Administrators' Perceptions of Using Social Media as a Tool for Learning

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Abstract

The purpose of this study was to investigate administrators' perceptions of using social media as a tool for learning. A review of literature revealed a disconnect between the technology students rely on outside of school versus what they use and have access to during school and leads to us to question if social media can be used as a tool for learning. The anytime, anywhere access to people, information, creation and collaboration is commonplace for these students. The challenge for principals is to lead programs that effectively educate today's youth in ways that engage them and cause significant learning.

A critical review of the previous research demonstrated that technology leadership focusing on social media use for learning has gained attention in the literature mostly at the college level; the K-12 administrator level has not been widely studied. A mixed method study of K-12 administrators from across the U.S. was conducted to include survey and interview research. Principals and assistant principals were identified and asked to complete a survey to determine their perceptions of using social media as a tool for learning. Six follow-up interviews were conducted to examine their perceptions more deeply. This study revealed that principals and assistant principals perceived social media as a viable tool for learning; however, they indicated a need for clear social media use policies/parameters and professional learning in how to effectively engage with social media for learning. This study yielded valuable information regarding administrators' perceptions of using social media as a tool for learning that can be used in future research, policy development and professional development.

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General Audience Abstract

The purpose of this study was to examine if principals perceived social media could be used as a learning tool in school. A review of literature revealed a disconnect between the technology students rely on outside of school versus what they use and have access to during school and leads to us to question if social media can be used as a tool for learning. The anytime, anywhere access to people, information, creation, and collaboration is commonplace for these students. The challenge for principals is to lead programs that effectively educate today's youth in ways that engage them and cause significant learning.

A critical review of the previous research demonstrated that technology leadership focusing on social media use for learning has been studied mostly at the college level but not as widely at the K-12 level. As a result, principals and assistant principals from public schools across the U.S. were identified and asked to complete a survey to examine their perceptions of social media use and six follow-up interviews were conducted to examine these perceptions more deeply. This study revealed that principals and assistant principals perceived social media as a viable tool for learning; however, they indicated a need for clear social media use policies/parameters and professional learning in how to effectively engage with social media for learning. This study yielded valuable information that can be used in future research, policy development, and professional development.

Dedication

This study is dedicated to my family who has been so inspirational and supportive—especially to my father, Edwin R. Rossini, and my mentor, Grant Wiggins, who would have been so proud.

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I would like to thank my dissertation committee especially my co-chairs, Dr. Walt Mallory and Dr. Bill Glenn. Dr. Mallory provided invaluable support throughout this PhD process. I appreciate his flexibility, gentle nudging and unending belief that this can be achieved. Dr. Glenn not only supported me throughout the dissertation process but he presides over a program that has many non-traditional students who work full time, care for families and go to school in the evenings. The flexibility he brings to the National Capital Region program has allowed many full time educators to progress through this doctoral program in a way that has kept relationships intact and balance in work, school and home.

I would like to thank Dr. Tara Blackshear who has been a constant support always checking in, sharing resources and being a thoughtful friend. And my mentors, Jay McTighe and Grant Wiggins, brought me under their wings early in my career and pushed my thinking about what is good for kids and learning beyond what I would have myself. Their belief in my skills as an educator and willingness to bring me into their inner circle changed the trajectory of my career in ways that I can't measure and am forever grateful. I hope that my continued belief of their work is seen as a gesture of gratitude and a lifelong commitment to their teachings.

Finally, my family has been particularly supportive over the many years that I have worked on this PhD. I am so thankful for the many hours my husband Mike raced home from work so I could go to class, the guidance he provided in the form of editing, searching and/or discussing my topic and the way he supported my time away from the family so I could pursue this goal. My children, Will and Kelly, are forever a source of inspiration and their continual support has helped guide me through this work. I am eternally grateful for each of them and the many others who have supported me that have not been mentioned.

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Chapter 1

Introduction

We live in a world dominated by connectivity, where smart technology has transcended the desktop and laptop and moved into mobile devices—from tablets and music players to phones and watches. This connected world puts people and information at our fingertips, diminishing the distance of miles and borders. As Wylie (2014) has put it, the "use of social media is changing the way we communicate with each other at a great pace" (p. 502). The technology has grown beyond basic searching and retrieval of information (Web 1.0) to a shared development and participatory platform (Web 2.0/3.0) (Faizi, El Afia, & Chiheb, 2013; Strickland, 2012). Major businesses like Facebook, Google, Pinterest, and Instagram are driving the connected and participatory nature of this new iteration of the Web (3.0), with social networking as the core strategy (Solis, 2013). From an educational standpoint, the focus of learning is moving beyond the traditional and formal approaches to a blend of formal and informal learning, requiring a shift from a content focus to a learner focus (Dede, 2007; Sinha, 2012; Wiggins & McTighe, 2011).

Today's learners have grown up in this connected world and many thrive in this participatory, social, and informal structure. Outside of school, there are few rules governing their participation, other than parental and/or financial limitations. This kind of informal social networking that today's learners are immersed in proves very engaging to them (Statista, 2015). They seek out the networks that interest them, choose at what level to participate, and have few parameters guiding their participation. School structures are often in contrast to this informal participatory culture; in schools, students are grouped homogeneously by age and follow a scripted structure of coursework designed and monitored by adult educators so that students have

little control of who, what, when, where, why, and how they learn (Chen & Bryer, 2012; Dede 2007; Vanwynsberghe & Verdegam, 2013). Given all the possibilities of social networking, Sinha (2012) suggests that learning must be reinvented into a fostered, not managed, process where diverse options and opportunities are commonplace. Furthermore, social media use is becoming expected practice in classrooms across the United States (U.S.), putting the onus on administrators to attend to this growing trend (Cox & McLeod, 2014; Sessums, 2011; Piotrowski, 2015). This study investigated administrative perceptions of using social media as a tool for learning.

Many different definitions of social media have emerged from the literature review. The following definition of social media is a synthesis from the literature and was used for this research. Social media is defined as *the use of web-based and mobile technologies allowing users to modify and share content changing the way documents are created, used, shared, and distributed.* Throughout the literature review there are times when social media is discussed as a broad category and other times when specific types are referenced. While there are many different social media types, each one includes the following functional features: communication, collaboration, community, creativity and convergence (Friedman & Friedman, 2013).

Background of the Study

The World Wide Web (Web) has evolved so rapidly over the last decade, especially with the recent explosion of social media use, that educators are struggling to keep educational policies and practices up to date as "the dramatically changed social and cultural environments do not seem to lead to similar changes in schools" (Mao, 2014, p. 213). Instructional technology has long been an area of focus for schools in terms of how it supports learning; however,

learning through socially formed connections via the Internet and mobile applications is less charted territory (Dron & Anderson, 2014). Harvard professor and technology futurist Chris Dede (2007) has long believed that the current educational system needs to be transformed "into a different model better suited to prepare students for the opportunities and challenges of an emerging global, knowledge-based civilization" (p. 5). While Dede suggests that educators need to use the power of technology to enable learning that is situated in authentic contexts to encourage both near and far transfer, other researchers question the validity of social technology use as a tool for learning (Faizi et al., 2013; Friesen & Lowe, 2012; Woodley & Meredith, 2012). Preparing students for an ever changing and often uncertain future requires forward thinking educators to determine how to embrace societal trends that will improve teaching and learning. In considering how to use the current trend of social technology as a learning tool there are some challenges for educators, which include the following listed below.

- There is little training, support and/or research regarding the appropriate pedagogical use of social media (Dron & Anderson, 2014; Minocha, 2009a).
- Teacher's roles are changing from an emphasis on direct instruction with a content focus to an emphasis on being facilitators of learning with a learner focus, requiring some educators to examine their current pedagogy (Bransford, Brown, & Cockling, 2000; Minocha, 2009a; Sinha, 2012). A blended learning approach, bringing online and traditional learning together is recommended as educators are determining ways to prepare students for a globally connected future within the traditional school structure (Dede, 2007; Horn & Staker, 2011).
- Social media encourages informal learning opportunities, yet 80 percent of school budgets are being spent on formal learning (Lai, Khaddage, & Knezeck, 2013).

- The approaches necessary for effective literacy development are expanding with the inclusion of digital literacy, requiring teachers to expand their current practice (Vanwynsberghe & Verdegam, 2013).
- Social technology has pushed researchers to examine new theories of learning, with connectivism emerging as a new theory for the digital age, challenging common notions of pedagogy (Downes, 2007; Duke, Harper, & Johnston, 2013; Siemens, 2004).

Responsibility for overcoming these challenges as they relate to social media use for learning falls to administrators, as the lead learners in their schools, and requires effective professional learning for principals as well as teachers (Afshari, Ghavifekr, Siraj, & Ab. Samad, 2012; Gordon, 2012; Lovecchio, 2013).

Statement of the Problem

K-12 educators are beginning to use social media as a tool for learning, but with little guidance from research-based literature (Chen & Bryer, 2012; Cox & McLeod, 2014; Piotrowski, 2015). Thus, there is a gap in knowledge related to how to use social media as a tool for learning in K-12 formal schooling. While administrators may support the use of social media in principle, without a clear understanding of the necessary skills and processes in the use of social media as a tool for learning, they may question the efficacy of its use in practice (Papaioannou & Charalambous, 2011). Social technology is extremely motivating to students, but its benefits in K-12 schooling, beyond the obvious one of engagement, are relatively unknown. Additionally, research has identified specific digital literacy skills that are necessary for teachers and students to effectively engage in social media use in a learning environment (Vanwynsberghe & Verdegem, 2013). These digital literacy skills need to be taught to and

owned by teachers in order for them to effectively teach students how to use social media for their learning. How administrators are specifically developing social media literacy for themselves, their staff, and their students has not yet been studied.

Using social media for learning is more sophisticated than integrating a static technology (e.g., PowerPoint, YouTube video) into instruction (Crook & Harrison, 2008). Just because teachers are comfortable integrating a more traditional technology doesn't mean that comfort will translate into the integration of social media for learning. Additionally, the integration of social media brings informal learning into a formal school environment and informal learning aligns to certain pedagogical beliefs of how children should learn (Lai et al., 2013).

This research will contribute to a better understanding of these gaps in knowledge by examining administrators' perceptions of using social media as a tool for learning. Specific areas of study are: administrators' perceptions in the use of social media for learning; administrators' perceptions of their support in the development of social media literacy for their students and teachers; administrators' perceptions of their support in the use of informal pedagogies within the formal school structure; and whether certain external conditions or factors enhance or impede the use of social media for learning.

Purpose of the Study

Little peer-reviewed literature exists regarding the specific support provided by administrators to ensure effective use of social media as a tool for learning (Piotrowski, 2015). This mixed method study used survey research and interviews to examine administrators' perceptions of social media use as a tool for learning. K-12 school-based administrators, (principals and vice/assistant principals), from across the U.S. were selected to take part in this research study. Participants from various sized schools/districts and from various settings (urban,

suburban, and rural) from across the U.S. were surveyed in order to increase the relevance of the findings. Six follow-up interviews were conducted to better understand the perspectives of a few administrators within their context.

Significance of the Study

This study will add to the literature in the following ways:

1. By examining the perceptions of administrators regarding social media as a tool for learning in K-12 schools across the U.S. Much of the current research is at the college level and focuses on small areas of study such as one department or one group of students.
2. By examining the perceived support administrators provide students and teachers in the development of social media literacy. Administrators may support the use of social media in theory but fall short in supporting the necessary development of digital literacy skills for their teachers or students.
3. By examining the perceived support administrators provide in the use of informal learning approaches as part of formal pedagogy. Social media encourages informal learning not bound by time or place, which can conflict with a formal school structure.
4. By identifying what conditions or factors affect the perceptions and support provided by administrators in the use of social media as a tool for learning.

Results from this research may aid K-12 administrators (superintendents, heads of school, and principals) as they determine how to support the use of social media for learning. Central office administrators such as technology and curriculum directors may be able to use this research to build policy, curricular programs, and professional development opportunities for the

use of social media as a tool for learning. Human resources administrators may use this research to determine necessary skill sets of potential staff and budget office personnel may use it to determine financial support for social media–related initiatives. University and college faculty may be able to use this research as they build and support pre-service programs and support schools through K-12/university partnerships.

Research Questions

The purpose of this research was to examine the following main question and three supporting questions: What are K-12 school administrators' perceptions of using social media as a tool for learning in schools across the United States?

1. How are school administrators supporting the development of social media literacy for their teachers and students?
2. How are school administrators supporting the use of more informal approaches to learning such as those used in social media?
3. What external conditions and factors affect administrators' perceptions and support in the use of social media as a tool for learning?

Overview of the Methodology

The methodology consisted of an online survey sent to a random sample of K-12 administrators from across the United States and follow-up interviews with six survey participants. This descriptive study investigated the perceptions of administrators regarding the use of social media as a tool for learning; the support administrators provide in the development of digital literacy skills; the support administrators provide in the use of informal learning practices; and if external factors affect an administrator's perceptions and support for the use of social media for learning.

Assumptions and Limitations

It is assumed that qualified K-12, school-based administrators completed this survey and that they truthfully and accurately answered the survey questions based on their experiences as administrators. Potential limitations of this study include the ability of the survey to accurately capture the necessary data and the bias of the researcher in favor of blended learning approaches in K-12 education.

Key Terms/Definitions

Throughout the literature, many terms are used to describe the social nature of Web 2.0 and 3.0 and the corresponding technologies. The most common terms used are social software, social technology, and social media. Studies conducted during the early stages of Web 2.0 tend to use "social software" and "social technology," while more recent studies tend to use "social media." While these terms can be defined separately, they have merged into common and interchangeable terms within K-12 education. For the purposes of this dissertation, the terms "social technology" and "social media" are used interchangeably. If a particular study highlighted in the literature review used one term exclusively, that term is used when that study is referenced. In addition to defining social media, it is important to distinguish between the various social media types (a summary can be found in Appendix A). Key terms and definitions used in this research include:

Blog, comments and forums—Online forums allow members to hold conversations by posting messages. Blog comments are similar except they are attached to blogs and usually the discussion centers around the topic of the blog post. Examples include: Blogger and Wordpress (Grahl, 2014).

Bookmarking sites—Services that allow you to save, organize, and manage links to various websites and resources around the Internet. Most allow you to "tag" your links to make them easy to search and share. Examples include: Pinterest, Delicious, and StumbleUpon (Grahl, 2014).

Collaborative Development—Web-based sites allowing collaborative editing of the content and the design of the site. Examples include Moodle and Wikis (Grahl, 2014).

Connectivism—George Siemens and Stephen Downes have identified connectivism as a new learning theory in the age of the Web. Downes (2007) defines connectivism as "the thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks" (para. 2), and Siemens (2004) states that

> learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or a database), is focused on connecting specialized information sets, and the connections that enable us to learn more are more important than our current state of thinking. (para. 22)

Siemens and Downes contend that connectivism moves beyond the individual learner to group learning, which deepens the group's individual thinking.

Formal Learning—Learning that occurs in an organized and structured environment (in an educational or training institution or on the job) and is explicitly designated as learning (in terms of objectives, time, or resources). Formal learning is intentional from the learners' point of view. It typically leads to validation and certification (Bjornavold, 2007, pp. 45–46).

Informal learning—Learning resulting from daily activities related to work, family, or leisure. It is not organized or structured in terms of objectives, time, or learning support.

Informal learning is in most cases unintentional from the learner's perspective (Bjornavold, 2007, pp. 45–46).

Media Sharing—Services that allow users to upload and share various media such as pictures and video. Most services have additional social features such as profiles or commenting. Examples include: YouTube, Flickr, Vine, Snapchat, and Vimeo (Grahl, 2014).

Microblogging—Services that focus on short updates that are pushed out to subscribers. An example includes Twitter (Grahl, 2014).

Social Media—Social media is defined as the use of web-based and mobile technologies allowing users to modify and share content changing the way documents are created, used, shared, and distributed. For a closer look at other definitions of social media that emerged from this research see Appendix B.

Social Networks—Services that allow you to connect with other people of similar interests and background. Usually they include the ability to set up a profile, interact with other users, set up groups, and share and comment on content. Examples include: Facebook, LinkedIn, Ning, Google+, and Instagram (Grahl, 2014).

