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Teachers as World-Makers in the Digital Age

Abstract

Despite enormous gains in educational technology and access to information, today's students still struggle with digital literacy. In fact, some argue that today's students are so distracted by digital media that their literacy skills are falling behind previous generations. In order to combat this phenomenon, researchers have singled out certain critical literacy skills for today's students that, when taught effectively, will help those students develop into competent and productive adults: collaboration, composition, attention, evaluation, and responsibility. This study highlights and analyzes this important literacy research in order to help teachers better equip their twenty-first century students. Christian teachers especially should be willing to investigate the critical skills identified, decide on a unified approach to integrate them into their curriculum, and highlight them with students so that graduates of Christian education are equipped with the necessary knowledge and skills to use digital media to advance God's Kingdom.

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Teachers as World-Makers in the Digital Age

by

Abby De Groot

B.A. Dordt College, 2005

Thesis
Submitted in Partial Fulfillment
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Degree of Master of Education

Department of Education
Dordt College
Sioux Center, Iowa
May, 2015

Teachers as World-Makers in the Digital Age

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Abstract

Despite enormous gains in educational technology and access to information, today's students still struggle with digital literacy. In fact, some argue that today's students are so distracted by digital media that their literacy skills are falling behind previous generations. In order to combat this phenomenon, researchers have singled out certain critical literacy skills for today's students that, when taught effectively, will help those students develop into competent and productive adults: collaboration, composition, attention, evaluation, and responsibility. This study highlights and analyzes this important literacy research in order to help teachers better equip their twenty-first century students. Christian teachers especially should be willing to investigate the critical skills identified, decide on a unified approach to integrate them into their curriculum, and highlight them with students so that graduates of Christian education are equipped with the necessary knowledge and skills to use digital media to advance God's Kingdom.

Introduction

Teenagers in the United States today live in a rapidly changing and overwhelming digital world. They have not known a time without Google searches, smartphone directions, text messages, hashtags, streamed music, and social media of all kinds. Technology that was unthinkable a generation ago is at their constant command—according to Paul Otellini (2012), CEO of Intel, the smartphones in their pockets have more computing power than all of NASA did when it put a man on the moon in 1969.

And teens are definitely using that computing power—but not to land on the moon. Take, for example, the number of texts the average 14-17 year-old teen sends daily. According to a 2012 Pew Internet and American Life Project study, the number rose from a median of 60 texts per day in 2009 to 100 texts per day in 2011 (Lenhart, 2012). The 2011 number translates to over six texts per hour. In fact, 63% of teens said they exchange text messages every day with people in their lives, a communication medium that far surpasses other forms of communication among teens (Lenhard, 2012).

Not all teens have smartphones, of course, but they are becoming more common every year. Another Pew Internet and American Life Project study, *Teens and Technology 2013,* reported that 78% of all teens own a cell phone, and almost half of those (47%) are smartphones (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). So 37% of all teens own smartphones, up from 23% in 2011 (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). Even without smartphones, teens are still very likely to use the internet. Fully 95% of those aged 12-17 use the internet, according to a third Pew study titled *Teens, Social Media, and Privacy* (Madden, Lenhart, Cortesi, Gasser, Duggan, Smith, & Beaton, 2013). Ninety-three percent of those teens have access to a computer at home (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013).

Ideally, teens would be using their unprecedented access to technology and information in order to better themselves and the world. And while that does happen, technology's ever-present lure also presents myriad ways for them to be distracted. Social media is an obvious culprit. Eight in ten online teens use some kind of social media, with Facebook (94% of online teens) and Twitter (26% of online teens) having the largest number of accounts (Madden, Lenhart, Cortesi, Gasser, Duggan, Smith, & Beaton, 2013). Seventy-three percent of social media users age 14-17 visit these social networking sites daily, and another 17% visit weekly (Madden, Lenhart, Cortesi, Gasser, Duggan, Smith, & Beaton, 2013).

The distractions come with the advances—there is no real way to separate them. The question that plagues educators is how to leverage the educational benefits of technology without losing students to the white noise of the internet that so often draws them in. One critic thinks we are losing that battle, badly. In 2009, Mark Bauerlein wrote a scathing critique of technology's influence on young adults, aptly titled *The Dumbest Generation: How the Digital Age Stupefies Young Americans and Jeopardizes Our Future (or, Don't Trust Anyone Under 30).* According to the introduction, the purpose of the book "was to counter the sanguine portraits of informed and agile teens at the keyboard with dismaying survey results and illustrations of youth insulation and ignorance, kids shunning books and vaunting their digital nativity" (p. vii). And he painted an ugly picture.

Bauerlein's (2009) main argument was that technology insulates youth from the wisdom of adults and of the larger world. He said that "the more kids contact one another, the less they heed the tutelage of adults." (p. *ix*).   In this age of constant text messages, Facebook alerts and Twitter statuses, today's teens are enveloped by their mutual youth identity, which drowns out the voices of parents, teachers, books, poetry, and civics. They care about the here and now, not

long-ago words and battles.

Concisely, Bauerlein's (2009) book said that the distractions are displacing the benefits of the digital age by a landslide. Despite the infinite opportunities available to them, he argued that today's young Americans are "no more learned or skillful than their predecessors, no more knowledgeable, fluent, up-to-date, or inquisitive, except in the materials of youth culture" (p. 9). While some optimists argue that students are still just as literate as past generations, only in a different medium, Bauerlein (2009) said, "This is not a benign evolution of old media into new media, traditional literacy into e-literacy. It is a displacement" (p. xii). Bauerlein (2009) held out no hope for this generation.

