed the same, since faculty assumed that student dissatisfaction would stop once the programs were divided. Faculty agreed to these changes not because they conducted actual surveys with students or because they believed in a separation of

the disciplines, but because they had heard informally from enough students that it seemed the best approach at the time for the student population they served.

Seven years later, faculty members in the rhetoric program embraced the much-needed in-depth curriculum revisions to address continued student feedback on offering courses that would be directly applicable to their current work situations. The following research question guided the research and the revisions to the rhetoric program:

- What programmatic changes to the online M.A. rhetoric program are necessary to incorporate open learning principles and to promote student participation in knowledge societies?

The results of the small-scale investigation are based on a mixed methods participatory research approach. Surveys and interviews with former and current students, collaboration with assessment specialists, and open knowledge exchange with faculty participants provided the foundation for developing an open learning environment where students are encouraged to learn through collaboration to prepare them "for employment in a knowledge society" (Masterman, 2016, p. 34). To provide guidelines for discussions on course learning outcomes and course redesign, faculty followed Wenger's (1998a) stages of development in communities of practice which include the potential for communities of practice, a period of coalescing, an active time when members engage in developing a practice, a dispersal of members, and a final stage where members of the community remember the activities but are no longer engaged.

Wenger's (1998a) model encouraged curriculum redesign stakeholders to come together and to discover common ground despite diverse approaches to teaching and learning, negotiate community and possible collaborations, engage with each other and create a new curriculum, and

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continuously communicate and seek advice on additional course revisions after the majority of the curriculum redesign was concluded.

Results: Open Knowledge Exchange to Improve Current Practices

Research included surveys with past and current students, interviews with students and colleagues in rhetoric and writing studies, and an exploration of online graduate programs in the field. The surveys (n=73) revealed that the student population for the graduate program in Rhetoric consists of 80% middle school, high school, and community college teachers who wanted to update their skills and move up within the institutional ranks or move to another educational institution. 15% of students were in the process of changing their careers or were newly graduated bachelor's students interested in going into the teaching profession, and 5 % were military personnel who were involved with teaching writing at the base. Student ages ranged from 22-70, with the majority of students in their thirties to their fifties. For many of the students it was the first time back in the college classroom after a 10-30 year professional career, and the first time enrolled in an online program. Because students were not place-bound, they could enroll in the program from any location nationally or internationally. This meant that the needs of our approximately 100 enrolled students were diverse. Some of the teachers, for example, worked exclusively with underrepresented students while others were in a high-achieving school district. Some worked with ESL learners in the U.S. or abroad. Some worked in districts that had limited to no access to technology. All, however, wanted to serve their specific student populations better and wanted to learn how to do so by completing the master's program. In addition, close to 40 % were interested in continuing to a PhD program at some time in their lives.

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The survey asked students what topics they would like to see in the program. Most emphasized the importance of exposure to writing in other disciplines in addition to the more traditional course topics such as writing pedagogy/composition theory courses, rhetorical theory courses, and social media writing courses, with no student discouraging such course offerings.

Table 1. Student Recommendations for Course Offerings

Course Topic	Strongly Recommend %	Recommend %	Neutral %	Discourage %
Rhetorical Theory Course	47	32	21	0
Writing Pedagogy/Composition Courses	65	32	3	0
Social Media Courses	38	36	26	0
Writing in Different Disciplines	39	47	14	0

Based on information from follow-up interviews (n=15), students wanted to use what they learned in their courses and apply it to their work situations, and they wanted to see a bridge between theory and practice. In addition, they wanted to be able to present at conferences in their school districts, locally, or on a national level. Student goals in the RWDMS program where similar to the goals outlined by Miller, Brueggemann, Blue, and Shepherd's (1997) survey, especially highlighting professionalization and preparation for the job market or job advancement (p. 394).

Table 2. Student Program Expectations

Area of Interest	Examples of Student Feedback
Theory to practice	Theory and research is what I need, and how it connects to pedagogical considerations as related to reading, writing, The courses that I like best focus on how theory leads to practice. I want to work on the practice part, but need the theory to get me there.

Career advancement	Courses related to my line of work, teaching English in public high school, and how to move ahead in my job, are my main motivation for the master's program. I don't know much about how to teach college writing and that's what I want to do. A course on writing pedagogy for college students would be great.
Academic preparation	The writing I would most appreciate are ones that I can potentially present at a graduate conference or submit for publication in a journal. I'd like guidance about how and where to publish academic work I completed for the program.
Writing for different purposes	I want to learn more about different online writing formats and how to communicate with an online audience. I am especially interested in writing assignments that add to my skill level. For example, I know how to write a student essay, but not how to write a proposal for a grant I need to write to get laptops for my high school students.
Project-based learning	I'd like to see application courses. I really enjoy digging deeper into theory and looking at where it exists in our world, but I want to see opportunities to apply these theories and put them to use immediately. It would be nice to take courses that help me practice how to put together a unit for my middle school students. A specific course designed to help teachers with project ideas that prepare high school students with important writing skills for college or career would be nice.