Social News—Services that allow people to post various news items or links to outside articles and then allow their users to "vote" on the items. The voting is the core social aspect as the items that get the most votes are displayed the most prominently. The community decides which news items get seen by more people. Examples include: Digg, Reddit (Grahl, 2014).

Virtual Worlds—A computer-based simulated environment accessible via the web with players from all over the world playing simultaneously as teams and/or opponents. Examples include Second Life, and Planet H.S. (Grahl, 2014).

Chapter 2

Review of the Literature

Today's learners have grown up in a connected world in which access to friends, family, and information is instantly available via mobile devices through a simple tap, swipe, or voice command. Internet and mobile technology puts information into the hands of anyone with access, allowing users not just to consume and share information but also to contribute to information building. This shared access to and ownership of information is blurring the lines between technology novice and expert and between learning experiences that are informal and formal (Chen & Bryer, 2012; Vanwynsberghe & Verdegem, 2013; West, 2012). Additionally, the social nature of technology is contributing to a generation of learners who depend upon social supports for their learning in schools where many teachers lack the skills, experience or support in teaching with this technology. Technology, as a grounding force in contemporary education, should engage learners in meaningful, relevant and rigorous learning, serve as a data tool to inform decision-making and be treated as a critical skills area for the future of our learners (Lemke & Fadel, 2006). While technology is often used as a tool for learning, educators lack guidelines and/or assessments for what constitutes good pedagogical practice in the use of social software tools for teaching and learning (Brake, 2014; Minocha, 2009a).

This literature review will address the current research regarding educators blending the formal structure of K-12 education with the informal structure encouraged through social technologies. The organization of this literature review will include a brief history of the World Wide Web (Web) examining the different iterations of the Web and what that means for today's youth through an examination of social media outside of education. This will be followed by a closer look at research on social media use in education with a final examination of the informal

nature of social technology and what that means when applied within the structures of a formal education environment.

The Growth of the Web

The Internet has been around since the 1970s and since that time has continually changed life as we had always known it (Bull et al., 2008). The precise origins of "the Internet" are less clear. The U.S. Department of Defense Advanced Research Projects Agency (DARPA) claims they created it to allow for more interconnectivity between military organizations around the world (Brown & Slagter van Tryon, 2010). Some scholars believe that the original blueprint is from an MIT essay written in 1945 by Vannevar Bush and published in the *Atlantic* magazine (Naughton, 2010). Less than a decade after the start of the Internet, Tim Berners-Lee developed a set of rules called Hypertext Transfer Protocol (HTTP) governing how information was transferred between computers, establishing an easier way for computers to talk to each other. HTTP is considered the backbone of the Web ("History of the Web," 2015). From HTTP came Hypertext Markup Language, which is a particular way to format information, including graphics, video, and audio, that allows information and documents to link to other information and documents worldwide ("History of the Web," 2015). With a language for both sharing and formatting information over the Internet, the Web emerged as a way to access information via the Internet. The Internet is the physical infrastructure allowing individual computers and networks to connect to each other and the Web uses the Internet infrastructure to share information and documents. Other ways to communicate over the Internet include email, file transfer protocol (FTP) and instant messaging.

Regardless of its inception, the Internet and the Web are transforming all facets of society, including the education sector. Education has been slow to change with the times and,

until recently it operated as it did 50-plus years ago, when our education system was designed to teach students living a different lifestyle than today's contemporary student (Levin & Wadmany, 2006; Prensky, 2001a). Education in the U.S. was originally designed for an agricultural society with school schedules dictated by growing seasons and weather patterns. Society is changing at a very rapid pace and some of these changes trigger institutional and economic changes (Cuban, Kirkpatrick, & Peck, 2001). Looking at education as an institution, change is happening more rapidly than years past due to the influence of technology. Since its emergence, the Web has transformed from a static information-retrieval system to a more informal, social constructive environment. Before considering the future of the Web and its educational implications for this rapidly changing and easily accessible technology, it is important to examine the different iterations of the Web and its impact in an educational setting over time.

From Web 1.0 to Web 2.0. Web 1.0, developed and expanded throughout the 1990s, is often referred to as "the static Web" because it was a place where people went primarily to retrieve information. Beginning in the late 1980s, the Web was accessible first to businesses, moving to the consumer and then on to education. In this period, businesses spent the majority of their training resources learning about the technology, helping employees obtain technology skills, and providing client access through the development of the infrastructure (Pelgrum & Schipper, 1993).

In the early 1990s there were two big changes in education: a heavy investment in technology infrastructure and an emergence of mass public criticism over education policy and results (Brockmeier, Sermon, & Hope, 2005). In response to the public criticism over the status of education in the United States, a tremendous amount of money was dedicated to educational technology during this period. According to Edvancenet, "Between 1991 and 1997, $19.6 billion

was spent on educational technology in U.S. public schools," (Slowinski, 2003) and in 1998 alone, $7.2 billion was spent on educational technology (Halverson & Smith, 2009).

By the late 1990s, Web 2.0 emerged as a much more dynamic technology, allowing users to read and write on the Web and focus on technology for thinking and learning not just consuming information (Papaioannou & Charalambous, 2011). By early 2000, President Clinton's Educate America Act mandated that students know how to use Internet technology for the future of our country (Cuban et al., 2001). The Internet and previously static Web became more interactive with the inclusion of instant messaging and the emergence of social networking and mobile Internet use. This is fundamentally different from the original Web 1.0 in its design and purpose causing Web use in schools to explode and the online population of students and their time spent online to expand rapidly from 2004 to 2009 (Kessler, 2010).

According to the National Center for Education Statistics (2012), by 2008, 100% of U.S. public schools had computer and Internet access, with a student-to-computer ratio of 3:1. By 2009, in the U.S. there were 33 million people aged 13–19 spending about 25 hours per month on the Internet, and with 90% having home access (Liang, Commins, & Duffy, 2010). By 2010, with even more access to technology in the home and the increased access via mobile devices, children were using the Internet and immersed in digital media 6–7 hours/day (Naughton, 2010). In addition to the explosion of Internet access and Web use in schools and home, the ways users used the Web were changing faster than educators could create policies and purposes for instructional use of the Web.

Two of the driving forces behind the shift from a static Web 1.0 to a read/write Web 2.0 interface, as stated by Roberts and Foehr (2008), were that the growth in media available to people changed their access to content and that the emergence of portable digital media allowed

users to media multi-task. A third reason, according to Malinowski (2004), was people's desire for a more seamless environment breaking down traditional separation between work and leisure. As Web 2.0 continues to advance, it has become a much more social experience, allowing users more control over their online interactions, which has encouraged an even stronger online presence. In 2010 there were an estimated 25.21 billion pages on an estimated 110 million websites on the Web (Clark, 2010). By November 2012, there were 250 million websites and 32 billion web pages (Sheth & Thirunarayan, 2013). In addition to millions of websites and billions of web pages, in 2013 more than half of adults in the U.S. and Europe used social media, often on multiple devices, and over 97% of online users in metro China and India actively participated in online content creation and conversations (Cao, Ajjan, & Hong, 2013). Figure 1 clearly illustrates that the Internet usage is happening in all geographic regions of the world as of June 2014.

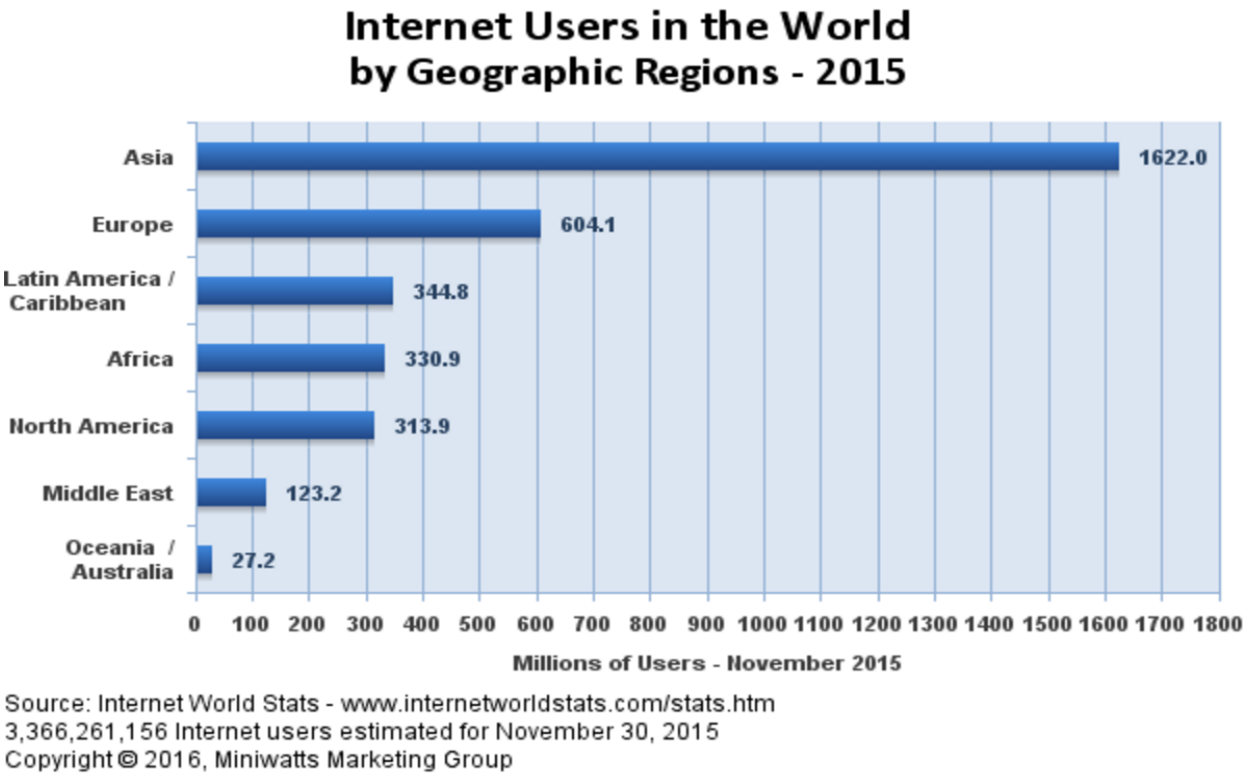


Figure 1. Internet users of the world.

Web 3.0. We are in the middle of another iteration of the Web—Web 3.0. Sheth and Thirunarayan (2013) describe Web 3.0 as "a repository of an ever growing variety of Web resources that include data and services associated with enterprises, social networks, sensors, cloud, as well as mobile and other devices that constitute the Internet of Things" (p. viii). Technologists predict that Web 3.0 will be built with the mobile experience at its core further lessening the divide between physical and virtual worlds (Solis, 2013). In fact, in 2009, Charles Wankel predicted that a Web 3.0 would emerge in which students will use social media to engage in project collaboration anytime anywhere on their mobile devices, regularly utilize smart interfaces (artificial intelligences) including automatic translations, and engage in massive group collaborations or class assignments with hundreds of other learners across the globe.

In an interview with Darrell West (2012), Alan Daly, at the University of California at San Diego, predicts that "educational innovation will shift from experts and capacity building to focus on networks . . . where education is moving away from large scale prescriptive approaches to more individual, tailored, differentiated approaches" (p. 1). Outside of education, using social networking as a business strategy shifts the focus on connecting not to individuals but to their networks and the networks from those networks (Solis, 2013). However, even with all the promise of Web 3.0 some researchers predict that technology in education will look the same in 2050 as it does today (Cuban et al., 2001).

Strickland (2012) succinctly captures the different iterations of the Web:

> Think of Web 1.0 as a library. You can use it as a source of information, but you can't contribute to or change the information in any way. Web 2.0 is more like a big group of friends and acquaintances. You can still use it to receive information, but you also contribute to the conversation and make it a richer experience. Web 3.0 will be more like

> a personal assistant. As you search the Web, the browser learns what you are interested in. The more you use the Web, the more your browser learns about you and the less specific you'll need to be with your questions. Eventually you might be able to ask your browser open questions like "where should I go for lunch?" Your browser would consult its records of what you like and dislike, take into account your current location and then suggest a list of restaurants. (p. 1)

The Emergence of Social Technology

The Web has emerged as a driving force in the lives of our students enabling a social and collaborative approach to Internet use. The development of content by any user outside of a professional setting is what separates social media from other forms of media (Kaplan & Haenlein, 2010). While social media is not designed for education, it certainly is very engaging to youth. Statistics from Nielson (2010) show that 22.7% of online time is spent with social networks and when Internet time is condensed into one hour, 13 minutes and 6 seconds of that hour are devoted solely to social network use. To put in another way, in 2010, 906 million hours were spent on social networking in the U.S., more than double the next highest category of Internet use, gaming at 407 million hours (Nielsen, 2010b). Facebook emerged in 2006 as the most popular social media site and remained as one of the only contenders for many years (Duggan, Ellison, Lampe, Lenhart, & Madden, 2015). As of December 2014, Facebook remains the most popular social media site followed by YouTube, Google Plus, Twitter, Yahoo Answers, LinkedIn, Instagram, Pinterest, Tumblr and Reddit, as determined by share of visits to those sites (Statista, 2015). Facebook's share of total visits was 56.6% followed next by YouTube at 20.58% and Google Plus at 3.85% (Statista, 2015).

Social technology has blurred the lines between education and business with marketers, promoters and sales teams more easily accessing students. Social media captures advertisers with the promise of "getting eyeballs in front of advertisers," which is never discussed in education (Friesen & Lowe, 2012, p. 184). Two of the highest profile social media types; "Facebook/Twitter are above all commercial in form and as practiced in substance . . . with their business model being inseparable from type of user experience that they provide" (Friesen & Lowe, 2012, p. 184). While the commercial use of social media challenges adults it does not cause student users any pause. Most student users of social media know that their user profiles, preferences, and choices while surfing the web are being tracked and sold. Given the nature of social media, with the user at the center in a social/collaborative environment, users don't mind that their data is being used and sold as long as it does not interfere with their work (Rey, 2012). As Rey (2012) notes,

> Internet users are willing, even eager, to participate in activities that profit companies, so long as nothing interferes with their ability to do whatever it is that they want to be doing. In short, social media provides evidence that people are rather tolerant of exploitation so long as whatever activity they are involved in is not particularly alienating. (p. 416)

Businesses have changed their approach in the digital age by making their overall strategy about meaningful and social experiences in order to attract more users, which increases their ad revenue (Nielsen, 2013; Solis, 2013). Should this be the same approach for education—learning experiences that are meaningful and social for today's learners?

Educators are constantly faced with trying to engage their students, which requires an ability to "adapt relevant learning theory in ways connected to contemporary learning practices" which presents a clear tension between traditional and contemporary learning theory

(Ravenscroft, 2009, p. 2). It is hard to argue that Web 2.0 gives faster high-level interactivity with groundbreaking implications for education than Web 1.0 did (Wankel, 2009). The participatory nature of social media is changing the world in ways not yet understood and educators are challenged to respond appropriately (Bull et al., 2008). We know that social technology greatly affects society, but education is often slow to change (Levin & Wadmany, 2006). Some wonder if social media can become an educational tool for learning if its main purpose and design is commercial in nature (Faizi et al., 2013; Friesen & Lowe, 2012; Woodley & Meredith, 2012). Part of being a leader requires educational administrators to examine current trends both in and outside of education to determine possible effects on the students in their schools. A typical way for administrators to examine a new trend is to research the benefits and challenges of the new trend in an educational setting so that, if the new trend is brought into the education sector administrators are prepared. This next section describes the benefits and challenges of social technology use in education appealing to educational administrators as they develop policies and pedagogies related to social technology use.

Benefits to Using Social Technology in Education

While there are many benefits to using social technology in education, there is actually little research on the impact of social media on students learning experiences (Chen & Bryer, 2012; Cox & McLeod, 2014; Piotrowski, 2015; Woodley & Meredith, 2012). The need for research into the use of social media in schools is heightened by the fact that school boards, boards of trustees and other governing bodies want to see a good return on such a high financial investment as educational technology (Cao et al., 2013). The next section summarizes the benefits and challenges found in the related literature, the benefits include increased

collaboration, academic engagement, enhancing skill development, and fostering a positive attitude.