But teachers are not trained to think that way. They are trained to ask, "What can I do about it?" And there are answers. One of the prevailing theories is to back away from technology. There are teachers who believe that classrooms should be run mostly as they have been traditionally, perhaps replacing some old technologies with digital ones but not significantly changing the curriculum or instructional approach. In literacy, this translates to focusing mostly on traditional forms of literacy to teach critical thinking and literacy skills. These educators, while rightly concerned about the digital tools' effects on student learning, are failing to see ahead to the ramifications of that decision. Students will still engage with technology outside of class, and they will further disconnect it from "learning." Ignoring digital skills in classrooms sends the message that technology has nothing to do with education, resulting in students who continue to use it only for its distracting qualities. Instead, educators can choose to engage with it, and Christian educators particularly can help students develop digital literacy skills that will help them use technology responsibly to learn about God's world and make a difference in it.

This transformation is what Christian educators are called to do. James Davison Hunter (2010) reminded Christians that they, like God, are "world-makers" (p. 3). After God created the heavens and earth out of nothing, an act which culminated in the creation of human life, Genesis 2:15 says, "Then the Lord God took the man and put him into the Garden of Eden to cultivate and keep it." Hunter (2010) revealed that the key Hebrew verbs at the end of that sentence convey God's intention for humans' role concerning the world. The first, *abad*, can be translated as "work, nurture, sustain, and husband" (p. 3). The second, *shamar*, means to "safeguard, preserve, care for, and protect" (p. 3). These verbs convey God's intention that humans both **develop** and **cherish** the world that He entrusted to us, meeting our own needs and glorifying Him in the process.

How does this look outside of Eden? Hunter suggested that people fulfill their creational mandate or "individual and collective destiny" (p. 3) through a myriad of world-making activities that span all areas of life, far beyond the actual working of the land:

> In the art, music, literature, commerce, law and scholarship they cultivate, the relationships they build, and in the institutions they develop--the families, churches, associations, and communities they live in and sustain--as they reflect the good of God and his designs for flourishing. (p. 4)

Hunter's explanation mirrors the famous quote by Abraham Kuyper (1880) that has become such a foundation for Reformed Christian thought: "There is not a square inch in the domain of our human existence over which Christ, who is sovereign over all, does not cry, 'Mine!'" Every aspect of human life, every "square inch," belongs to God and is an opportunity for his disciples to point institutions, situations, policies, and people toward Christ. That, said Hunter (2010), is a Christian's purpose, his or her Creational Mandate: "To be Christian is to be obliged to engage

the world, pursuing God's restorative purposes over all of life, individual and corporate, public and private" (p. 4).

Engaging the world, of course, is not an easy task, especially when technology is involved. Digital media can be scary on many levels: it can invite predators, it can offer enticing temptations, it can marginalize human relationships, and it can distract from true learning. But worried parents and teachers must see that the21st-century world is going to require children and students to engage with it. The more Christian teachers embrace their roles as world-makers concerning technology and digital media, the more likely those entrusted to their care and guidance will learn to see it as a tool that they too can use to move God's creation more toward Shalom.

Statement of the Problem

Students are in danger of being distracted by and sucked into a digital world that can displace their intellectual skills, dumb-down their literacy, and isolate them from quality relationships. However, Christian educators have a unique opportunity to counteract some of those ill effects if they understand the situation and how they can help. This paper focuses on examining which critical literacy skills our students need, how well they are developing those skills, and how Christian educators can help students encourage and refine those skills for a lifetime of Kingdom service.

Research Questions

1.	What kinds of critical literacy skills do students need to function as effective disciples, students, citizens and workers in the 21st century?

2.	In a digital age when students have more access to knowledge than ever before, are they actually developing these critical literacy skills?

        a.   What impact has students' use of digital media had on their reading, writing and critical thinking?

        b.   To what extent have digital technologies infiltrated school environments? To what extent are teachers identifying and teaching critical literacy skills?

        c.   What are some of the challenges teachers and students face when developing critical literacy skills?

3.   What kinds of principles should guide Christian teachers as they develop curriculum and instruction for learners in a digital landscape?

Terms

- Literacy: fluency in a set of communication practices, including reading and writing, that is shared among members of a particular group (National Council of Teachers of English, 2013).

- Critical Literacy Skills: a wide range of skills and literacies, reflecting the complex and technology-rich age we live in, necessary for people to be successful in college, workplace, and civic settings today.

- Digital Media: content (audio, video, visual, text) that can be transmitted over the internet or computer networks.

Literature Review

What Kind of Skills Do Students Need?

The first step forward is identifying critical literacy skills. In the school setting, literacy skills and practices have traditionally found a home base in English classrooms. The leadership of the National Council of Teachers of English (NCTE) in this area, therefore, is a natural fit. Their "Definition of 21st Century Literacies" (2013) is a good starting point in the identification of key skills. The position statement begins by noting that literacy changes along with society and technology: "Because technology has increased the intensity and complexity of literate environments, the 21st century demands that a literate person possess a wide range of abilities and competencies, many literacies" (p. 1). These literacies are an essential part of people's lives, are shaped by their particular circumstances, and are powerfully connected to their futures. NCTE has identified that in order to meaningfully participate in this contemporary society, people must be able to do the following:

- develop proficiency and fluency with the tools of technology;

- build intentional cross-cultural connections and relationships with others so to pose and solve problems collaboratively and strengthen independent thought;

- design and share information for global communities to meet a variety of purposes;

- manage, analyze, and synthesize multiple streams of simultaneous information;

- create, critique, analyze, and evaluate multimedia texts; and

- attend to the ethical responsibilities required by these complex environments. (NCTE, 2013, p. 1)

This list is valuable because it articulates critical literacy skills that also appear frequently

in other research, though that research is often organized and worded differently.   In order to point out consistencies with other studies and create clarity in the discussion, key summarizing words can be assigned to each of the above skills: **fluency**, **collaboration**, **composition**, **attention**, **evaluation**, and **responsibility**. These skills are the foundation upon which literacy in the digital age rests.