When faculty initially discussed the survey and interview results, they were pleased to see that many of the current students seemed satisfied with what faculty members offered. If they

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focused on the overwhelming positive feedback they received, especially in terms of faculty commitment to student success and dedication to creating a positive online environment, they could ignore some of the problems that students pointed out to them. For example, faculty learned that their courses were "uneven" with some faculty requiring few readings and few responses, and others focusing on more reading than students could critically analyze and discuss. Faculty overemphasized some course topics and barely addressed others, including interdisciplinary writing in middle and high school settings. The assignments they asked their students to complete did not build on each other, and students, even though they took a capstone course, were unsure what the expectations were for their final work in the program. Many did not understand what it meant to apply theory to practice, and they muddled through their final work without applying the information and skills they acquired throughout the program.

Before the survey and interviews were conducted, faculty understood their roles in terms of providing excellent course content to their students. They kept current in their fields, updated their courses when necessary, and received good individual student comments. From conference presentations and readings in the field, faculty knew that what they taught was also taught in other rhetoric programs. Similar to the programs discussed in Peirce and Enos's (2006) article on graduate curricula in rhetoric and composition, the rhetoric program focused on composition theory and history of rhetoric, with argumentation, basic writing, and literacy studies included in the mix. However, up until this point, faculty didn't engage with each other on course design although they would exchange information on what they did. The information from the survey and interviews were the beginning part of moving from individual efforts to a more sustainable open knowledge exchange. At first, faculty resisted sharing course-specific details with our colleagues. They thought that they could implement the necessary changes – new learning

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outcomes that faculty members could all agree on – without going deeply into individual course design. Faculty had the technical knowledge that allowed us to conduct the surveys and do research on other programs, but they hadn't yet come to an understanding of shared responsibilities and shared knowledge. Even though they wanted to agree that "knowledge is *nonrivalrous"* (Suber, 2012, p. 46), they also wanted to protect their right to their own subject specializations, their course design, and their grading. Since the department does not encourage or promote classroom visits, faculty were largely unaware of each others' course design, operating on the principle of "Lehrfreiheit," which, introduced in the 19th century from Germany, refers to "the right of the university professor to freedom of inquiry and to freedom of teaching, the right to study and to report on his findings in an atmosphere of consent" (Rudolph, 1962, p. 412). This freedom, to the rhetoric faculty, was part of their professional persona, and giving up this freedom by sharing course design with their colleagues was—and still is—difficult to consent to.

Since the surveys and follow-up interviews showed that students were interested in course topics and assignments that would directly apply to their work situations, faculty realized that keeping a close watch on individual courses would not allow us to make the needed changes to the curriculum. Once they accepted that individual strengths could be improved through collaboration, they started to work as a "knowledge community," moving from providing information and data to working together on interpreting and using the data to arrive at a more integrative program. This approach was closely aligned to Drucker's (2017) argument that "only when a [person] applies the information to doing something does it become knowledge" (p. 269). This led to a reconsideration of Suber's explanation of why knowledge should be openly accessible, even though it can be hard to let go of individual course designs. As Suber (2012)

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pointed out, "we can share it without dividing it and consume it without diminishing it. My possession and use of some knowledge doesn't exclude your possession and use of the same knowledge" (p. 46). Faculty finally put into practice the theoretical principles of knowledge communities that they often discussed in their interactions with each other and that they addressed in some of their courses but that they never fully applied to their own group interactions. Similar to Lave and Wenger's (1991) communities of practice, faculty started to accept that they could arrive at common goals and common knowledge that exceeded and improved individual knowledge. With this, they learned to renegotiate individual goals in order to participate as members of a community engaged in creating shared goals for the program.