Collaboration. The use of social technology fosters a sense of inclusion in an online community (Lusk, 2010; Wankel, 2009; Woodley & Meredith, 2012). This online community, which forms as a result of common interests, is a very social environment. The changes to Web technology allow the community to move beyond merely liking the same things to a more collaborative experience. Social technologies such as Pinterest and Wikipedia allow for shared development of ideas, products, and services. This social sharing not only promotes cooperation but allows users to learn from each other (Bordelon, 2011; Coklar, 2012; Gulbahar, 2005). Educational benefits from using social technology in a school setting include increased interactions between students and teachers, between students and students, and for group reflection and collaborative authoring in a global setting not bound by traditional building borders.

Academic engagement. Social technology is engaging for youth and a relevant avenue for expression, communication, and collaboration (Coklar, 2012; Hartshorne & Ajjan, 2009; Lederer, 2012 Minocha, 2009a; Papaioannou & Charalambous, 2011). Being able to instantaneously find information and often interact with others stimulates interest and is extremely entertaining for users. The increased interactivity of social networking provides students greater opportunities to apply and track their learning, which increases attainment and development of deeper understanding (Gulbahar, 2005; Hartshorne & Ajjan, 2009; Papaioannou & Charalambous, 2011; Woodley & Meredith, 2012).

Key skill development. Many different researchers have examined the skills that are enhanced through the use of social technologies. Improved communication skills as a result of

using social technologies is cited in many studies and was true even for early use of the Web (Burke, 2012; Gulbahar, 2005; Lederer, 2012; Teicher, 1999; Woodley & Meredith, 2012). In addition to improving communication skills, Papaioannou and Charalambous (2011) state that the use of social technologies improves tech skills, increases critical thinking, and increases efficiency. The social and collaborative nature of this technology increases reflective learning and users are naturally expanding their thinking based on interactions and reactions from other online uses (Hartshorne & Ajjan, 2009). While Minocha (2009a) explains that all of the skills that are enhanced through social web use prepare users for their future, Woodley and Meredith (2012) are less convinced of the benefits stating that social software use *might* enhance negotiation skills, the ability to synthesize information, and manage a digital identity.

Positive attitudes. Social technology can provide a naturally supportive environment in which users receive support from online communities (Lusk, 2010; Minocha, 2009a). Collaborating online in areas of interest have proven to increase students' self-confidence (Papaioannou & Charalambous, 2011) and foster a positive attitude (Hartshorne & Ajjan, 2009).

One example of social technology that exemplifies many of the benefits outlined above is video gaming. According to neurologist and educator Judy Willis (2013), video gaming motivates students even when 80% of the time students fail at their performance. Even though it is a fantasy world, students buy in to it because of how engaging this challenge is to them. The video game levels the challenge appropriate to each user to make it just more rigorous than the user's previous performance. The nature of an achievable challenge keeps users interested in the game. Additionally, the video game provides timely and corrective feedback in the form of audio and visual cues (bells, whistles), rewards (additional turns, earned points, extra materials) etc. It adjusts the challenge level according to the actual performance. These mini-rewards actually

cause the brain to respond with an endorphin release that feels good. An additional benefit is that gaming allows students to play collaboratively alongside and/or against friends in remote locations and this becomes an online place for students to meet and socialize.

Challenges to Using Social Technology in Education

Educators must consider challenges when engaging students with new technologies. Some of the key challenges of the past included unequal access to technology for students from varying socioeconomic backgrounds and teachers unwilling to change pedagogy to take on the new role of technology integrator (Dresang & Koh, 2009; Flanagan & Jacobson, 2003). Since Internet access has become more available to students, the challenges of social technology in education have moved beyond solely focusing on Internet access and, for the purposes of this research, have been organized into five categories: victimization, digital footprint, lack of quality control of information, undesirable behaviors and exploitation. These challenges are often enhanced because students openly and routinely share their names, photos, contact information and other personal information (Lusk, 2010). Principals are faced with these and many other new challenges as they lead schools with these emerging technologies. "The practice of principal leadership for technology integration is a key building block for the model of educational leadership and educational reform for the 21st century that our leaders and school systems strive for today" (Kozloski, 2006, p. 51). Sharples, Graber, Harrison, and Logan (2009) so aptly summarized the challenges schools face when opening access: "A central dilemma that schools must address in the consideration of e-safety and Web 2.0 activity is how they can support children to engage in productive and creative social learning while protecting them from undue harm" (p. 70).

Victimization. While increased student access to the Internet and social technology is considered a positive gain, it also increases the risk of victimization. Sexual solicitation is a grave fear of parents and educators. Blogs, Facebook, and chat rooms are environments where predators can hide their true identity and inappropriate relationships emerge (Dresang & Koh, 2009; Mitchell, 2010; Rainie, Keisler, Kang, & Madden, 2013). Cyberbullying has increasingly become a problem; it occurs more often than other issues of victimization and often surfaces in the local community news (Lederer, 2012; Lusk, 2010; Mitchell, 2010; Palka, 2011). Closely aligned with cyberbullying but not always with mal-intent or done through sheer naiveté is the undesirable circulation or sharing/forwarding of personal information (Lederer, 2012; Lusk, 2010; Park, Kim, & Cho, 2008). Additionally, businesses and others promoting their own agenda, mine for personal information crossing some privacy boundaries often solely for commercial exploitation (Teicher, 1999; Woodley & Meredith, 2012).

Digital footprint. The social nature of Web 2.0 allows users to generate new content, collaborate on existing content, share others' content, and evaluate content through comments and/or "liking." The instant uploading makes social technology so appealing. However, it also presents a challenge because once uploaded, things cannot be recanted (Brown & Slagter van Tryon, 2010). However, according to Brown and Slagter van Tryon (2010), the idea that content is forever posted somewhere is neither a worry nor problem for young Internet users. This naiveté, common amongst teenagers, makes social media use challenging as things done in formative teenage years can pose a problem later in life. Social media allows for easy forwarding and sharing of content but too often, what teenagers share is too personal (Lusk, 2010). The idea of a digital footprint or permanent map of actions online is one that does not cause angst for young Internet users but it does for mature adults.

Quality of information. The amount of information on the Web expands every day; to some it is seen as information overload (Coklar, 2012). While the Web is constantly improving as a place to access and interact with information this poses both benefits and challenges for educators. Open access to the Web includes access to inappropriate or undesirable information (Lusk, 2010; Minocha, 2009b; Social Networking in Schools, 2011. Additionally, collaboratively building and generating content allows anything to be posted by anyone anywhere. There are no "Internet" police that control the accuracy and/or appropriateness of the Web's content. Educators are wary of giving students access to negative information, and a lack of trust with source/content encourages the perception of inaccurate information (Coklar, 2012; Minocha, 2009a, 2009b).

Undesirable behaviors. There have been some behaviors that have emerged and are causing angst in society related to Internet use. For some users, the Internet becomes a distraction (Bordelon, 2011; Kelm, 2011; Lederer, 2012; Thompson, 2013) from normal everyday events, reducing face to face interactions; it encourages a skimming reading instead of students reading deeply (Bauerlein, 2007), and it often results in students frustrated with peer collaborations (Minocha, 2009a). For some, Internet use becomes an addiction called Problematic Internet Use (PIU). PIU defined by Beard and Wolf (2001) as use of the Internet that creates psychological, social, school, and/or work difficulties in a person's life. Wang et al. (2011) revealed that 99% of Problematic Internet Users (PIU) spend 8+ hours online/day. Furthermore, these researchers discovered that students with high parent/adolescent problems, stress and poor peer relations have a greater percentage chance of PIU.

Exploitation. As before mentioned, most social media platforms are designed for commercial not educational purposes. Friesen and Lowe (2012) contend that social media

platforms, designed for commercial purposes, do not allow enough interactive dialogues, which they consider a crucial component of learning. Facebook and other social media platforms, according to Friesen and Lowe, encourage conviviality ("liking") but discourage the educational discourse that is crucial to learning. They argue that social media is first and foremost commercial in form and practice and that commercial pressures limit the educational use of social media. The primary function of many of these companies is to put users in front of advertisers which can exploit the user (Friesen & Lowe, 2012). While social media is not designed for education nor have social media organizations promised suitability in education, their influences on online learning are numerous.

Evolving Internet access policies. Schools grapple with policies and procedures regarding open vs. restricted access to the Internet in order to enhance the learning benefits while reducing the challenges to using social technology in education. In researching social software in education, Minocha (2009a) found no case studies reporting coherent institutional policies about the usage of social software tools for either educators or students. Without clear research supporting the use of social technology as a learning tool, schools will be more restrictive on the use of social technologies. For example, students' use of the video sharing site YouTube to effectively support school work is a challenge because many schools restrict access to these kinds of open sites (Digital Media in the Classroom 2012). As Davis (2010) notes,

> Though teachers and students are now pushing learning beyond the classroom through social networking, the move comes with hurdles. Many schools block access to such sites within their walls. Schools officials must also confront the uncertainties and questions surrounding privacy issues, proper management, and cyber security when they open their doors to social-networking sites. (p. 15)

Influences of Social Technology on Education

Beyond specific benefits and challenges of using social technology in education, there are major influences on the education sector as a result of the explosion of social technology in the business sector. Some of the biggest influences on educational practices as a result of the Web 2.0 include a push toward a more constructivist approach to teaching and learning and a more intricate connection between traditional print and digital literacy (Minocha, 2009b). Our schools are filled with students and teachers who have very different experiences with technology, causing challenges in schools, especially those related to generational differences. The next section discusses three influences as a result of social technology use in education: (a) connectivism as a theory of learning in the digital age; (b) generational profiles of digital and non-digital users and the behaviors that follow; and (c) literacy development in a digital age.

Connectivism. Constructivism—the "active construction of new knowledge based on a learner's prior experience" (Koohang, Riley, & Smith, 2009, p. 92)—as a pedagogical approach to education has been around since the late 19th century, when John Dewey, Jean Piaget, Lev Vygotsky, and others showed that learners themselves construct knowledge as opposed to knowledge being constructed for them. These characteristics of constructivism make it an ideal pedagogical approach in today's world, given the socially interactive nature of today's technology where learners are the drivers of their online interactions. In 2012, the International Society for Technology Integration (ISTE), a worldwide organization at the forefront of technology in education, endorsed constructivism as a pedagogical approach to teaching and learning and revised their educational technology standards to reflect adoption of this learning theory (Morphew, 2012).

The presence of social media and Web 2.0 in education asks educators to craft different learning experiences that capitalize on the nature of social media and the "participatory features of openness, personalization, creativity and collaboration" (Ravenscroft, 2009, p. 4). This kind of learning aligns with a constructivist approach to teaching, which asks teachers to create conditions where students build their own understanding through carefully designed learning experiences (Ertmer, Ottenbriet-Leftwich, Sadik, Sendurur, & Sendurur, 2012; Friesen & Lowe, 2012; Gosmire & Grady, 2007; Halverson & Smith, 2009; Judson, 2006; Levin & Wadmany, 2006; Lofstrom & Nevgi, 2006; Minocha, 2009b; Overbay, Patterson, Vasu, & Grable, 2010).

However, social media is changing the landscape for learning especially outside of school settings (Yu, Yuen, & Park, 2012). Educators need to adjust their pedagogy in school to better connect students to the real world and the informal experiences they thrive on outside of school (Lai et al., 2013). In an examination of teachers technology integration, Koehler and Mishra (2009) developed a framework that explains the "complex interaction between among three bodies of knowledge: content, pedagogy and technology. The interaction of these bodies of knowledge, both theoretically and in practice, produces the types of flexible knowledge needed to successfully integrate technology into teaching" (p. 60). This framework, called TPACK (technology, pedagogy, and content knowledge) has advanced the construct of pedagogical content knowledge (PCK) by adding technology knowledge. PCK was based on Shulman's (1986) research into the intersection of pedagogy and content knowledge. Koehler and Mishra contend that many teachers in contemporary classrooms earned degrees when technology integration focused on static technologies (laserdiscs, cd-rom dictionaries, informational movies, etc.), which is vastly different from the technologies available today. The TPACK framework

helps educators better understand and manage the complexities of successful technology integration (Koehler & Mishra, 2009).

In response to the changing pedagogy of the digital age, George Siemens (2004) and Stephen Downes (2007) have developed a new learning theory called connectivism. While there is debate whether connectivism is a learning theory, an instructional theory, or a pedagogical approach (Duke et al., 2013), the important contribution from this research is the change of focus from the individual to the group. Siemens sees constructivism as individualist: knowledge, even constructed as a result of interactions with a group, still rests in the minds of individuals (Siemens, 2004). Connectivisim, on the other hand, is based on the theory that knowledge rests in the world, not in the mind of individuals (Downes, 2007; Siemens, 2004).

Through the lens of connectivism, educators can closely examine social media use in school. Downes (2007) describes connectivism as "the thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks" (para. 2). Siemens (2004) contends that learners gain new knowledge and perception and/or affirm their current knowledge through their personal networks: "Learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or a database), is focused on connecting specialized information sets, and the connections that enable us to learn more are more important than our current state of thinking" (para. 22).

Constructivism as a theory of learning puts the learner at the center of the learning experiences, requiring them to build and construct their own knowledge toward understanding. This kind of learning concentrates on individual processes for learning while collaborating through social media moves from an individual process to a group process (Faizi et al., 2013). Connectivism contends that learners better build knowledge and understanding when they learn

collaboratively through networks. Teachers with a more constructivist approach are better users of technology as a powerful learning tool (Judson, 2006). As teachers adopt a more constructivist approach to teaching/learning, students are more engaged and have more positive attitudes toward learning. The use of social media as a tool for learning is a natural melding of the theories and/or practices of constructivism and connectivism.

However, many teachers from the baby boomer era are still in our classrooms, and some have not chosen constructivism as a pedagogy, which reveals a disconnect between pedagogical practices and student learning needs. Consider that, in a 2011 survey, 15% of teachers felt remembering facts was important while only 5% of students agreed (Friesen & Lowe, 2012). Some researchers believe this discrepancy is the result of a digital divide between generations of users who have grown up with shared technology and those who have not.

Generational profiles. Today's students have not grown up in a print culture as many of their teachers have, but rather an online culture and these cultures use a different set of skills (Naughton, 2010). A teacher's ability to integrate technology into teaching and learning is influenced by comfort and experience. There are generational differences that some researchers use to explain technology use of both our students and teachers based on their age. In 2001, Marc Prensky identified two different profiles of technology users loosely based on age: digital natives, aged 19–30, and digital immigrants, aged 35–60 (Prensky, 2001a). Over time, two more profiles have been added, digital aliens, aged 45–70, and digital integrators, any age (Kaufman, 2011). See Table 1 for a summary of all four generational profiles. Please note: the age ranges represented in the table are based on the year 2011 when Kaufman published his research.

Table 1

Digital Positioning Matrix

	Digital Natives	Digital Immigrants	Digital Aliens	Digital Integrators
Demographics	10–29 years	30–60 years	45–70 years	Any age
Characteristics	Open, inventive, responsive, flexible, interactive	Searching for solutions, open to change	Resistant, fearful, bottom line oriented, overwhelmed by the technology	Innovative, integrating, experimenting, sharing, collaborative
Digital Approach	Think social; live digital	Think strategically	Think strategic, long term	Live digitally; integrate tools and strategy

Source: Kaufman (2011)

Digital natives are native speakers of the digital language of technology and they have embraced a learning style that is informal, networked, and collaborative (Liang et al., 2010; Prensky, 2001a; Thompson 2013). These digital natives have grown up immersed in the digital age and all the corresponding technology (Berk, 2010; Lamanauskas, 2012). They use collaborative technology informally, focusing on social networking, music, video, television, and games, and, according to Prensky (2001a) and Berk (2010), they can multitask. This media-multitasking has become easy and common because of media portability (Roberts & Foehr, 2008). While these digital natives don't have skills and experience in using a variety of technologies they are highly competent in the area of social networking (Kennedy, Judd, Churchward, & Gray, 2008).

According to Prensky, digital immigrants were born before the existence of digital technology and have adopted digital tools to some extent later in life (2001a). Digital immigrants speak a different, print-based language than the digital technology language of contemporary

youth, as they grew up differently and went to school to prepare for a different kind of world (Liang et al., 2010; Prensky, 2001a). Digital immigrants compartmentalize the technology into areas where it seems to make the most sense for them instead of seamlessly using it within their personal or professional practice.