Other studies and position papers confirm and expand on these foundational skills, each adding its own unique perspective. One of those papers is entitled *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century* (Jenkins, Clinton, Purushotmas, Robinson, & Weigel, 2009), commissioned by the MacArthur Foundation as part of an initiative to "help determine how digital technologies are changing the way young people learn, play, socialize, and participate in civic life" (p. 1). Jenkins et al. (2009) focused on the idea of culture as participatory, meaning that it easily lends itself to expression and engagement, encourages creation and sharing, and contains structures through which novices can informally learn from experts (p. 3). Examples of each of these participatory activities easily come to mind: a teenage girl meticulously decides what to put on her Facebook profile and engages constantly with her "friends"; a young reader writes an alternative ending to her favorite novel and posts it on a fan fiction site; and a young man turns to YouTube to guide him through the process of installing mud tires on his truck.

Participatory culture is inescapable, especially for today's teenagers, and they need key skills to navigate it. Jenkins et al. (2009) pointed out that while some argue that adolescents can glean these skills on their own through interaction with culture, concerns about participation gaps, transparency issues, and ethics challenges necessitate policy and pedagogical interventions (p. 3). They asserted the following:

> Educators must work together to ensure that every American young person has access to the skills and experiences needed to become a full participant, can articulate their understanding of how media shapes perceptions, and has been socialized into the emerging ethical standards that should shape their practices as media makers and participants in online communities. (p. 3-4)

Educators, according to Jenkins et al., need to shift their focus from making sure that every student has access to a device to making sure that every student has access to opportunities to develop the competencies and skills needed for full involvement in participatory culture.

These skills should not displace traditional literacies but rather include and expand on them. And while students need to learn how to navigate technology, they should also understand how media works and influences an audience. Jenkins et al. (2009) came up with a comprehensive list, then, of "Core Media Literacy Skills" (p. 22) that encourage student success in participatory culture: play, performance, simulation, appropriation, multitasking, distributed cognition, collective intelligence, judgment, transmedia navigation, networking, and negotiation (p. 4). There is not room to elaborate on each of these here, but many overlap with the skills from NCTE identified earlier: judgment, for example, is defined as "the ability to evaluate the reliability and credibility of different information" (p. 4), an explanation which mirrors NCTE's **evaluation** skill. Similarly, transmedia navigation is synonymous with **attention**, and appropriation is identical to **composition.**

Are Students Developing These Skills?

After defining critical literacy skills, the next step is identifying whether or not students are developing them appropriately. A useful study for this purpose is entitled "Experiments in Digital Literacy" (Eshet-Alkali & Amichai-Hamburger, 2004). The authors, who had previously

described a conceptual model of digital literacy skills, investigated the application of that

conceptual model among different groups of participants. As expected, there were significant

differences in scores among the 11th grade high school students, third year college students, and

30-40 year-old college-educated adults who were tested (Eshet-Alkali & Amichai-Hamburger,

2004, p. 421).

The groups were tested in five different categories. As the authors point out, "Digital

literacy is more than just the technical ability to operate digital devises properly; it comprises a

variety of cognitive skills that are utilized in executing tasks in digital environments…" (p. 421).

The authors used a holistic conceptual model to identify and cover most of the cognitive skills

one uses in digital environments. The five categories included photo-visual literacy skill, which

helps users to "read" instructions from visual or graphic displays (p. 422); reproduction literacy

skill, which enables users to create "new, meaningful materials out of pre-existing ones" (p.

421); branching literacy skill, which is used to "construct knowledge from non-linear,

hypertextual navigation" (p. 421); information literacy skill, which allows users to evaluate the

"quality and validity of information" (p. 421); and socio-emotional literacy skill, which consists

of understanding the "rules" of cyberspace and applying them in online communication (p. 423).

These five categories match up seamlessly with the NCTE skills of **fluency**, **composition**,

attention, **evaluation**, and **responsibility**.

The younger participants clearly outscored the adults in the photo-visual and branching

literacy tasks (**fluency** & **attention**), which reflects their familiarity with digital environments

and their "extensive exposure…to the Internet and other hypermedia environments" (p. 426).

However, the authors warned that "the notion that the younger generation is more digitally

literate than the older ages should be examined with care" (p. 426). This is because their scores

on the reproduction and information literacy skills were significantly lower than the adults'.

While young people could easily navigate cyberspace and have good technical skills, they lacked

the cognitive ability to creatively produce text (**composition**) or reliably evaluate information

(**evaluation**). In their discussion section, the authors of the study urged educators of young

people to "put a stronger emphasis on developing cognitive rather than technical digital skills"

and give priority to "programs that develop critical thinking and promote information literacy"

(p. 426). No obvious trend was evident in the scores of the socio-emotional literacy skill, which

indicated that further study is needed to understand this relatively "new" digital skill.

Five years later, Eshet-Alkalai & Chajut (2009) followed up on this study with the same

participants from the original study, exploring changes through time in their digital literacy. The

results were telling: all ages improved in photo-visual and branching literacy skills (**fluency &**

attention), with the greatest strides being made by the adults. Their "proficiency and technical

control in using technology" improved over time at a greater rate than the younger participants'

(p. 713). However, for skills that require "creative and critical thinking" (p. 713), such as

information and reproduction skills (**composition** & **evaluation**), all participants saw a drop,

especially the younger ones. The authors summarized these results in two patterns of change

over time: "(a) closing the gap between younger and older participants in the tasks that

emphasize proficiency and technical control and (b) widening the gap between younger and

older participants in tasks that emphasize creativity and critical thinking" (713).