Discussion: Curriculum Discussions and Implementation as Shared Knowledge

To create a supportive environment where knowledge could be openly shared and discussed, faculty established an organizational structure that was influenced by Rifkin's (2014a) discussion of management strategies for knowledge commons. They understood the need for clearly defined boundaries (p. 162) and established a focus on the graduate curriculum in rhetoric, with students and faculty from the rhetoric group discussing the specifics of the changes, and assessment specialists providing valuable feedback on how to create a sustainable and learner-centered curriculum. Faculty worked towards common knowledge in a supportive and non-judgmental environment, and also followed Rifkin's (2014, March 15) argument that members of the group had equal input on what learning outcomes would be included in each course, what assignments in a specific course would provide the stepping stone for future coursework, what seminal readings should be included in the curriculum, and what courses needed pre-requisites. They agreed that courses, once they taught them, could be modified as long as the newly established learning outcomes were met, and as long as the changes didn't

undermine the curriculum goals that faculty established. In their discussions, they also agreed that specific reading requirements beyond initially agreed-upon seminal works in the field would be determined by the specific faculty members teaching the course. This provided academic freedom within a structure that took into account both student need for specific topics and faculty need for creating a syllabus that supported their strengths while also including agreed-upon course assignments and learning outcomes.

Because faculty established boundaries and rules, the often long-drawn-out process associated with serious curriculum revisions became a shared activity for students, assessment specialists, and rhetoric faculty. They used the information they collected from their students and from colleagues in the field, and they worked with assessment specialists who were an integral part in the revision process. With support from other faculty members in the rhetoric program, each individual faculty was able to take learning outcomes from their courses as a starting point for renegotiating and revising the overall program learning outcomes. During the process, they learned that none of the courses they previously taught focused on classroom to workplace writing, and none of the course requirements included exposure to applications projects – both areas of interest for their students. Instead of a simple "Can you do it?", they included workplace writing and project-based learning throughout the curriculum, making sure that students would receive introductory guidance and practice that could be applied in later coursework to successfully complete their capstone project—a course that faculty designed to use concepts of open learning to engage students in 21st century knowledge communities.

Stakeholders' combined knowledge, and faculty's willingness to share this knowledge within defined boundaries, allowed them to move towards a curriculum that benefitted from individual strengths in connection with a strong common goal for student success. Instead of

taking a medley of individual courses, faculty now guide students through the program by providing them with introductory courses that will get them ready for special topics courses. Program learning outcomes are organized by topics, including theory and knowledge, analysis and critical thinking, and application. Once students have taken the required courses, faculty know that all learning outcomes are addressed through course readings, course activities, and writing assignments. They no longer need to wonder what their colleagues are teaching, and faculty can advise students with confidence when they ask about how a specific course will fit their program and their career goals.

CONCLUDING AND CONTINUING

The work on the Rhetoric, Writing, and Digital Media Studies graduate curriculum was recognized by outside authorities—the Department of English, the College of Arts and Letters, and the Office of Curriculum, Learning Design, and Academic Assessment—which was an important point for legitimizing faculty's community efforts. It is in line with Rifkin's (2014) insistence on recognition of knowledge communities, arguing that work conducted within a knowledge group can only be carried on and sustained if it is seen as valuable by members outside the knowledge community (p. 162). Wenger (1998b) also argued that "organizations can support communities of practice by recognizing the work of sustaining them; by giving members the time to participate in activities; and by creating an environment in which the value they bring is acknowledged." Certainly, the work of the rhetoric faculty is not done. Similar to Yancey's (2009) outlook on what comes next in the curriculum discussions at her school, faculty in the rhetoric program also ask: "Do we review program components annually and make incremental changes? Do we stage a retreat when the entire program is reviewed and changes are suggested? Do we do both? In each case, what data do we need? Who will be involved, and why?" (p. 11).

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Their attempts at revising the graduate curriculum by creating a collaborative and open knowledge community among rhetoric faculty members have encouraged them to start discussions of the undergraduate curriculum, using similar strategies to plan and carry out curriculum changes.

Even though rhetoric faculty know that their open knowledge community is limited by space and time, and is focused on exchanges of research information and curriculum design, they can create an openly accessible knowledge base that promotes student learning and success and also encourages continuous interactions about teaching strategies and about research interests. Because they were able to define knowledge as "nonrivalrous" (Suber, 2012), it helped them increase faculty collaboration on curriculum design. Thus, faculty no longer discuss "my" and "your" course, but they focus on "our" curriculum and "our" learning outcomes while honoring faculty input and choices, and they continuously discuss how they can improve student experiences in the rhetoric program. Similar to the findings explored by Berry (2017) on instructor practices for building community in online doctoral programs, faculty have learned that they need to welcome students, provide supportive feedback, create a positive learning experience, and engage their students in the learning experience. To accomplish this, faculty need to continue showing the importance of functioning communities of practice that encourages students to become knowledge workers in an ever-expanding knowledge society. In addition, future research will need to look at cross-case analysis in collaboration with other similar institutions to show the impact of communities of practice on similar programs across the nation.

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