Ira Kaufman (2011) adds two more profiles, digital aliens and digital integrators. He describes digital aliens as late adopters and laggards. They minimally interface with the digital world and are unaware of the digital opportunities. They stereotype social media as kids' play or social chatter and see it as a passing fad. They need to be convinced of the value of social media first before considering its use and they can be blockers of social media adoption. Digital integrators are early adopters of Web 2.0 and can be any age. They experiment, test, share and implement new social technologies. They seamlessly integrate technology use instead of keeping it compartmentalized or separate. They guide natives, immigrants, and aliens to develop a digital mindset. As Kaufman (2011) puts it, "They understand the value of digital technology and use it to seek out opportunities to make an impact. They live digital, innovate strategically and integrate technologies" (p. 3).

Considering that in the 2007–2008 school year 50.6% of teachers in the U.S. were over 40 years old (National Center of Education Statistics, 2012), falling into the digital immigrant or digital alien category, it is easy to see how there can be a disconnect between our students and our teachers. Does better understanding of generational differences help educators to embrace social technology where it can benefit learning and limit it where it impedes learning?

Not all researchers agree with these generational profiles as a vehicle for examining the pedagogy of teachers and/or the learning needs of students (Pelgrum, 1993; Ruleman, 2012; Thompson, 2013). In her research, Thompson (2013) investigated claims that digital natives as a

generation think and learn differently than other generations because they are immersed in technology throughout childhood and adolescence during high periods of neural plasticity, which actually changes their brains. Thompson explored technology use patterns, digital characteristics, and productive learning habits through a survey of 388 university freshman considered digital natives (representing 38% of the total freshman class). The data were examined through two lenses: (a) the technology use factors, and (b) an analysis of digital characteristics and productive learning habits. Principal component factor analysis was used to identify the technology use factors, and descriptive statistics were used for the digital characteristics and productive learning habits scales. Extreme group analysis was also used to examine participants who fell on the extremes ends of the scales.

The study revealed that digital natives actually use a narrow range of digital technologies. Of the eight categories of digital technologies explored in Thompson's study, only rapid communication technology (cell calls, texts, media sharing) and web resources were regularly used by students. This study debunks a common misconception that digital natives are literate in all technologies. In fact, this generation is very well versed in social networking technologies but not necessarily others such as multimedia creation, productivity tool use, and micro blogging. While this study contributes to our understanding of the technology use patterns of digital natives it was limited by a low response rate (13%), the potential for bias inherent in an Internet survey, and self-reporting of the data. A follow-up question to Thompson's research is, if students come to school well-versed in this technology can it be used to enhance learning?

Digital literacy. Another major implication of social technology use in education is how literacy is defined. As the Web continues to develop, researchers are expanding definitions of "literacy" beyond the ability to read and write. Sonia Livingstone (2004) defines media literacy

as “the ability to access, analyze, evaluate and create messages across a variety of contexts” (p. 18). Today’s students are changing how they seek, use, create, and share information as fast as technology is changing (Dresang & Koh, 2009; Kelm, 2011). Educators are having to prepare students for a different future, in which they will need to be literate in a multimodal digital world. Our students will be living and working in a globally connected society and they need to learn to navigate within this society in an ethical way (Lamanauskas, 2012; Pacino & Notfle, 2011; Vanwynsberghe & Verdegem, 2013). Print technology facilitates forms of concentrated and sustained attention and thought and Internet technology facilitates a more distributed and static form of thinking (Bull et al., 2008) which is expanding how educators look at literacy.

According to Vanwynsberghe and Verdegem (2013), in today’s globally connected world students need critical literacy skills beyond the traditional skills of reading and writing. They define critical literacy as “the analysis of media messages through a critical evaluation of the producer, the purpose, the used technology, the audience and representations of the message” (para. 9). They further refine this definition, specific to social media: “we define social media literacy as the practical, cognitive, and affective competencies needed to access, analyze, evaluate, and create social media content across a wide variety of contexts” (Vanwynsberghe & Verdegem, 2013, para. 11). These definitions of critical literacy and social media literacy help educators to identify the different learning needs of students as they use social media for learning. Vanwynsberghe and Verdegem (2013) identify four distinctive types of social media use:

> 1) to search for or to deal with information on social media, 2) to communicate with other people through social media, 3) to create content on social media, and 4) to deal with the consequences related to these three activities including the matter of the disclosure of

personal information and commodification. (Vanwynsberghe & Verdegem, 2013, para. 24)

The use of social media puts students in the role of both consumers and producers and Vanwynsberghe and Verdegem (2013) contend that each type of social media use has its own set of competencies that students need to develop in order to successfully use social media for learning. The consumer-producer roles and relationship have been studied in business literature for many years but with the changes abound from Web 3.0 research shows that the consumer-producer relationship is being blurred (Humphreys & Grayson, 2008). The changes from the advances in information technology are allowing customers to contribute to their experience and calling into question "previously clear distinctions between consumer and producers . . ." (Humphreys & Grayson, 2008, p. 963).

To examine this in an educational setting, consider the use of evidenced based practice (EBP) in nursing education. EBP has been a key responsibility is nursing education and puts nurses in one of two research roles; *consumers of nursing research* and *producers of nursing research* (Polit & Tatano Beck, 2009). These two roles fall on a continuum with *consumers of research* on one end and *producers of research* on the other end and, according to Polit and Tatano Beck (2009), all nurses are expected to maintain the consumer level of research involvement throughout their career. Polit and Tatano Beck (2009) expand the continuum by explaining that between the two endpoints on the consumer-producer continuum "lie a rich variety of research activities to which nurses may engage" (p. 6). Some of the activities that lie between consumer and producer include; participate in a book club to discuss and critique research articles, help develop and idea for a clinical study, review a proposed research plan and provide feedback, assist researchers to recruit study participants, provide information and advice

to clients, discuss implications and relevance of research findings, etc. (Polit & Tatano Beck, 2009). Vanwynsberghe and Verdegem (2013) state that students need to develop cognitive, practical and affective competencies for the different roles and kinds of social media use listed above. As Web 2.0 advances, students will need these skills and competencies to effectively use the various technologies to prepare for their future.

With little research on the impact of social media on education and some belief that the promise of educational technology in the 1990s didn't yield intended student achievement gains (Brockmeier & Gibson, 2009) there is little for educators to use as a guide. Gosmire and Grady (2007) suggest that these challenges are partially due to the fact that it is too hard to show a correlational relationship between technology integration and student achievement because of the complex nature of this relationship. Research shows that technology doesn't usurp teaching because successful technology integration doesn't happen without the teacher (Brockmeier & Gibson, 2009; Thompson, 2013) and because technology itself does not promote learning; it only works when technology is effectively integrated into learning (Summak, Samancioglu, & Baglibel, 2010). Teachers and administrators need support to effectively integrate social media into teaching and learning experiences and to help students develop this new digital literacy.

Learning from Social Technology Use in Education

When researching the use of social media as a tool for learning many studies surfaced but few at the K12 level. This next section more closely examines a few key studies, mostly at the college level, that have helped narrow the focus of this dissertation and influence the development of the research questions.

Attitudes and beliefs. Research has shown that a teacher's attitudes and beliefs about technology integration are greatly changed when they see educational value in the innovation

and success in their domain, in which case, they are much more likely to integrate themselves—this behavior is based on a theory of perceived usefulness (Levin & Wadmany, 2006; Mueller, Wood, Willoughby, Ross, & Specht, 2008). According to this theory, teacher's attitudes, beliefs, knowledge, and skill about social technology determine the extent of their social technology integration (Levin & Wadmany, 2006; Mueller et al., 2008). As teachers and administrators progress through their careers, their attitudes, beliefs, and practices may change gradually (Levin & Wadmany, 2006). While at first a teacher or administrator may not support the use of a certain technology as a tool for learning, over time and through experience, their attitudes and beliefs can shift.

Papaioannou and Charalambous (2011) examined principals' attitudes towards social technologies and the factors that promote or inhibit social technology integration in schools. Using a sequential mixed methods approach, they surveyed a stratified random sampling of 250 primary school principals in Cyprus and followed up with interviews of eight principals selected based on specific criteria. Principals were asked to assess their attitudes and abilities with social technology, through a 55-question Likert-type scale instrument.

While the study revealed that primary school principals in Cyprus hold positive attitudes towards ICT it also showed they still need more tailor-made training and incentives in order to transfer this attitude to habitual practice. Additionally, this study found that the fewer years of service the principal has (and therefore the younger he or she likely is), the more positive attitudes the principal has toward social technology integration. Pelgrum (1993) conducted a similar study examining the perceptions of principals and teachers about technology use, and found that attitudes and beliefs are not influenced by age. The Papaioannou and Charalambous (2011) study also highlights the importance of the administrators' personal understanding and

use of social technology in order to effectively support its use by teachers and with students and assert that administrative leadership (lead learners) matters more than technology infrastructure and expenditures. This is supported by Wilmore and Betz (2000) who state that technology for learning purposes can only be successfully integrated if the administrator is an active supporter, clearly understands the potential as a learning tool, provides effective professional learning and supports faculty through the change process.

Principles for effective technology use. In a 2009 study, Minocha examined the effective use of social technology in higher education to determine related benefits, challenges, and issues (Minocha, 2009a). Through an empirical study using case study methodology, Minocha examined data from 26 different initiatives in which students and teachers used social technology tools. The case study methodology allowed Minocha to examine the use of social technology in the real life context of higher education through the lens of the organization, the teacher, and the learner.

Key findings from this research were organized into benefits and challenges to three different groups—the organization, the teacher, and the students. Key benefits to the organization when using social technology include increasing student retention, image-building for the university in terms of being perceived as forward-looking, and the ability to build community with the alumni. Challenges to the organization included the tension between using free social technology tools versus those licensed by the university, the need to develop university policies on the use of social technology tools, and ability or not to access such tools especially those free to the public not organized by the university. Key benefits for the teacher group included ease of tracking students online and thus be able to easily support student needs, ability to review individual students' contributions over time, and being able to interact with

students rather than just broadcast to them. According to Minocha, the challenges for teachers include the need to adapt teaching and assessment for social technology use, meeting the needs of students with diverse technology skills, balancing the workload of using the new pedagogies required for social software use, and managing the changing role of educators as facilitators rather than deliverers of instruction.

Finally, the benefits for the students when using social software in higher education include the collaborative nature of learning and peer to peer interactions, learning valuable technology skills that are transferable beyond school, the development of an e-portfolio to showcase their growth, and the ability to collate resources for future use. The challenges to students Minocha found include: the difficulty of capturing individual contributions in a collaborative online space; the challenge of constantly learning new tools in different courses; lack of value in the social authoring if there are no other contributors to your work; when the needs of how to use the technology overtake the needs of the learning; students feeling their private and social spaces are being invaded; and the constant use of collaborative learning over individual learning.

Through inductive/thematic analysis, Minocha was able to identify principles for successful use of social technology in education and recommendations for educators as they use these tools for learning. The key principles that influence the success of social technology use in further and higher education include the teacher already using social technology for personal needs, the teacher being learner-centered, the teacher constantly evaluating the effectiveness of the use of the social technology, and the teacher being prepared to adopt and change practices. The significance of this study is that Minocha went beyond prior research, which tended to focus only on forums, blogs, and wikis, to look at social technology more broadly. Additionally, she

identified specific principles that, when addressed by administrators and teachers, better support the use of social technology as a tool for learning.

Minocha listed four limitations to her research that are common to case study methodology which include (a) some of the smaller initiatives had limited evidence sources; (b) the case study was not conducted over a long period of time and was thus a snap shot of current practice or behavior; (c) the inability to draw quantitative conclusions because of the short period of time the data was collected; and (d) the potential bias of the investigators toward or against social software use could have influenced the data collection.

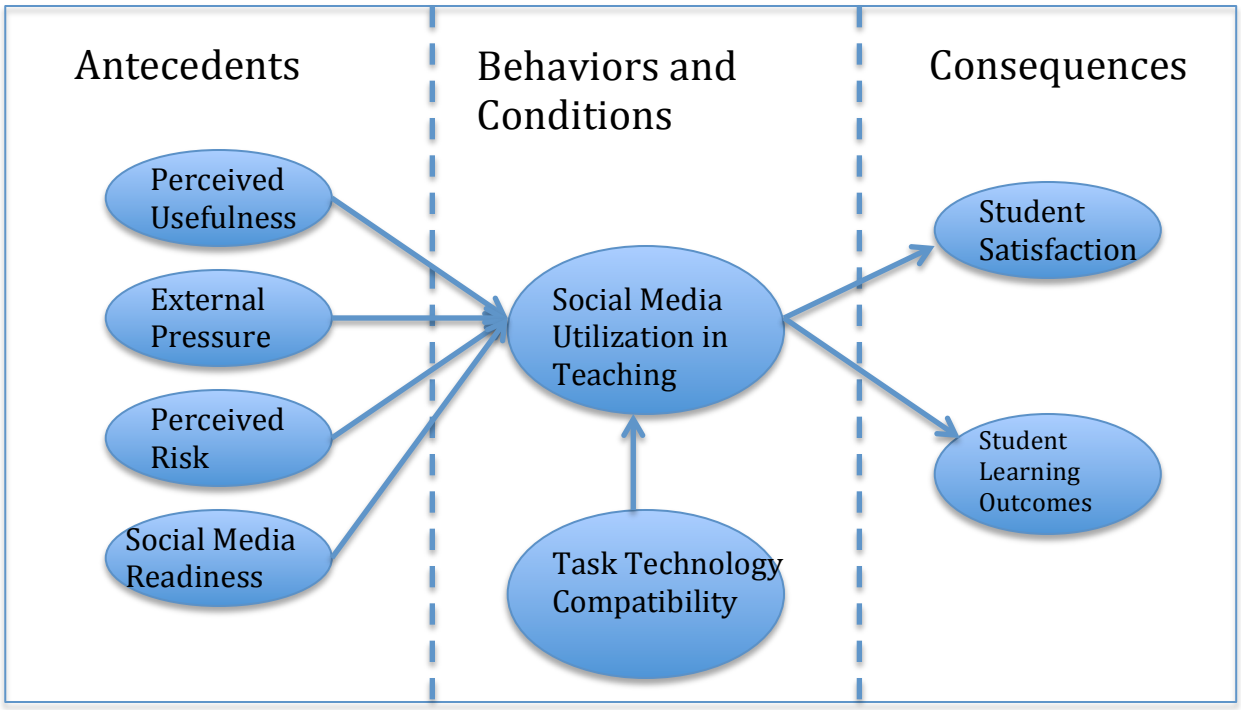
Conditions and consequences. Cao and Hong (2011) studied the effects of college faculty teaching using social media. The current college student population, described as "digital natives" (Prensky, 2001a), has embraced social media tools for personal use, but the challenge is how to get college faculty members to move beyond the familiar technologies of emails and static web pages to include social media for teaching and student interaction (Cao & Hong, 2011). In a mixed methods study, Cao and Hong (2011) examined the antecedents (potential or pre-existing conditions) and consequences of 249 full- and part-time college faculty teaching with social media. The authors contend that social media, as a participatory platform, is different from more traditional technologies and, at the time of their research, no studies examined social media as a tool for learning. Their study examined the use of social media in college teaching to determine to what extent college faculty adopts social media for teaching and to make recommendations on how to move forward with the use of social media in teaching. (Cao & Hong, 2011).

The development of the antecedents and consequences model arose through their review of literature. Five antecedent factors emerged relating to use of social media in college teaching:

the situational context encouraging social media, faculty personal use of social media, external pressures to use social media, expected benefits for learners, and perceived risks of social media use. In addition to the five antecedents, two factors emerged as significant consequences of social media use: perceived student satisfaction and student learning outcomes.

Cao and Hong (2011) suggested two practical implications for educators to consider when using social media as a learning tool. First, educators can use the antecedent factors discovered in this research to determine and plan for inhibitors or facilitators of successful social media use. Second, the identified consequences, when carefully considered, allow educators to make decisions about when, how, and with whom to use social media as a tool for learning. A key limitation was noted in this study: the data were from only one university, with a limited sample size, limiting the generalizability of these results.

Cao et al. (2013) expanded upon their model of antecedents and consequences of social media use. The 2013 follow-up study confirmed their research from 2011 showing that the key factors of perceived usefulness, external pressure, and personal technology use have a positive effect on social media use in college teaching (Cao et al., 2013). A slight adjustment made in the 2013 study was to combine two of the antecedents from the 2011 study into one category—*teaching situations* and *individual readiness* were combined into the category of *perceived usefulness* (Cao et al., 2013; Cao & Hong, 2011). The 2013 study also extended their research model on social media utilization and verified the usefulness in explaining and predicting faculty's acceptance of social media use in education (See Figure 2). Cao et al. (2013) concluded that social media use in learning has a positive effect on student learning outcomes, beyond student engagement.