In addition to comparing the scores of the original group of participants to their previous

scores, this study also ran a new control group consisting of the same aged participants as in the

original study (i.e. high school, college, and adults). When comparing the age groups tested in

2002 to identical age groups tested in 2007, the authors similarly noted increased skills in the

photo-visual and branching tasks but decreased skills in the reproduction and information skills (**composition** & **evaluation**), especially for the high school and college students:

Table 1

Comparison of the Control Group (2007) with Same Age Group in 2002

	High school		*College*		*Adults*	
Digital literacy skill	*2002*	*2007*	*2002*	*2007*	*2002*	*2007*
Photo-visual	88	95	84	93	60	82
Reproduction	49	46	65	66	73	77
Branching	85	92	80	89	57	82
Information	58	45	70	55	86	83

Note: Values represent the average grades given by three referees. Adapted from "Changes in Digital Literacy" by Y. Eshet-Alkalai & E. Chajut, *CyberPsychology, 12* (6), p. 715. Copyright 2009 by Mary Ann Liebert, Inc. Adapted with permission.

Based on the data in Table 1, Eshet-Alkali and Chajut (2009) observed that educators can be encouraged that experience and training can lead to improvement in users' performance with technologies; however, "for the more critical and creative skills (i.e., reproduction and information), experience and exposure to information seem to have a negative effect on the users' performance" (715).

These two studies in particular (Eshet-Alkali & Amichai-Hamburger, 2004, & Eshet-Alkalai & Chajut, 2009) give educators valuable information on whether high school students are actually developing critical digital literacy skills: for the most part, they are not. One can assume that while students are well-trained in technical aspects of digital media navigation (**fluency** & **attention**), they need more practice understanding how those environments influence them

(**evaluation**), and how they can effectively influence others positively (**collaboration**,

composition, & **responsibility**).

Media and critical literacy skills inside classrooms. In order to further investigate how

digital skills are or are not being taught in the classroom, how effective that teaching is, and how

digital technologies are affecting students' literacy skills, one can turn to both surveys and test

scores. A logical place to begin gathering information on literacy instruction is from the teachers

who deliver this instruction and assess their students' reading and writing skills. This is exactly

what the Pew Research Center set out to do through a series of three studies in 2012-2013. The

first, *How Teens Do Research in the Digital World* (Purcell, Rainie, Heaps, Buchanan, Friedrich,

Jacklin, Chen, & Zickuhr, 2012), examined if and how digital technologies are affecting

students' research skills and whether or not they are changing how research is taught. The second

report, *How Teachers are Using Technology at Home and in their Classrooms* (Purcell, Heaps,

Buchanan, & Friedrich, 2013), looked at teachers' personal use of and attitudes toward different

digital technologies and the ways they are using those technologies in the classroom and in their

own professional development. The final report, *The Impact of Digital Tools on Student Writing*

and How Writing is Taught in Schools (Purcell, Buchanan, & Friedrich, 2013), investigated the

specific impacts of digital technologies on student writing skills and habits and whether those

technologies are changing how writing is taught.

The data in these reports was collected through online surveys and in-person focus

groups conducted in the spring of 2012. The sample was made up of 2,462 middle and high

school teachers who were unique in an important way: they were all either currently teaching

Advanced Placement (AP) courses or had participated in the National Writing Project's Summer

Institute (NWP). As such, they had resources available to them in the form of specialized

training and support systems that are not common to the majority of teachers across the

U.S. Also, since 56% of teachers participating in the survey were currently teaching AP, honors,

and/or accelerated courses, the population of middle and high school students they worked with

"skews heavily toward the highest achievers" (Purcell, Heaps, Buchanan & Friedrich, 2013, p.

8). One can assume, therefore, that this group represented "leading edge teachers" who work

with college-bound students (Purcell, Heaps, Buchanan & Friedrich, 2013, p. 8). While this

sample cannot be considered representative of all high school and middle school teachers and

students nationwide, the studies are still useful in showing how high-achieving students and their

teachers are approaching digital skills, giving educators a benchmark to work from.

These educators were conflicted when thinking about the impact of digital media on their

students' reading, writing, and critical thinking. While 75% of teachers surveyed said that the

internet and digital search tools have had a "mostly positive" impact on their students' research

habits (Purcell, Rainie, Heaps, Buchanan, Friedrich, Jacklin, Chen, & Zickuhr, 2012, p. 2) and

78% said that digital technologies "encourage student creativity and personal expression"

(Purcell, Buchanan, & Friedrich, 2013, p. 2), they also expressed doubt about whether the

benefits are worth the costs. Eighty-seven percent of teachers surveyed said digital technologies

are creating an "easily distracted generation with short attention spans," and 64% said today's

digital technologies "do more to distract students than to help them academically" (Purcell,

Rainie, Heaps, Buchanan, Friedrich, Jacklin, Chen, & Zickuhr, 2012, p. 2). Clearly, there are

some concerning indications.

Specifically, the teachers in these studies confirmed the findings of Eshet-Alkali &

Amichai-Hamburger (2004) that adolescent students lack skills in the areas of **composition** and

evaluation. The study asked teachers to rate their students' skills in "synthesizing

content/information from multiple sources in to a cohesive piece of work," and 44% categorized

their students as "fair" or "poor," the lowest two out of five categories. In addition, 49% rated

their students' "ability to construct a strong argument" in the same low categories (Purcell,

Buchanan, & Friedrich, 2013, p. 4). Even more teachers showed concern for their students'

evaluative skills: 64% gave "fair" or "poor" ratings to students' "ability to assess the quality and

accuracy of information they find online" (Purcell, Rainie, Heaps, Buchanan, Friedrich, Jacklin,

Chen, & Zickuhr, 2012, p. 6).

Furthermore, while there was no real evidence in these studies on which to base students'

fluency skills, the other critical literacies identified earlier in this paper (**collaboration**,

attention, and **responsibility**) are also underdeveloped in students, according to the teachers

surveyed. For example, in the area of **collaboration**, 50% of teachers agreed that students are

"fair" or "poor" at "giving constructive feedback on other students' work" (Purcell, Buchanan, &

Friedrich, 2013, p. 2). In the area of **attention**, 43% of teachers surveyed rated their students

"poor" in their "patience and determination in looking for information that is hard to find"

(Purcell, Rainie, Heaps, Buchanan, Friedrich, Jacklin, Chen, & Zickuhr, 2012, p. 6).

Additionally, 69% said students are "poor" or "fair" at "reading and digesting long or

complicated texts" (Purcell, Buchanan, & Friedrich, 2013, p. 4). Finally, in the area of

responsibility, 67% of teachers said students are "fair" or "poor" at "navigating issues of fair use

and copyright in composition," and 57% said students are "fair" or "poor" at "appropriately

citing and/or referencing content" (Purcell, Buchanan, & Friedrich, 2013, p.4).

These results clearly indicate the need for intervention and change. These survey

answers reflected the beliefs of well-trained teachers who taught upper-level students; however,

many rated their students' key literacy skills below average.

Before implementing changes, though, educators need to understand more of the picture. These same studies can be used to understand how much digital technology has infiltrated school environments and to what extent teachers are identifying and teaching critical literacy skills. When asked what they have students do online, these teachers gave the following responses: 95% have students do research or search for information online; 79% have students access or download assignments from an online site; 76% have students submit assignments online; 40% have students develop, share or post their work on a website, wiki, or blog; 39% have students participate in online discussions; 36% have students edit or revise their own work using collaborative web-based tools (such as Google Docs); 29% have students edit others' work or give others feedback using collaborative web-based tools; and 22% have students post their own work online where people other than their classmates or teachers can see it (Purcell, Heaps, Buchanan, & Friedrich, 2013, p. 37). Additionally, 78% have students create a multimedia or mixed media piece incorporating video/audio/images at some point in the class (Purcell, Rainie, Heaps, Buchanan, Friedrich, Jacklin, Chen, & Zickuhr, 2012, p. 42).

So even though teachers did not necessarily rate their students' critical literacy skills highly, they did (according to their self-reporting) seem to be requiring assignments and activities that would give students an opportunity to foster those skills, at least some of the time. These requirements alone, however, did not ensure that students were being taught the critical literacy skills needed to complete them well. In the same studies, teachers were asked how they developed students' skills only in the areas of **evaluation** and **responsibility**, and the answers were vague: 80% said they spend class time discussing how to assess the reliability of online information (Purcell, Rainie, Heaps, Buchanan, Friedrich, Jacklin, Chen, & Zickuhr, 2012, p. 6-7); 88% said they spend time discussing with students the concepts of citation and plagiarism;

and 75% said they spend time discussing the concepts of copyright and fair use (Purcell,

Buchanan, & Friedrich, 2013, p. 5). Of course, the time spent in these discussions probably

varied widely from one teacher and school to another, as did the content and quality of those

discussions. Clearly, however, improvements can be made across all situations.

   Challenges to teaching critical literacies inside schools. A final way to understand the

development of critical literacy skills is to examine some of the challenges students and teachers

face in developing these important skills. First of all, teachers in the Pew studies agreed with a

growing body of research (Sana, Weston, & Cepeda, 2013), identifying the distracting properties

of technology in the classroom: 71% said managing student use of cell phones and other digital

tools in class is an issue (Purcell, Heaps, Buchanan, & Friedrich, 2013, p. 40). Another major

issue is a lack of resources on the part of both students and teachers: only 50% of teachers in

low-income areas said their school does a "good job" of providing teachers the resources and

support they need to incorporate digital tools in the classroom, and 56% of those teachers agreed

that a lack of resources among students is a "major challenge" (Purcell, Heaps, Buchanan, &

Friedrich, 2013, p. 4). Those numbers improved among teachers in the highest income areas, but

were still troublesome: only 70% agreed that teachers have enough resources; while 21% said

their students do not (Purcell, Heaps, Buchanan, & Friedrich, 2013, p. 4). A final issue may be

lack of critical literacy skills and time to learn those skills among the teachers who are supposed

to be instilling them in students. In an era of high-stakes testing and increasing teacher

accountability, 75% of teachers surveyed said these tools have added new demand to their lives

by increasing the range of content and skills about which they must be knowledgeable, and 41%

said this "major impact" is requiring more work on their part to be an effective teacher (Purcell,

Heaps, Buchanan, & Friedrich, 2013, p. 2). In addition to the demands, some teachers are simply

not as able to utilize critical literacies, especially those who are older: only 44% of teachers age

55 and older said they are confident in using digital technologies (Purcell, Heaps, Buchanan, &

Friedrich, 2013, p. 5). In conclusion, the distracting qualities of digital technology, combined

with the limitations of resources or policies and limitations of teachers themselves, can easily

create situations where teaching and learning these skills is a daunting task. Even when students

are given specific tasks to teach digital literacy skills, the learning is not often sticking with

them.

What are Some Guiding Principles for Educators?