Source: Cao et al. (2013)

Figure 2. A modified research model for social media utilization.

This research enables education faculty to examine and plan for the challenges when using social media in teaching and understand the factors that support successful use of social media. These results will be referenced when developing the survey for this dissertation. Additionally, the antecedents and consequences that surfaced from this research support findings from other studies.

Engagement with learning. In another study examining the use of Twitter by college freshman as a tool to enhance learning, Chris Evans (2014) found a positive correlation between the amount of Twitter usage and students' engagement. Additionally, Evans found that the use of Twitter to share course information was not related to interpersonal relationships between the students and teacher and that class attendance was not affected by Twitter usage. "The challenge for educationalists," Evans (2014) noted, "is to facilitate the connection between learners and

relevant resources and to help learners make sense of those resources" (p. 903). Evans's study highlights a successful use of social media in teaching. Facebook and Twitter were the two most popular social media networks in 2013 which prompted Evans to examine the use of Twitter as a teaching/learning tool to enhance the process of learning. Evans used an online survey to gather data from a convenience sample of 252 freshmen level business and management students at a university in London, UK, after using Twitter as part of course learning for 12 weeks. Factor analysis was used to filter attitudes and experiences of using Twitter correlated with their learning experiences. The ultimate goal of this research was to determine if Twitter usage would enhance or detract from the student experience.

Three dimensions of student Twitter usage surfaced through factor analysis: interpersonal relations, engagement, and class attendance. Twitter usage in class showed a positive correlation with the degree of student engagement with the course. Additionally, Evans found that Twitter usage did not affect class attendance or interpersonal relations with the teacher and students. (Evans, 2014). This dispels a concern that the use of social media will cause inappropriate interactions between students and teachers (Dresang & Koh, 2009; Mitchell, 2010; Rainie et al., 2013). There were no limitations suggested in this study but Evans (2014) suggested an area for further study would be to examine how the process of learning can be improved using social media.

Informal Social Technology and Formal Education

The final section of the literature review examines two major elements of social technology. First, the social aspect of social technology and the implications for educators, and second, the informal learning supported through the use of social technology and what that means in a formal school structure. After examining a few related studies and a conceptual

framework developed by Lai et al. (2013) this chapter will close with a summary and sharing of the key research questions for this dissertation.

The social aspect of social media. Social media, in the educational context, works through "trust filters" (West, 2012) between the student and the teacher, so learning with social media requires an understanding of social processes (Friesen & Lowe, 2012). Kelm (2011) maintains that traditional teaching is teacher-centered, typically focusing on lectures reducing the level of involvement and engagement from the students. In examining the use of social technologies to support student-centered learning, Dron and Anderson (2014) present two important perspectives to be considered, the social forms these technologies support and the nature and structure of such technologies. Dron and Anderson contend that while social media can potentially allow people to learn from and with one another there is little training, support and/or research regarding the appropriate pedagogical use of the various social media options so teachers and administrators are left to their own devices in determining how to help students learn with social media. Learning through intentionally formed groups around key purposes is at the heart of how formal school is structured. Learning through socially formed connections via the Internet and mobile apps is less charted territory. To better understand this territory, Dron and Anderson (2014) define three social forms: the group, the network, and the set, defined as follows:

- **Groups** are named entities that have structures, roles, norms, rules for joining and leaving, purposes and, normally, schedules. They are the familiar form of most intentional learning, including classes, tutorial groups, schools, work teams and committees. . . . [G]roups are intentionally formed, designed and

maintained by the people that lead them and/or their other members, using formal or informal rules and norms. (pp. 380–381)

The Group structure described by Dron and Anderson aligns closely to traditional teaching and learning practices where the teacher defines the learning parameters and follows a more direct instruction role. The following structures of Networks, Sets, and Collectives are more informal in nature and provide students more choice and ownership (Dron & Anderson, 2014).

- **Networks** are the people we know. They are emergent and largely unplanned, identifiable in retrospect but shifting all the time. They have no deliberate rules, no fixed purpose, no formal name, though we can label them (e.g., "my friends," "my teachers," etc.). As the use of the word 'my' indicates, they are defined egocentrically.
- **Sets** are people we likely do not know as individuals but who share known common attributes such as interests, abilities or location. Like networks, they do not normally have defining rules or structure, beyond the attributes that define them, although tools to support them may implement methods and structures to sustain them. (p. 381)

In addition to groups, networks, and sets, Dron and Anderson identify collectives as "the result of the actions of many people that, through a process of aggregation or transformation, may be treated as though it were a single entity" (p. 381) which aligns to the theory of connectivism. The use of these organizing structures (Groups, Networks, Sets, and Collectives) as a lens for planning, allows educators to develop more precise learning experiences by aligning the appropriate social media to the learning goal where necessary. The learning goal always comes

first and the social media structure is aligned, where appropriate, to support the learning goal. Social media is a natural blending of formal and informal learning experiences based on the needs of the learning and/or learners.

Dron and Anderson (2014) created a structural model of learning technologies and applied this to learning through social media. They describe the toolsets used when learning through social media as soft and hard technologies. Soft technologies require the user to orchestrate complex tasks while hard technologies rely on the tool to do the complex tasks. With soft technologies the user has more choice but too much softness creates situations in which it may be difficult to choose what task to do first/next, etc. Hard technologies are easier for the user but also can limit malleability, which can be challenging in a learning environment. Social technologies are inherently soft technologies allowing users in all social forms to engage. Examining the use of social forms and aligning appropriate learning technologies allow educators to more appropriately determine social media's potential to support learning. The authors contend that these abstract models (social forms and hard/soft technologies) will help educators understand the key variables that must be considered when using social technology to support learning.

Informal learning. Social media use in education brings two very different worlds together, formal schooling and the informal social Web. Leslie and Landon (2008) explain that the "informal and borderless learning" that is created by social networking where 80% of learning is informal is often in conflict with today's schooling because 80% of education budgets are allocated for formal teaching and learning. The existing educational research focuses more on the benefits of social technology in education, resulting in a need for more research about how to blend Web 2.0 and informal education into formal schooling (Cao et al., 2013; Mueller et al.,

2008; Yee, 2000). Research needs to more closely examine the effectiveness of using Web 2.0 skills to support formal learning (Clark, Logan, Lukin, Mee, & Oliver, 2009) and provide strategies and structures for how to do it effectively (Chen & Bryer, 2012; Cox & McLeod, 2014; Piotrowski, 2015).

Since the Web puts the user in an informal environment, there is an increasing debate over how to bring informal learning experiences into a more formally structured school. Bjornavold (2007) describes formal and informal learning as:

> Formal learning: learning that occurs in an organized and structured environment (in an education or training institution or on-the-job) and is explicitly designated as learning (in terms of objectives, time or resources). Formal learning is intentional from the learners' point of view. It typically leads to validation and certification.
>
> Informal learning: learning resulting from daily activities related to work, family or leisure. It is not organized or structured in terms of objectives, time or learning support. Informal learning is in most cases unintentional from the learner's perspective. (pp. 45–46)

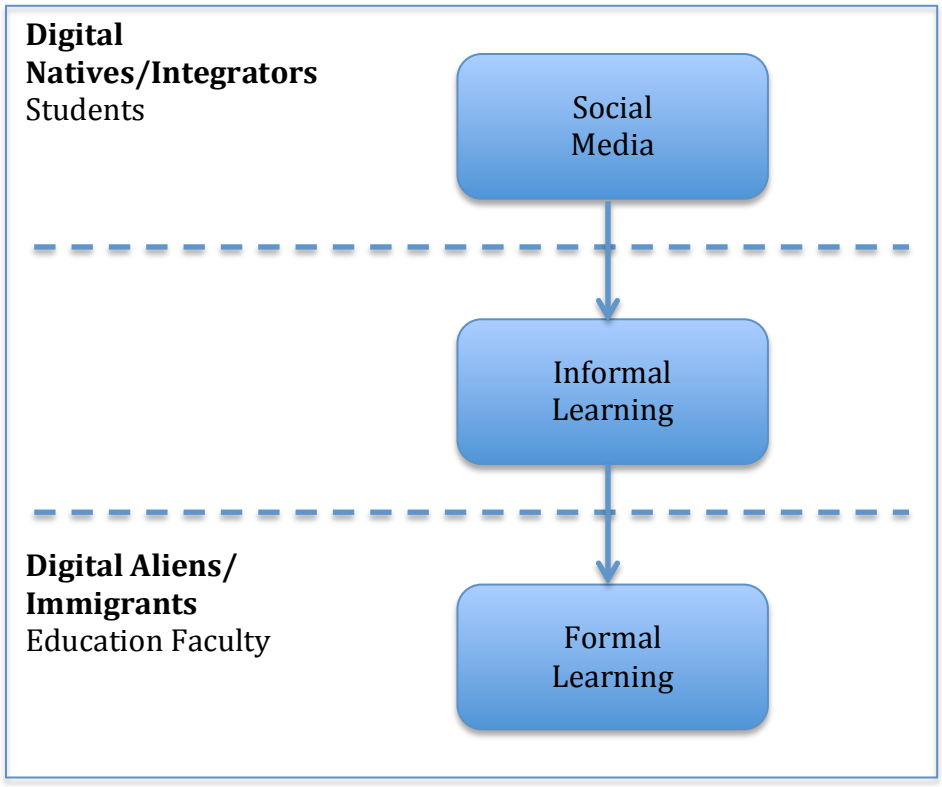
Examining the kind of technology used in formal schooling versus technology used in informal settings out of school, such as home schooling, video gaming, before/after school learning centers, etc., Halverson and Smith (2009) point out that the informal settings all share characteristics of social learning where the learner is in the driver seat, leading to more meaningful learning experiences. Halverson and Smith (2009) differentiate between technology for learning versus technology for learners in their examination of how technologies will shape the future of teaching and learning:

> Technologies for learning minimize the active participation of the learner. In fact, such technologies are developed so that they can work for any learner, regardless of the motivation or the ability of the particular learner. Technologies for learning are essentially teaching technologies structured to reliably deliver and measure outcomes regardless of the context or situation of the learner. Technologies for learners, on the other hand, put the learner in control of the instructional process. Learning goals are determined by the learner, and the learner decides when goals are satisfied and when new goals are in order. (p. 51)

Schools, who are catering to the needs of very diverse learners, won't become individualized learning centers in the near future. But they can, within the structure of schooling, use technology (as one option) to offer learning experiences that capitalize on the social nature of today's learners who have grown up with access to technology that allows them to collaboratively build, generate and create, which are features of both constructivism and connectivism. As Ravenscroft (2009) explains, there is "a clear tension between the tradition of learning as a highly structured and organized experience, involving clear levels of authority, and, the more collaborative, volatile and anarchic nature of the social web" (p. 5). But, if used correctly, social media can be an effective bridge between the two worlds of formal and informal learning.

Bull et al. (2008) discuss challenges in adapting Web 2.0 technology for school use. According to Bull et al., many university professors and teachers are typically "digital immigrants" (Prensky, 2001a) who have deep content and pedagogical expertise but little experience with social media who are working with pre-service teachers who have little experience teaching but who are adept in the use of social media. Bull et al. created a conceptual

framework (Figure 3) to show the generational divide often at play in education settings. While their research examined the challenges at the college level, Figure 3 closely mirrors the challenges in nursery through grade 12 education as well.



Source: Bull et al. (2008)

Figure 3. Digital immigrants working with digital natives.

As shown in Figure 3, there is a divide between the learning structures preferred by today's students and the comfort and experience of today's educators. Part of the challenge is that schools have traditionally put the content and the teacher at center of the learning process, with the academic disciplines organized into separate subjects and taught in an isolated way. However, since the standards implementation in the mid-1990s there has been a growing movement in education to shift the focus away from the teacher at the center and the acquisition of content knowledge as the end goal. With a focus on content knowledge as a means (not an end) and the purposeful use of content to solve novel problems as an end (Bransford et al., 2000;

Wiggins & McTighe, 1998), there are more possibilities for social media as a tool for this kind of learning. Horn and Staker (2011) contend that public school learning will look very different in the near future with blended-learning opportunities common place in most high schools. They define blended learning as "any time a student learns at least in part at a supervised brick-and mortar location away from home and at least in part through online delivery which some element of student control over time, place, path and/or pace" (Horn & Staker, 2011, p. 4). Blended learning involves both formal and informal learning practices as described by Bull et al. (2008) and shown in Figure 3.

The use of social media can link student engagement to academic content more powerfully in a way that motivates students to examine related material created by peers or other students across the world (Bull et al., 2008). The informal and interactive nature of social media increases student engagement allowing students to function in self-directed ways but within a collaborative community where they can receive and/or provide support (Wagner, 1997). Research shows that interactive learning is a key motivational force for students (Wagner, 1997; Roblyer & Weinecke, 2004; Bower, 2007). Wagner (1997) delineates between interactivity and interactions by defining interactivity as focusing "on the attributes of the technology systems employed in distance learning enterprises" and "interactions typically involve behaviors where individuals and groups directly influence one another" (p. 20). To take this further, Roblyer and Weincke (2004) developed a rubric to assess the degree of interactive qualities in distance education courses. One of the key elements in their rubric is the interactivity of technology resources based on the premise that learning experiences built with high interactive qualities lead to more satisfied students within distance education courses (Roblyer & Weinecke, 2004). Bower (2007) examined the use of social technologies and the levels of interaction afforded.

If social technologies are going to become tools for learning, Bower (2007) suggests that educators must become skilled at identifying first the goals for any learning task and then the affordances that technologies can offer to support that task. In his research, he has identified 11 affordances to be considered when matching learning tasks with learning technologies. He purports that understanding the technology affordances allows educators (who design the learning) to better match the appropriate technology to the task ensuring a stronger focus on the learning needs. As part of Bower's e-learning affordances, he defines "functional affordances" to explain the degree of interactions a technology enables from "static/instructive" to include affordances that are fixed with one-way transmission to "collaborative/productive" affordances that allow representations that are flexible, adjustable and sharable (2007, p. 7). When considering the use of emerging technologies for learning, educators should first focus on the goals for the interaction and not the tools for interaction allowing the learning goals to drive the technology and not the other way around (Bower, 2007; Roblyer & Weinecke, 2004; Wagner, 1997).

This kind of informal, interactive learning that happens in a collaborative culture where students are creators can also bridge the gap between digital natives and digital immigrants (Bull et al., 2008). Interest-based learning flourishes outside of school and is easily accessible by social media (Halverson & Smith, 2009). The challenge becomes the transfer from social/ entertainment or living technology to learning technology (Kennedy et al., 2008). The goal, as succinctly stated by Ravenscroft, Warburton, Hatzipanagos, and Conole (2012), is to "harness individually motivated and interest-driven informal learning within wider and more standardized educational practices and organizations" (p. 177). They go on to suggest that when digital immigrants/aliens try to use social media in education, there is a delicate balance needed

between ensuring continued sharing/engagement and not disrupting or over formalizing natural curiosity (Ravenscroft et al., 2012).

In their examination of blending student technology experiences in formal and informal learning, Lai et al. (2013) developed a model for using mobile learning to bridge the gap between formal and informal learning. Seton-Green, Nixon, and Erstad (as cited in Lai et al., 2013) claim that "young people develop their experience and knowledge of digital and mobile technologies primarily in out-of-school settings, and the way they use them is clearly different from how they use technologies in school" (p. 414). However, there is considerable discussion about the blending of informal and formal learning where learning in one setting can inform and support the other.

Lai et al. (2013) propose the Mobile-Blended Collaborative Learning (MBCL) model to help educators determine how to connect formal and informal learning (see Figure 4). This model,

> based on a blended learning model developed by Khaddage et al. (2009), highlights the affordances of mobile technologies in supporting a blended and collaborative learning environment by using the strengths of one learning environment (informal) to mitigate the weaknesses of another learning environment. (p. 418)

In addition to the MBCL, Lai et al. (2013) identify mobile applications that support three different kinds of interactions: collaboration, coordination, and communication, and align these with their model. They contend that these three categories of mobile application tools work together to blend formal and informal learning. Educators can benefit from the MCBL model in examining both their infrastructure for mobile technology use and pedagogy in asking teachers to create informal learning experiences in more formal school settings.

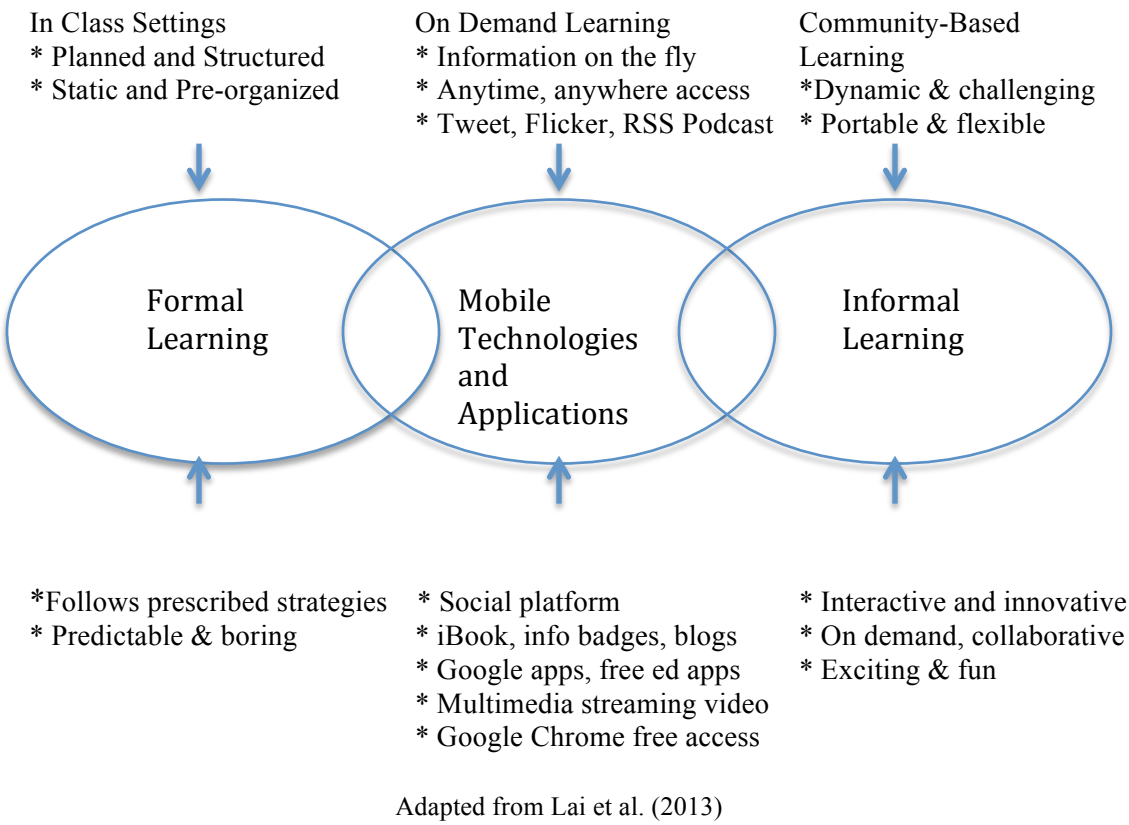


Figure 4. Mobile-Blended Collaborative Learning (MBCL) Model.

Summary

We are in a time when two very different worlds, the formal academic world and the informal social world, are quickly becoming intertwined with social media as the catalyst. As today's learners are immersed in more social networks their comfort with informal learning increases. The use of the Web is more democratic than traditional learning environments—potentially providing learners with greater autonomy and collapsing traditional roles between students and teachers (Friesen & Lowe, 2012). Web 2.0 allows students to be at the center of networks of knowledge and expertise—and adults take on a role more like professional peers/colleagues. This kind of learning is more personalized where learners rely on social participation in a connected world (Friesen & Lowe, 2012, Ravenscroft, 2009; Siemens, 2004). Generating something with peers, which benefits the larger network, creates additional value to

the original user (Faizi et al., 2013; Minocha, 2009a). This kind of learning embraces different social forms through informal connections and has its own literacy that needs to be developed. (Vanwynsberghe & Verdegem, 2013). Even with all the benefits of a connectivist approach to learning and the benefits to the use of social media for learning (Cao et al., 2013), there is a still a major dichotomy to overcome. Though students say they are more engaged and have a more positive attitude toward learning when teachers integrate technology, especially the immersive experiences of the Web, they still want to keep their social media private and not part of the formal schooling (Gosmire & Grady 2007; Mao, 2014; Minocha, 2009a; Thompson, 2013 Wankel, 2009; Woodley & Meredith, 2012).

Ultimately, educators need to help students develop the thinking skills to use technology when appropriate to help them solve novel problems, communicate, and collaborate (Ertmer et al., 2012). If students are motivated by interest and by motivations for learning, how they act depends upon the motivation (Ravenscroft, 2009). It is clear that social media is a strong motivator for today's students but motivation is not enough. True social media literacy requires that students acquire cognitive, practical, and affective competencies in order to effectively deal with different ways of using social media (Vanwynsberghe & Verdegem, 2013).

Administrators may perceive that they support the use of social media as a tool for learning, however, as revealed in the research, the use of social media as a tool for learning requires certain conditions to be in place. As illustrated in the conceptual framework (Figure 5), the review of literature indicates that conditions necessary for social media use as a tool for learning include: teacher's pedagogy needs to align or not be in conflict with constructivist theory in order for them to be more comfortable with informal learning practices and connectivist types of learning; and teachers need to understand and be able to teach students

digital literacy skills that are beyond print based literacy skills in order for them to engage with social media for learning purposes. While administrators need to both understand the conditions necessary for social media to be used for learning and be able to support teachers in an effort to do so, they also need to consider the external factors or conditions that may support or impeded the use of social media as a tool for learning.

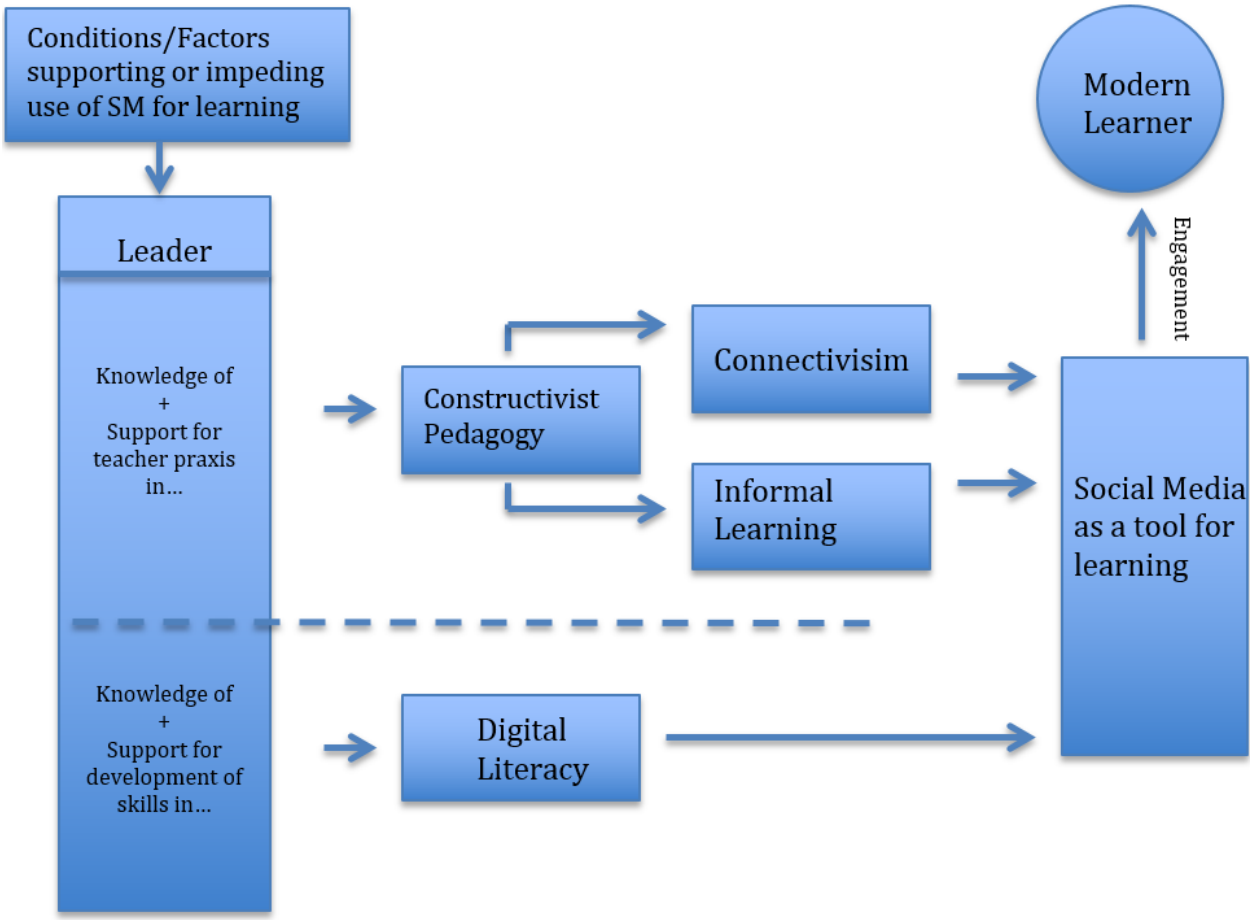


Figure 5. Conceptual framework.

Chapter 3

Methodology

The purpose of this research was to examine administrative perceptions of social media use as a tool for learning. This is a critical area to be addressed as technological advances such as social media are challenging the way school is organized, how educational programs are developed and what/how curriculum is offered (Chen & Bryer, 2012; Dede 2007; Vanwynsberghe & Verdegam, 2013).

Research Design

Little is known about administrators' perceptions of using social media as a tool for learning in K-12 schools across the U.S. Thus, a mixed-method approach was used to combine qualitative and quantitative methods in order to respond to the specific research questions. A mixed-method approach allows researchers to collect different kinds of data providing a more complete understanding of the research (Creswell, 1998). This study combined survey research with interviews. A quantitative approach allowed researchers "to describe current conditions, investigate relations and study cause-effect phenomena" (Gay, Mills, & Airasian, 2009, p. 8). The use of interviews, through a qualitative approach, allowed for a more enriched view of how administrators think about social media use as a tool for learning (Strauss & Corbin, 1998).

While quantitative and qualitative methodologies each have their own strengths, the combination of methods provided greater strength and ability to explain findings. A mixed method study allows for cross-validation for the purposes of triangulation where the weaknesses of either methodology offset the other resulting in more validated and substantiated findings (Creswell, 1998). For this research, a sequential explanatory strategy was used with the qualitative phase being informed by and following the quantitative phase (Creswell, 2003).

I used the survey data to inform the interview process in terms of whom to interview and what to ask. In a sequential explanatory design, the two methodologies are conducted sequentially, easing the design of the study because the first phase of the design aids the second phase.

Research Questions

The overarching question this study examined is "What are administrators' perceptions of the use of social media as a tool for learning in schools across the United States?" Three sub-questions were used to address the main research question:

a. How are school administrators supporting the development of digital literacy for their teachers and students?
b. How are school administrators supporting the use of more informal approaches to learning such as those used in social media?
c. What external conditions and factors affect administrators' perceptions and support in the use of social media as a tool for learning?

Quantitative Approach

To determine the perceptions of administrators in the use of social media as a tool for learning a national survey of K-12 administrators was conducted. The goal of survey research is "to allow researchers to generalize about a large population by studying only a small portion of that population" (Rea & Parker, 1997, p. 2). Survey research was determined as the most efficient way to gather data from administrators across the span of the entire U.S. and the use of online surveys has been supported through research as a worthwhile strategy (Fleming & Bowden, 2009; Glover & Bush, 2005). Major strengths of online survey research include the national reach easing access to participants across the U.S., flexibility of design and

development, speed, timeliness and convenience of administration, low administrative cost, and ease of analysis and follow-up (Evans & Mathur, 2005).

Research Variables

A survey of K-12 administrators and six follow-up interviews were used to gather data to measure variables of interest related to this study. The unit of analysis included the survey responses and follow-up interviews from K-12 administrators from across the U.S. The following variables were studied: administrative perceptions of social media use as a tool for learning, administrative perceptions of their support provided for the development of digital literacy skills, administrative perceptions of their support provided for the use of informal learning experiences, and conditions or factors that support or impede the use of social media as a tool for learning. These were operationalized and measured as follows:

1. Social Media as a tool for learning, was operationalized according to three distinct, yet interrelated learning goals (transfer, meaning making and acquisition). See Appendixes C and D for more detailed information regarding these three learning goals:
    a. Acquisition: using social media to help learn new knowledge and skill;
    b. Meaning Making: using social media to help learners make meaning of knowledge and skill to become more independent with the learning;
    c. Transfer: using social media to help learners transfer their learning to a new situation to show their degree of understanding.
2. Social media as a tool for learning was measured by combining administrators reported support for social media as a goal for transfer and their perceptions of how likely their teachers will use it for transfer; as a goal for making meaning and their

perceptions of how likely their teachers will use it for making meaning; and as a goal for acquisition and their perceptions of how likely their teachers will use it for acquisition.

3. Digital literacy skills were operationalized as a series of six distinct skills that allow the learner to not only receive content but also interact with content. These skills included the ability to use social media to: search for information, communicate with others, reach networks within networks, create new content, discuss how their attitudes and beliefs about social media shape their behavior, and use different social media types.
4. Support for digital literacy skills was measured in the following ways:
    a. Respondents who supported the use of digital literacy skills for teachers and students were asked to identify which digital literacy skills, out of a list of six, they specifically support for teachers (and separately for students).
    b. Respondents were asked, using a 4-point Likert-type scale (from a great deal to none), the degree to which they provide professional development support to help teachers develop the digital literacy skills.
    c. Respondents who do not support the use of digital literacy skills for their teachers and/or students were asked to explain their thinking through an open response question.
    d. Respondents were able to provide additional thoughts related to supporting or not the development of digital literacy skills through an open-ended response.
5. Informal learning practices was operationalized as six learning practices where the user is actively participating but in unstructured and unsupervised environments to

include: learning that is not overly organized or supervised; learning that is unintentional; on demand learning with anytime, anywhere access; learning that is flexible; learning that connects to others beyond school walls; and learning the puts the learner in control of goals, processes and reflections.

6. Support for the use of informal learning practices was measured in the following ways:
    a. Respondents who supported the use of informal learning practices were asked to identify which practices, out of a list of six, they specifically support for use in their schools.
    b. Respondents were asked, using a four-point Likert Scale (from none to a great deal), if they provided professional development experiences to support the use of informal learning pedagogy for teachers in their school.
    c. Respondents who do not support the use of informal learning practices were asked to explain their thinking through an open response question.
    d. Respondents were able to provide additional thoughts related to supporting or not the use of informal learning practices through an open-ended response.
7. Mitigating factors and conditions were operationalized through four sub-variables:
    a. Policies:
        i. Respondents were asked to identify the level of completion of the school/districts policies for use of social media for teachers by selecting one of the following; no policies, a few policies, loosely defined policies, clearly defined policies, a comprehensive set of policies.

ii. Respondents were asked to identify the level of completion of the school/districts policies for use of social media for students by selecting one of the following; no policies, a few policies, loosely defined policies, clearly defined policies, a comprehensive set of policies.

iii. Respondents identified, from a list, who decided if social media can be used as a tool for learning.

b. Access

i. Respondents were asked to identify the level of student access to social media by selecting one of the following: access is blocked, limited, guided or open.

ii. Respondents selected the different types of social media accessible to students using the following check list; social networking, bookmarking, media sharing, micro blogging, collaborative development, blogs/forums, social news and virtual worlds.

c. Support:

i. Respondents identified, from a list of professional learning experiences, how they supported teachers in the use social media as a learning tool.

ii. Respondents identified if they would benefit from professional learning in the use of social media for learning.

iii. Respondents identified if professional learning is available to them in the use of social media for learning.

d. Demographics:

    i. Respondents identified number of years as educator and years as administrator.

    ii. Respondents described the school to include location in U.S., size, community setting, and level.

    iii. Respondents provided their age range and their perceived number of staff for each age range.