So how would a Christian teacher move forward in this difficult and complex task of

teaching digital literacy? One idea to streamline students' exposure to these skills has been to

include specific courses or units focusing on digital literacy. This idea has merit; in fact, 47% of

teachers surveyed in the Pew studies "strongly agree," and 44% "somewhat agree" that courses

or content focusing on digital literacy must be incorporated into every school's curriculum

(Purcell, Rainie, Heaps, Buchanan, Friedrich, Jacklin, Chen, & Zickuhr, 2012, p. 7). Classes and

units should be centered on the previously identified critical skills of **fluency**, **collaboration**,

composition, **attention**, **evaluation**, and **responsibility**, tackling topics such as copyright issues,

the nature and lasting effects of social media, the identification of quality sources, and the

mechanics of websites and search engines.

One excellent resource in developing a curriculum of this nature is the website Common

Sense Media (commonsensemedia.org).   In addition to the helpful tools to guide families as they

pursue healthy digital lives for their children, this site also provides a number of resources

devoted to helping educators teach students how to use media and technology wisely

(commonsensemedia.org/educators). There are videos, modules, and even an entire Digital

Citizenship Curriculum, complete with scope, sequence, and printable lessons for grades K-12.

Some lessons from the high school curriculum include "Copyrights and Wrongs: Students

explore the legal and ethical dimensions of respecting creative work" and "Collective

Intelligence: Students consider both the benefits and drawbacks of using collective intelligence

in different contexts" (commonsensemedia.org/educators/scope-and-sequence). While educators

can and should develop their own lessons, the Common Sense curriculum can provide a great

starting point.

Classes and units like these should be discussed with a cautionary note, however. While

they can most definitely be useful as ways for schools to "catch students up" and expose them to

critical skills, those skill sets should not remain long in the vacuum of an isolated class or unit.

Students need to see how practices like these can permeate every area of study and educated life.

Additionally, students will not be motivated to learn or use these skills if they cannot see their

value beyond school walls. Motivation, a major factor in learning, cannot be achieved through

piecemeal instruction in critical literacies. Jacobs (2013) did an excellent job of helping teachers

rethink their end-goals concerning this type of instruction: "I stress that literacy, whether text-

based, multimodal, print and ink, or digital, is ultimately just a tool. Attempting to motivate

youths to engage in literacy practices simply for the sake of developing literacy skills or

proficiencies has the potential to frustrate everyone involved" (p. 273). Just as with other

content in their area of instruction, teachers need to fit critical literacies into their curriculum in

meaningful ways for authentic purposes.

A bad way to do this is start to with the technology. Often teachers will start with a

strategy (blogging) or piece of software (iMovie) and design lessons from there, figuring the

involvement of technology will foster skills and interest students. However, Jacobs (2013) made

a compelling argument that despite common assumptions among researchers and educators,

technology itself is not intrinsically motivating for students. Instead, she suggested, the

motivating part of technology for students may be membership in the participatory culture it

promotes. This circles back to the findings of Jenkins et al. (2009), whose definitions of critical

literacy skills revolved around students' interactions with participatory culture.

The challenging but essential piece of the puzzle, then, becomes connecting the content

of classrooms to this participatory culture in ways that motivate students to develop critical

literacies through work on projects that they really care about, authentically mirroring how

people study, learn, and effect change in the "real world." Learning like this is hard to

orchestrate, but well worth the effort. In its *Policy Research Brief on the State of Adolescent*

Literacy (2007), NCTE pointed out that students regularly use literacies "for social and political

purposes as they create meanings and participate in shaping their immediate environments" (p.

3). Rather than ignoring or diminishing these literacies, NCTE encouraged teachers to build

"bridges between everyday literacy practices and classroom communities, including online, non-

book-based communities" (p.3).

This integrated approach to teaching critical literacy skills should especially appeal to

Christian educators because it reflects the biblical principle that "knowledge, in all its diversity,

is unified" (Graham, 2003, p. 193). In his book *Teaching Redemptively*, Graham (2003) pointed

out that both the Trinity and the creation account support this principle. God the Father, the Son,

and the Spirit are one, yet each has "individual functions in the overall scheme of things," and

"one cannot be understood and related to apart from a relationship to the whole" (p. 193).

Additionally, God divided creation into separate phases and classified it into categories, yet "we

later read that all these things were created through Christ and are held together in Him" (p. 193).

If Christian educators want their curriculum to reflect the diversity and unity of creation, they need to teach the specific and unique skills of critical literacy embedded inside broader units, problems, and courses.

One strategy for designing a unified curriculum like this has been described by Wiggins & McTighe (2005) as "backward design." They advocate a shift in thinking on the part of educators, urging them to begin planning curriculum by thinking extensively about the learning outcomes they desire; this is a departure from teachers' usual habits of beginning with the activities or content of a lesson. They say, "Our lessons, units, and courses should be logically inferred from the results sought, not derived from the methods, books, and activities with which we are most comfortable" (p. 14). Rather than aiming for only engaging hands-on activities or coverage of a content area, teachers should instead think primarily about their purpose and frame activities around that. The "twin sins" of traditional design—activity-oriented lessons without a real purpose and blind coverage without an understanding of overarching ideas or issues—lead to confused students:

> In neither case can students see and answer such questions as these: What's the point? What's the big idea here? What does this help us understand or be able to do? To what does this relate? Why should we learn this? Hence, the students try to engage and follow as best they can, hoping that meaning will emerge. (Wiggins & McTighe, 2005, p. 16)

Instead of this blind hope, teachers can take steps to ensure student understanding. The three-stage approach of "backward design," as described by Wiggins & McTighe (2005), includes the following: (1) identify desired results, (2) determine acceptable evidence, and (3) plan learning experiences and instruction (p. 18). The first stage requires that teachers make choices based on standards, curriculum expectations, and priorities. The second stage asks them

to think about how students will show they have achieved the carefully-chosen goals from the first stage. What evidence will they accept? Only then, with "clearly identified results and appropriate evidence of understanding in mind" (Wiggins & McTighe, 2005, p. 18), can teachers move on to the third stage of planning the most appropriate activities for their students.