See Appendix E for a Table of Specifications of these variables including survey item stems.

Population

K-12 school-based administrators from across the U.S. were the population for this study and from which a random sample of administrators was pulled. Databases from national education associations and State Departments of Education websites were used to gather emails and contact information for administrators. In order to capture as representative of a pool of participants as possible, I divided the U.S. into four regions according to the U.S. Census Bureau: West, Midwest, Northeast and South ensuring there was representation from each region. Within each region, I examined each of the nine divisions to ensure representation from each division within the potential population. See Appendix F for a summary of these regions and divisions. With that logic, I searched the Internet to find the state level education databases for at least three states within each of the four regions ensuring that states chosen represented each division.

Public education databases listing school-based administrators from twenty-nine states were searched for and of those, the databases from fourteen states representing each region and division were downloaded and used to create the population for this study. See Appendix G for a

summary of the public databases referenced in this study. The downloaded databases were filtered to only include principals and assistant principals. I further filtered these databases to only include the following data: first name, last name, state and email address. A final database with names and email addresses of 37,810 administrators collected from the aforementioned sources from across the U.S. was developed for this research. See Table 2 for a regional representation of the population in this database.

Table 2

Regional Representation of Population

Region	Number of States Represented	Number of Contacts
West	4	13,659
Midwest	3	5,212
Northeast	3	10,048
South	4	8,891

Quantitative Sampling

From the total population data of 37,810 administrators, 10,000 administrators were randomly sampled to become the survey population using the follow sampling process:

Step One: I made a copy of the population data and pasted all 37,810 rows into a spreadsheet and titled the file Random Sample List.

Step Two: A new column was added to this spreadsheet titled Random.

Step Three: In the first cell of the new column I included the formula "=rand()".

Step Four: The formula was double clicked to copy it to the rest of the rows in the spreadsheet. Now all rows had a random number generated.

Step Five: I highlighted the entire Random column and selected Paste Values to save the actual value from the random number generator.

Step Six: I highlighted the entire Random column and sorted from ascending to descending.

Step Seven: I saved the file and used that data as the sample of administrators to be surveyed.

For Round One, the first 2000 contacts from the sampled list were surveyed. For Round Two I surveyed contacts 2001–5000 and for Round Three I surveyed contacts 5001–10,000.

About the Survey Sample

Surveys were sent to approximately 10,000 principals and assistant principals at public schools from across the U.S. Some of the emails sent bounced, failed, or were duplicate addresses with the final number of emails sent totaling 9,903. From the sample of 9903, 235 surveys were completed or partially completed creating a return rate of .02%. See Chapter 4 for a possible explanation of the lower than expected return rate. Only general demographic information was gathered in the survey to ensure confidentiality of respondents.

Instrumentation

An appropriate survey instrument to address the research questions was not found through the review of literature. As a result, a survey was developed to investigate the research questions and the corresponding variables. To check for alignment between the research questions and survey items, a table of specifications was developed (see Appendix E).

The design of the survey, as shown in Table 3, was sectioned into five parts to ease the alignment to the research questions.

Table 3

Alignment of Research Questions to Sections of the Survey

Section of Survey	Related Research Question
Part One: Policies/Procedures/Access	Q4–conditions/factors that support/impede use of social media
Part Two: Social Media for Learning	Main question Q1–perceptions on use of social media for learning
Part Three: Digital Literacy	Q2–development of digital literacy skills for teachers and students
Part Four: Informal Learning Practices	Q3–use of informal learning practices
Part Five: Demographics	Q4–conditions/factors that support/impede use of social media

Selected response, brief constructed response and open response question types were used in the survey along with skip logic. Subjects were asked between 21 and 35 questions depending upon their responses. Parts one and five of the survey examined the conditions and factors that affect administrative perceptions of using social media as a tool for learning through questions that all survey participants were asked. Skip logic was not used during these two parts of the survey. The following topics were addressed: policies and procedures, access to social media, administrative experience, and student, teacher and school demographics. Part two of the survey examined administrative perceptions in the use of social media as a tool for learning using skip logic. Between two to nine questions were asked with the number of questions being determined by the subjects' responses. Topics addressed in part two included: support or not for use of social media as a tool for learning, how social media was being used, how administrators would like to see social media to be used, and the level of professional learning support provided to teachers and administrators related to social media use. Part three of the survey examined the development of digital literacy skills using skip logic. Subjects were asked between two to four

questions depending upon their responses. Topics addressed in part three of the survey included: support or not for the development of digital literacy skills for teachers and for students, specific skills supported, and related professional learning opportunities available. Part four of the survey examined the use of informal learning practices using skip logic. Subjects were asked between two to four questions depending upon their responses. Topics addressed in part four of the survey included support or not for the use of informal learning practices, specific practices supported and related professional learning opportunities available.

Distribution. The survey was distributed, through *Qualtrics* (2012) in three rounds over three months using the exact same process for each round. The survey was sent to a total of 10,000 participants with 2,000 sent in round one, 3,000 sent in round two and 5,000 sent in round three. The following process was used to disseminate the survey for all three rounds:

1. An introductory email was sent to all participants introducing myself, describing the purpose of the study, the consent process, the timeline and included a link to the survey.
2. Two weeks later, a reminder email was sent to participants who had not yet returned the survey.
3. Three weeks later, a final reminder email was sent only to participants who had not yet returned the survey. See Appendix H for copies of the three emails.

To comply with the IRB process, only three emails in total were sent so by the end of step three, participants who did not complete the survey were no longer contacted. To increase the response rate of this survey I sent three different rounds of emails which gave more time for participants in rounds one and two to complete the survey. One week after the final email was sent to the third round of participants, the survey was closed.

Quantitative Data Collection Procedures

Data were collected using the online web-based survey application Qualtrics. The data was exported from the survey application into the statistical software package SPSS (SPSS, 2007). The IRB process requires researchers to ensure confidentiality for all survey participants. To ensure confidentiality, the survey was structured, through Qualtrics, to collect only an anonymous survey link using a uniform record locator (URL). This anonymous URL ensures confidentiality for all online survey participants. Any data collected electronically from participants willing to be interviewed was coded to ensure individual schools or administrators could be identified and all electronic data is password protected and all paper data is locked in a file cabinet. The electronic data will be archived, according to the IRB process, for five years in the event that additional analysis are necessary.

Validity. Content and face validity checks were conducted to ensure the questions in the survey and interviews were representative of the topic or process being investigated. In an assessment of face validity, researchers examine "the degree to which an instrument appears to be an appropriate measure for obtaining the desired information, particularly from the perspective of a desired respondent" (Colton & Covert, 2007, p. 66). For content validity, researchers attempt to identify as many possible factors that operationalize the variables or constructs in their research to ensure that both the researcher(s) and respondents share the same understanding of those variables and constructs (Colton & Covert, 2007). Eight administrative colleagues of mine conducted the reviews and provided feedback for achieving both clarity and validity for each survey question to ensure that the instrument was measuring what it was supposed to be measuring. A revised survey based on the feedback and guidance from validity checks was sent electronically to two administrators similar to the target population as a final

check on the validity of this study. Three administrative colleagues reviewed the interview protocol and two mock interviews were conducted to test the validity of the interview protocol and to test the recording equipment. Final adjustments were made based on that feedback prior to conducting any interviews. The feedback from these reviews allowed me to make revisions to the survey instrument and interview protocol to ensure the survey and interview were clear and easy to follow.

Potential weaknesses of online survey design include the perception of junk mail when surveys are emailed, questions about sample selection, effect of respondents' technological experience, effect of the technology available to them, unclear instructions, the interpersonal nature of an online survey, perceived privacy issues, personal bias of self-reporting and low response rates when using this kind of methodology (Evans & Mathur, 2005).

Qualitative Approach

A qualitative approach allows researchers to explore open-ended, emerging data in order to better understand the meaning that individuals or groups bring to a problem or challenge (Creswell, 2003). Key features of qualitative research are the "contributing insights into existing or emerging concepts that may help to explain human social behavior" (Yin, 2011, p. 8). The purpose of the qualitative phase of this study is to understand more deeply, the administrators' perceptions of using social media as a tool for learning. Most of the survey questions were selected response items with three items allowing for brief constructed responses and between seven and ten items allowing for open responses. Follow-up interviews were included to allow for a more nuanced look at the research questions through a closer examination of administrator perceptions in their context.

Six interviews were conducted using voice technology through the computer. The questions developed for these interviews came from the analysis of the survey responses and fifteen questions were used in these follow-up interviews. Including interviews as part of this research allowed me to explore and better understand the local and contextual nature of school life through the perceptions of the administrator (Putney, Green, Dixon, & Kelly, 1999). The intended outcome of these interviews is to understand more clearly administrators' experiences and insights in the use of social media as a tool for learning within their context. Together with the qualitative data, a clearer picture has emerged to be shared in the literature about school administrator perceptions of social media use as a tool for learning.

Qualitative Sampling

Administrators were provided an option, in the survey, to agree to a short follow-up interview. It was stated in the survey that not all those that agree to be interviewed would be contacted because I was targeting up to ten follow-up interviews. Of the 35 administrators who agreed to a follow-up interview, the ten selected for the interviews were based on survey responses that surfaced interesting questions or comments that were not discovered or contrary to what was discovered in the literature review. Seventeen of the 35 potential interviewees had survey responses that caused me to pause or want more information. Of the 17, ten were chosen and I attempted to balance demographic information (school level, school location, gender) and the level of support in the use of social media (yes, not yet, no). Of the ten contacted to be interviewed, six responded and participated in the interview process. See Appendix I for a Profile Summary of the Interviewees.

Qualitative Data Collection

Follow-up interviews were used as a second method of data collection to examine administrators' perceptions of social media use as a tool for learning. A mixed-method approach supports triangulation, which allowed me to compare data and analyze it for corroboration (Oliver-Hoyo & Allen, 2006). As aforementioned, six participants were selected, from a list of 35 self-identified administrators who agreed to participate in follow-up interviews about the use of social media as a tool for learning. The survey participants provided consent in the survey to be contacted as a possible candidate for a follow-up interview. An interview consent description was also emailed to interview participants and confirmed through a verbal consent in front of a witness before the interviews took place. See Appendix J for the consent process emailed to interviewees.

The interviews occurred in March 2016 and on average, each interview lasted 24 minutes and were conducted via the computer using voice over Internet protocols technology (VoIP). A semi-structured interview protocol was developed based on the survey results (Seidman, 2006). The development of the interview protocol began after the first round of the surveys had been returned. Data from the surveys that provided a new perspective that I did not consider or that was contrary to the research was used to develop the interview questions. The IRB process was amended to include the interview protocol. See Appendix K for the interview script.

Interview data was collected through recordings, and all recordings and transcripts were labeled with the date and time of the interview and coded as Principal 1 (P1), Principal 2 (P2), and so on. Recorded interviews are being kept in a password-protected folder or locked cabinet and any identifying information is being kept separate from the recordings in a password-protected folder or locked cabinet. The interview protocol and consent process was emailed to

the subjects prior to the interview (Patton, 2002). An important aspect of any semi-structured interview protocol that has aided the comparability of the results is that all subjects were asked the same questions in almost the same order (Patton, 2002).

Just as with the survey questions, I conducted content and face validity checks by sharing the interview protocol with three administrative colleagues and conducting mock interviews with two administrative colleagues for feedback purposes. These initial validity checks enabled me to revise the protocol to align it better to the research questions and to test the timings, transitions, and overall packaging of the interview process. Two other validity measures used included triangulation and member checking to strengthen the findings of this study. Triangulation is a way to compare data to determine if it corroborates (Creswell, 2003; Patton, 2002).

Member checking is a way to compare the accuracy of the data (Creswell, 1998). Member checking was tested in the mock interviews and was also conducted at the end of the six interviews. Member checking required that I summarized the notes from the interview to confirm with the interviewee that the summary accurately represented their responses. I verbally member checked at the end of all of the six interviews and I emailed a copy of the transcript to each interview participant asking for any feedback. All interview data was recorded, transcribed, and coded for anonymity. All original recordings and transcriptions are locked in a file cabinet.

Researcher as Instrument

As an interviewer, I was the instrument for data collection for Phase Two of this research. To protect the integrity of the data, I needed to recognize that role and establish systems to ensure I was accurately representing the respondent's ideas and not projecting my own. To ensure the accuracy of the transcripts I reviewed the transcripts against that audio recordings on two separate occasions and I used member checking at the end of the interview by reviewing

their responses. I also sent the transcripts of the interviews to all participants and invited any feedback for which none was received.

Overview of Data Analysis

After the data were collected, I used coding and descriptive statistical analysis to organize and analyze the survey and interview data. "Descriptive statistics help us summarize data so they can be easily comprehended" (Patton, 2002, p. 91). The survey sought to establish the perceptions of administrators regarding the use of social media as a tool for learning. The interview data helped me further understand the perceptions of six of the survey respondents as well as the methods and strategies that administrators use to determine if social media can be used for learning.

Quantitative data analysis. Univariate and bivariate analysis were used to examine the distributions, central tendencies and dispersions of the survey responses through calculations of frequencies, means and confidence intervals. To convey the most complete meaning of the results, the APA Manual (2010) states that effect sizes, confidence intervals and extensive descriptions are necessary. An example of a frequency distribution with percentages that I have used is to show the percentages of administrators who support the use of social media as a tool for learning and those that don't. Percentages of respondents who answered each of the possible responses were used because they provide a clear representation of the data. Survey questions using a Likert-type scale (providing a range of related responses) were analyzed using One-Way ANOVA in order to measure the variables. Survey questions that used nominal/categorical data were analyzed using Chi Square analysis.

Qualitative data analysis. There were two sets of qualitative data in this study; the open response survey questions and the responses from the six interviews. To better understand the

phenomena of social media as a tool for learning the survey included open response questions. There were ten different open response questions with the total number of open response options per respondent between four and six depending upon their answers and the corresponding skip logic used within the survey. In the analysis of the qualitative data, Strauss and Corbin (1998) recommend using grounded theory, which is a set of coding procedures used to discover categories and eventually surface a set of theoretical propositions. Yin (2011) recommends a five-step process: compiling, disassembling, reassembling and arraying, interpreting, and concluding.

For the analysis of the open response survey questions, open coding was used allowing me to open up the text to discover what lies within. According to Strauss and Corbin (1998),

> During open coding, data are broken down into discrete parts, closely examined, and compared for similarities and differences. Events, happenings, objects, actions/interactions that are found to be conceptually similar in nature or related in meaning are grouped under more abstract concepts termed categories. (p. 102)

As part of the process of open-coding, I began to organize the individual concepts under more abstract, higher-order concepts or categories allowing me to better explain what the data says. (Strauss & Corbin, 1998). As suggested by Strauss and Corbin (1998), I started the open-coding doing a line-by-line analysis until the concepts started to emerge regularly at which time I transitioned to analyzing whole sentences and paragraphs.

Both grounded theory and Yin's five step process aided the analysis of the qualitative data and were easily merged together. The interview responses were more detailed than the responses from the open response survey questions and Yin's five step process proved very helpful with the interview data. As before mentioned, the interview data was collected through

recordings and then transcribed. The next step was to disassemble to look for emergent concepts followed by reassembling and arraying to organize the data for further analysis. This process started as soon as the first interview was concluded but the emergence of concepts became more evident as more interviews were analyzed. Using an open coding technique, I was able to break the data down into discrete parts for a close examination and then I re-categorized the data accordingly (Strauss & Corbin, 1998). As categories and patterns emerged from the interview data, it was important that I critically examined this organization to ensure they truly are categories and patterns from the data (Marshall & Rossman, 2006). Another consideration when analyzing the interview data was to determine how useful the data were to the narrative unfolding in my research and where to include that interview data in my reporting, especially how it related to the survey data (Marshall & Rossman, 2006).

Limitations

This study used self-report surveys, which limited the capability of the survey to capture data accurately as administrators may have wanted to minimize their lack of understanding related to social media use as a tool for learning tool or they may have wanted to minimize their lack of support. Another limitation was non-response sampling error, which impacted the generalizability of the results given that the percentage of administrative responses from regions of the U.S. are not a represented sample of the whole. The bias of the researcher in support of constructivist pedagogy may also limit the study. The use of a survey questionnaire created specifically for this study and not tested elsewhere is another limitation of the study. While the questionnaire was tested for validity, it has not been used in other research studies. I addressed challenges in the design and administration of this online survey using Evans and Mathur's (2005) suggestions for moderating the potential weaknesses of online surveys. See Appendix L

for a summary of these suggestions. A final limitation of the study is the lower than expected response rate for a study of this kind which may introduce non-response bias.