This "backwards design" approach can be used as a blueprint for teachers seeking to integrate critical literacy skills into their curriculum in a meaningful way. By starting with the goals instead of a certain piece of technology, teachers have a much better chance of truly developing **fluency**, **collaboration**, **composition**, **attention**, **evaluation**, & **responsibility** in their students.

Case Studies

This kind of authentic learning can take on many forms and may look different in each classroom, but highlighting specific lessons designed for this purpose can be helpful for those teachers seeking to achieve the same goals. Some great examples can be found from teachers in a small, rural Christian school who are striving to develop critical literacies in their students.

Western Christian High School, located in Hull, Iowa, currently serves a student population of 256 ninth through twelfth graders from a variety of small Northwest Iowa towns. The mission of the school is to "provide God-centered secondary education to young men and women using the Bible and its principles as the foundation for the total curriculum." That curriculum includes critical literacies, and as the school shifts toward a complete 1:1 student-to-device ratio, a focus on these literacies has become even more important. While there are definitely some teachers who take a piecemeal approach to teaching these important skills, neglect to teach them at all, or teach only for **fluency,** there are also teachers in the building who work hard to create authentic learning experiences that include difficult digital skills.

One of those skills is **composition**. While math class might not seem like an obvious fit for this literacy, one of Western's math teachers does not see it that way. The Algebra and Geometry teacher uses weekly an interactive software program called Geogebra (https://www.geogebra.org/), which gives students and teachers a chance to experience abstract concepts visually and technologically. Students are able to create models and interact with new and old math concepts, as well as share their creations/work/designs with each other via Google Docs and other user-friendly platforms. He says, "Many of the explorations we do using Geogebra help us draw important conjectures (by doing) and share them orally and/or visually."

A more traditional but no less authentic version of **composition** can be found in a senior English class called College Composition. For the students' last assignment of the semester, the teacher asks her students to each write a devotional that includes a short fiction story, a reflection, and an application for their classmates. This assignment asks students to pull together some of the individual writing skills they have worked on over the semester, and it has an authentic audience: she digitally distributes the entire collection to each of her students as a way for them to learn from and remember each other.

A second important skill teachers are tackling is **evaluation**. The first example comes from a science class called Environmental Science. This science course serves as a third-year science requirement option for students who do not see themselves in Chemistry. The overall concept for their year is sustainable living, and they study several systems that play into that concept, including our water system. During that unit, the teacher chose to show the documentary *DamNation*, which chronicles a shift in our national attitude toward dams: rather than heralding them as man-made wonders conquering nature, people are becoming aware of the damage dams can cause to both rivers and wildlife. As part of their study of the film, students

had to evaluate any bias they saw in the film or in the people the filmmakers interviewed. The

teacher affirmed that the discussion really impacted many of her students, some of whom saw no

problems with human interference with rivers before watching the film.

A second **evaluation** example comes from another senior English class. As her class

prepared to start a lengthy research project, this teacher wanted her students to be able to reliably

distinguish a quality source from an unreliable one, even when they think the unreliable one

might seem like truth. To that end, she gave the students links to two online articles, one

proclaiming that Noah's Ark had actually been discovered in the 50's and that authorities were

keeping it hidden, and another that systematically examined the evidence from the first article

and rendered it obsolete. Students were asked in a follow-up discussion to identify markers for

reliability and unreliability, including the author's credentials, the host address of the URL, the

format of the web page, the writing style, and the author's purpose.

A third critical literacy skill students are developing at Western is **collaboration**. A

wonderful example of this skill in action comes from the Spanish 3 teacher. As part of his quest

to expose students to real-life Spanish-speaking situations, as well as Latin culture, he set up a

buddy system with an English class in Spain. Their students were all paired up and asked to

communicate (in the other culture's native tongue) throughout the semester via social media,

email, and Skype. The conversations remained private between the students, but our Spanish

teacher asked his students to regularly reflect on their experiences and conversations with their

"buddies," providing evidence of their learning.

A final example of **collaboration** comes from another science classroom, this time

Biology. The class used the Basic Local Alignment Search Tool (BLAST) from the National

Center for Biotechnology Information (NCBI), a collaboration of reliable work by scientists

around the globe (http://blast.ncbi.nlm.nih.gov/Blast.cgi). The students entered sequences of

DNA to search for specific functional proteins in humans and other organisms. The sophomores

used the database at a basic level to understand DNA, but they are also exposed to a real-life

version of scientific collaboration that researchers use when working with animal models,

amplifying certain genes, and sharing information.

As these examples illustrate, these critical literacy activities can come in many forms, and

they will look different for each teacher. The key feature they share will be a shift in teacher

thinking about technology: new literacies are not only about fluency with certain programs or

devices. Rather, they are a set of practices people use to make meaning in a world of ever-

increasing noise.

A final resource worth mentioning is a place teachers can go if they want more examples

of how this can look in a real classroom. In their book *Lesson Plans for Developing Digital*

Literacies, Christel & Sullivan (2010) have compiled example lessons that illustrate and flesh out

how these practices can influence pedagogy.   The lessons utilize specific technology tools that

may change over time, but the editors caution readers to view this collection of lessons not as a

"how-to guide" but instead as "a series of artifacts illustrating how teachers on the forefront of

the Web 2.0 evolution have begun integrating the digital culture into their classrooms" (p. xxiii).

The book is a good place for teachers to glean ideas and begin dreaming about how to enact

meaningful changes in their own classrooms.

Discussion

Summary

The adolescent students in our middle schools and high schools today are inseparable from their mobile and personal technology. There are real dangers to this trend, but there are also myriad opportunities for educators to capitalize on if they understand the critical digital skills and attitudes students need to develop in order to succeed as both citizens and disciples.

In order to help teachers capitalize on those opportunities, this study sought to identify answers to several research questions:

1.   What kinds of critical literacy skills do students need to function as effective disciples, students, citizens and workers in the 21st century?

2.   In a digital age when students have more access to knowledge than ever before, are they actually developing these critical literacy skills?

    a.   What impact has students' use of digital media had on their reading, writing and critical thinking?

    b.   To what extent have digital technologies infiltrated school environments? To what extent are teachers identifying and teaching critical literacy skills?

    c.   What are some of the challenges teachers and students face when developing critical literacy skills?

3.   What kinds of principles should guide Christian teachers as they develop curriculum and instruction for learners in a digital landscape?

In response to question one, several critical literacy skills were identified from the literature: **fluency**, **collaboration**, **composition**, **attention**, **evaluation**, and **responsibility.**

These abilities and competencies developed by NCTE (2013) are mirrored in other studies and papers and are part of what the Jenkins et. al (2009) call our "participatory culture," a system that encourages collaboration, creation, sharing, and learning in digital environments. Educators, experts say, must work to ensure that all students have access to the skills and experiences they will need to become full participants, understand how this culture shapes their experiences, and navigate this environment ethically and responsibly.

This is a big job, and the answer to question two seemed to mostly be "no." While students are generally competent in **fluency** and can navigate digital environments easily, studies show that higher-order skills such as **composition** and **evaluation** are startlingly absent in both high school and college students. Teachers reported similar observations: while there was no real evidence in these studies to evaluate **fluency**, a majority of teachers surveyed identified gaps in students' skills of **collaboration, composition, attention, evaluation,** and **responsibility**. Teachers reported giving students some opportunities to develop these skills on assignments, but they are largely still not seeing enough positive effects. These teachers pointed to the distracting qualities of digital technology, combined with the limitations of resources or policies and limitations of teachers themselves, as barriers to their ability to teach these critical literacies meaningfully.

While these are certainly major challenges, there are also several promising answers to question three. First of all, there are many examples of teachers implementing effective lessons that target these skills, as the vignettes from Western Christian High School illustrate. Many teachers are also probably already developing these skills intuitively, but more intention and organization needs to happen in order for students to reap the most benefits. To move forward, schools may want to start by implementing specific units and courses designed to teach critical

literacy skills; however, as they progress, these systems should move toward integrating these skills into daily instruction across the curriculum. These skills should be the responsibility of every teacher who wants to see his or her students succeed in both the teacher's specific subject area and in education in general. Students should come to see these skills as part of the whole creation—literacies they need to understand the world and develop it for God's glory. One specific way teachers can enable students to make this connection is through the implementation of "backwards design" (Wiggins & McTighe, 2005), a process that begins with the understandings teachers want students to have and then works backwards toward designing effective activities to get students to that point.

Placing devices in students' hands and wireless networks on every campus may be a first step many schools are taking, but unless this step is grounded in effective student and teacher training and the larger context of critical literacies, doing so may only serve to distract students and increase their disengagement from academia. Teachers, therefore, play a crucial role in designing instruction and classroom settings that will develop critical literacy skills in their students. These skills are essential in equipping students for lifelong learning, both in formal school environments and, more importantly, as they serve in the Kingdom throughout their lives.

Implications

Bauerlein (2009) was wrong: there is hope for this generation to avoid his *Dumbest* label. That hope comes in the form of dedicated teachers who believe students can make meaningful contributions to the world around them and whose goals include providing opportunities for them to do so, teaching them critical literacy skills along the way. The first step in that process is to recognize and understand the skills students need to succeed in this environment, as illustrated by research. Teachers can then go on to analyze how well their students are

developing these critical skills and how they can restructure their curriculum and instruction to foster growth.

For Christian teachers, this work is essential to their calling of teaching redemptively. As Graham (2003) pointed out, "*Redeem* literally means to 'buy back' or 'to buy free'" (p.32). One can easily see the effects of sin in students' digital media habits. Because humans are fallen creatures, students *do* trend toward self-absorption, shallow thinking, and distraction in this area. But just as God is making Christian teachers new creations through His redemptive work, they can also become helpers in "buying back" this generation from the dark temptations and insidiously casual distractions of digital media and point them in the direction of using it to restore creation (Graham, 2003). This can happen specifically when teachers pay attention to the critical literacies their students need to develop and then design classroom instruction and activities that will lead to those outcomes ("backwards design").

Limitations

While this paper attempts to provide a reliable framework for teachers seeking to develop critical literacies in their students, there are some limitations to this work. First of all, the relatively new landscape of digital media and critical literacy skills means that the research and definitions are also relatively new. While there are definitely some consistent findings between studies, language and terminology is not very consistent because the field has not yet been normalized to the extent that other fields of educational research have been. Additionally, researchers have not been able to determine some of the long-term effects of an abundance or lack of these skills, simply because they have not been identified and studied for long enough.

Secondly, the framework outlined in this paper does not and cannot account for individual teacher strengths, weaknesses, and personalities. As mentioned earlier, one major

challenge of implementing critical literacy skills includes teacher unfamiliarity with or bias against technology. Some of our teachers are not well-trained themselves in these skills, so they are not going to be very effective in developing them in their students.

Finally, the resources students have available to them in different schools across the country are not equal, and this needs to be recognized. The examples from Western Christian High School, for example, are largely possible because the highlighted teachers have students who either have their own devices with them in classrooms or have unrestricted access to a computer lab on their floor. Not all situations are this ideal; some will require more creative work on the part of the teacher to accommodate the valuable activities that lead to understanding in the area of digital literacy.

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