Delimitations

This quantitative study was delimited to school based administrators and did not include central office administrators such as technology and curriculum directors. This study did not examine students, parents or community members' perceptions in the use of social media as a tool for learning. Another delimitation of this study is that the social media use policies established in the school or district were not studied. Finally, the study was not delimited to a specific region, state or school system (e.g., Northwest, urban, Framingham School System); rather, it took a broad look at administrators across the U.S. in order to surface more generalizable results.

Summary

Chapter 3 began with a description of the design of this research and rationale for the use of a mixed methods approach. Both the quantitative and qualitative methodologies were discussed to include population, instrument design and validation, data collection, and analysis. Chapter 4 reports the findings from the survey and the interviews.

Chapter 4

Results

As presented in Chapter 1, the purpose of this study was to identify the perceptions of administrators in the use of social media as a tool for learning in public schools across the U.S. With a lack of research regarding the viability of social media use as a tool for learning in K-12 education, administrators are struggling to determine if this technology belongs in school settings (Cox & McLeod, 2014; Piotrowski, 2015). Thus, I investigated whether principals perceived that social media can become a viable tool for learning and was guided by the following main question and three supporting questions: What are K-12 school administrators' perceptions of using social media as a tool for learning in school across the U.S.?

1. How are school administrators supporting the development of social media literacy for their teachers and students?
2. How are school administrators supporting the use of more informal approaches to learning such as those used in social media?
3. What external conditions and factors affect administrators' perceptions and support in the use of social media as a tool for learning?

I used a mixed method design because it enabled me to examine a variety of data about social media use in education and also to identify deeper understanding of the perceptions of administrators through a more in-depth interview process. This chapter reports findings from data that have been gathered to address the research questions and is organized into five sections. The first section provides an introduction and a summary of the demographic information of the interview and survey participants. Sections two-four provide analyses of the interview data and

descriptive statistics of the survey data organized according to each research question. The chapter closes with a summary and brief introduction to Chapter 5.

Section One: Description of Sample Data

The data collection process for this study included two phases, with Phase One being an online survey of principals and assistant principals in public schools across the U.S. Phase Two included follow-up interviews with six survey participants. The survey was distributed using Qualtrics (2012), a web-based survey program available to students at Virginia Tech. Approximately 10,000 email invitations were sent to the professional email addresses of principals and assistant principals in public schools across the U.S. from late December of 2015 through early March of 2016. Of this number, 235 responded to the survey and 189 of those fully completed the survey for a response rate of less than 2%, which falls well below the expected return rates for a survey of this type.

Two key variables may have affected the rate of return for this study. One, the time of year the survey was initially distributed was during a long holiday break when schools are typically closed. Two, the settings that I selected for the survey distribution did not align to the timeline of the survey distribution that I created. In the advanced settings within the survey distribution function was the prompt "How long to wait before partially completed responses are closed and data is recorded." The options for the distribution setup were "after 4 hours, after 24 hours, after 48 hours, after 1 week, after 2 weeks, after 1 month, after 3 months, after 6 months." I misunderstood the intent of that function believing the time frame selected was applied at the close of the survey. I chose two weeks expecting that respondents had two weeks after the close of the survey to respond. Instead of capturing partially completed responses two weeks after the survey closed, the responses were captured after two weeks of inactivity. This prevented anyone

whose responses were captured from reentering the survey or preventing anyone who did not revisit or open the survey within two weeks from receiving reminder emails. This error may explain the lower than expected response rate for a survey of this type. See Appendix M for email correspondence with a Qualtrics helpdesk staff member discussing the email distribution setup.

In an examination of the response rate by question, for the full survey the mean response is $\bar{x}$ =130.95 with a median of 168 and mode of 178. Skip logic was used in this survey which meant that many of the survey questions were not available to all of the respondents (see Appendix N for an overview of the skip logic). To get a more accurate response rate I examined the selected response questions that were available to all respondents and the mean response rate for those questions is $\bar{x}$ = 189.83 with a mode and median of 178. See Appendix O to review the number of responses per the individual survey questions.

A common issue that results from low response rates is the potential for nonresponse bias. Nonresponse bias "refers to the bias that exists when respondents to a survey are different from those who did not respond in terms of demographic or attitudinal variables" (Sax, Gilmartin, & Bryant, 2003). While it is challenging to estimate nonresponse bias, one strategy for examining nonresponse bias suggested by researchers is to compare the responses of the early respondents with the responses from late respondents—as late respondents are considered similar to non-respondents (Rindfuss, Choe, Tsuya, Bumpass, & Tamaki, 2015). In an effort to examine the nonresponse bias for my study, I compared the responses from ten early and thirty late respondents and found no discernable difference in either group.

Given the low response rate and potential for nonresponse bias, the qualitative data from the interviews will be used as the main data source with the quantitative data from the survey

used to support or refute the qualitative data. This next section provides a brief introduction to the interview respondents and provides the demographic analysis for both the interview and survey respondents.

Interview participant introductions. In-depth interviews were used in Phase Two of this mixed method study to gather a more comprehensive and detailed data collection based on the perceptions of administrators regarding the research questions. Of the 35 survey respondents who volunteered to be interviewed, 10 were chosen for follow-up interviews and sent email invitations and 6 responded to those requests and participated in the interview process. The interview participants will be introduced in the order that they were interviewed.

Principal 1 (P1) was in her first year as a principal at the time of the interview. She works in a K-8 school located in a rural setting and is a strong supporter of social media as a tool for learning. She uses Facebook, Instagram and Twitter for personal use. In her role as an administrator, she described her professional uses of Twitter are "to showcase what we are doing and to share things with other educators and school all over the place." P1 explained that her personal use of social media has led to her having positive feelings about social media use in her school as she described, "there are definitely ways that I personally feel it is bettering my life and I feel that is going to bleed into the kids' education."

Principal 2 (P2) was working as a middle school principal in a suburban setting at the time of his interview. He was in his 17th year as an administrator with 13 of those years at his current school. He describes his use of social media— "I use Twitter mostly as a consumer, not so much as a creator. I follow everything from the White House, to news sources, to some of my professors and the high school sports. It is a much faster way for me to gather information and it is always available to me." He does not use Facebook because of trouble that educators were

getting themselves into but he does look at his wife's account. His positive, personal experiences with social media are why he promotes the use of social media in his school. While he is a supporter of social media use in his school he does not use it professionally.

Principal 3 (P3) was his in first year as a principal and had less than ten years of experience as an administrator at the time of the interview. He works in an urban middle school and has been a Facebook user for 8-9 years. He uses Facebook for personal reasons but was wary of using social media as a new principal because of very negative experiences with students using Facebook and Twitter at his last school. However, he described having a young and transient parent population in his current school and when he asked his parents how to get a hold of them they said through their Facebook and Twitter accounts. His current school has a Twitter and Facebook page that are used to update parents and communicate about the great things they are doing in their school. He feels that social media is a great communication tool and is the easiest way to get information to his parents especially working in an urban setting. He further explained, "I don't think there is anyone or any business in this country who isn't or doesn't look into getting a Facebook page. If we want to reach a broader audience, we have to do this."

Principal 4 (P4) was in his 4th year as a principal and has been an educator for 15 years. He works in a suburban middle school and does not regularly use social media for personal reasons with the exception of the occasional use of LinkedIn. He does use social media, specifically Facebook, to connect to parents because as he states, "it is a quick and easy way to post information to really see what is going on at the school quickly. If I post something on Facebook it comes up on their phone and they can check it right away." He explained that he thinks social media, such as Facebook, may someday replace school web pages.

Principal 5 (P5) was a principal for less than two years at the time of the interview. She is a principal in a suburban, PK-3 school and uses Facebook and Twitter for personal use. Prior to becoming a principal, she was not an active social media user personally or professionally. She further explained that when she was hired as a principal the superintendent requested that she tweet regularly from a school Twitter account. She has since learned when using Twitter that "you want to become succinct, powerful and really tell the story of what you are trying to get across." Unlike the other interview respondents, her professional use is what influenced her personal use as she describes, "I have to be honest with you. I actually found that I use it more in my personal life after using it at school."

Principal 6 (P6) was in her sixth year as a principal and founder of an urban high school that is focused on Science Technology Engineering and Math (STEM). She has been an educator for 30 years and uses social media regularly both personally and professionally. She describes herself as a casual user of Facebook and Twitter for personal reasons. Professionally, she manages the school's Facebook and Twitter accounts and manages the Twitter accounts for a few community organizations. Her personal uses of social media have helped her to learn about the possibilities rather than the challenges to using social media in her school.

In summary, Table 4 shows that five of the six interview respondents used social media professionally and all interview respondents used it personally. Four of the five principals who used social media in their schools described that their personal social media use made them more comfortable with using social media professionally. The exception was P5, who started using social media professionally before using it personally. Four of the six interview respondents used Twitter as a common social media type for professional use and two of those four also used Facebook professionally. One of the six respondents did not use social media for professional

use at the time of the interview. There were many social media types available at the time of this interview but only two types were mentioned for personal use—Social Networks (Facebook, LinkedIn, Instagram) and Microblogging (Twitter) and the same two were mentioned for professional use—Social Networks (Facebook) and Microblogging (Twitter).

Table 4

Principals' Social Media Use

Principal	Personal Use	Professional Use	Comments
1	Facebook, Instagram, Twitter	Twitter	I use Twitter to showcase what we are doing and to share things with other educators and schools all over the place.
2	Twitter	None	I use it mostly as a consumer not so much as a creator. I do not have a Facebook page but I do look at my wife's sometimes.
3	Facebook	Facebook, Twitter	We use Twitter and Facebook to communicate at large with our parents the great things we are doing. It is an essential communication tool to get information to our parents.
4	LinkedIn — occasionally	Facebook	My wife has a Facebook account. I occasionally go on there. I use LinkedIn occasionally.
5	Facebook	Twitter	I use Twitter to communicate with my stakeholders and I use it to participate in professional learning. I don't really use Instagram that much.
6	Facebook, Twitter	Facebook, Twitter	I manage our schools Facebook and Twitter accounts. I haven't gotten into Instagram or Snapchat or any of the others. I find ones I am comfortable with and stick with them.

Interview data demographic analysis. Table 5 summarizes the demographic data of the interview participants. All levels of PK-12 schooling (PK, ES, MS, HS, Secondary), all four regions of the U.S. (Northeast, Midwest, West, South) and an even split between males and females (three each) were represented with the interview participants. Four of the interviewees

were between 32–47 years of age and two were between 48–66 years. They ranged between having 11–35 years of experience as educators and less than 20 of those years in an administrative position. All interviewees were asked the same 13 questions but it was not always possible to follow the same exact question order as some questions became redundant given the interviewees responses and sometimes interviewees branched off into a different direction allowing me to pursue other related topics.

Table 5

Demographics of Interview Participants

ID	Gender	Age	Level	Setting	Size	Region	Years Admin	Years as Educator
#1	Female	32-47	PK-MS	Rural	251-500	West	<5	11-14
#2	Male	48-66	MS	Suburban	501-1000	N. East	15-20	31-35
#3	Male	32-47	MS	Urban	501-1000	Midwest	5-10	11-14
#4	Male	32-47	MS	Suburban	251-500	N. East	15-20	15-20
#5	Female	32-47	PKES	Suburban	251-500	N. East	<5	11-14
#6	Female	48-66	HS	Urban	501-1000	South	5-10	21-30

Survey data demographic analysis. A survey was distributed for Phase One of this study. Table 6 summarizes the demographic data for the survey participants to include age, gender, years as educator, years as administrator, school level, school size, school setting, and location of school in the U.S. The majority of respondents (*n*=97, 52.7%) were between 48-66 years of age, 43% (*n*=80) indicated having between 21–30 years as educators and 51% (*n*=94) were in the role of administrator for ten or less years. The largest percentages of respondents (33.3%, *n*=61) were principals at elementary schools followed by middle school (21.3%, *n*=39) and high school (16.4%, *n*=30). All four regions of the U.S. were represented with the highest

percentage of respondents from the West (30.9%, *n*=56) and the lowest coming from the South (20.4%, *n*=37).

Table 6

Demographics of Survey Respondents

Variable	*n*	(% of total)	Variable	*n*	(% of total)
Age			**Gender**		
< 31	1	.5	Male	99	54
32-47	80	43.5	Female	83	46
48-66	97	52.7	Total	182	100
> 67	6	3.3			
Total	184	100.0			
Years as an Administrator			**Years as an Educator**		
<10	94	51.13	<10	9	5.05
11-20	73	40.34	11-20	53	28.66
21-30	10	5.28	21-30	80	42.70
>30	5	2.84	>30	42	23.59
Total	184	100.0	Total	184	100.0
School Level			**School Size**		
PreK-ES	61	33.3	<500	79	44.38
PreK-MS	13	7.1	501-1000	71	38.2
PreK-HS	17	9.3	>1001	34	17.41
Middle	39	21.3	Total	184	100.0
High	30	16.4			
Secondary	11	6			
Other	12	6.6			
Total	183	100.0			
School Setting			**School Location (Region of U.S.)**		
Urban	34	19.1	Northeast	45	24.9
Suburban	71	39.89	Midwest	41	22.7
Rural	73	41.01	South	37	20.4
Total *n*	178	100.0	West	56	30.9
			Other	2	1.1
			Total *n*	181	100.0

Section Two: Research Question 1—What are administrators' perceptions of using social media as a tool for learning?

Research question one, as the main question for this study was examined in depth in both the interviews and survey, and as a result, this section has the most detailed reporting. There were five interview questions and seventeen survey questions that addressed the perceptions of support for the use of social media as a tool for learning that are analyzed and reported within this section. Interview questions 2, 3, 4, 5, and 7 that were used to explore the answer to research question 1 were as follows:

- Briefly describe your personal use of social media.
- How have your personal experiences with social media influenced or not influenced your decision to support or not the use of social media in your school?
- How do you feel about social media being used as a tool for learning your school? Why is this so?
- Describe three different ways social media is used for learning in your school.
- When social media is being used in the classroom, how can educators tell it is being used for learning and not just socializing?

Level of support for social media use in schools. Four of the six interview respondents (66.6%) supported the use of social media, one interview respondent (16.6%) wavered in his support and one (16.6%) did not support the use of social media as a tool for learning in school. The survey data closely aligns to the interview data where 69.59% (*n*=103) of survey respondents indicated they supported the use of social media as a tool for learning with an additional 14.86% (*n*=22) supported its use but indicated that policies prevented student access.

There were 15.54% (*n*=23) of respondents who did not support the use of social media as a tool for learning at the time of the survey.

All six interview respondents' worked in schools where students had access to social media and their descriptions of support for social media can be described in three ways; *support for it*, *wary of supporting it* and *not knowing how to support it*. In addition to those three groups, a fourth group emerged in the survey data— *those who support social media use in schools where access is blocked*. This analysis from this fourth group will be included in this section.

Support for social media use. As previously reported, four of the six of interview respondents and 69.59% of survey respondents (*n*=103) supported the use of social media as a tool for learning. P5 explained, "I love it. My teachers are using it regularly, mostly Twitter. Some teachers use Weebly blogger and some use Instagram or YouTube." P6 shared, "I am a huge proponent and I was doing an observation today where the students had to tweet something they were learning in class to a specific hashtag. It was fun watching what they were sharing with each other."

P2 described a shift in terms of the technology use at his school, from a learning management system with a fake Facebook like setting to open social media access. He explained that this shift was brought on by student feedback and stated that "kids want to use more of a Google classroom platform as opposed to a learning management system." He also stated that his own doctoral research supported the finding that students want access to real social media sites, not fake ones. P1 showed support more cautiously stating that

> I support it. I think you have to be careful and I wouldn't say to teachers do whatever you want to do whenever you want to do it. I think we need to look at what we are doing for kids but I definitely support access to social media on campus.

Wary of supporting or do not support social media use in schools. One of the six interview respondents did not support the use of social media as a tool for learning and one waivered in his support. P3, who does not support the use of social media in his school, explained that his fear of students misusing social media was based on the many negative experiences at his previous middle school where he was an assistant principal. He saw the benefit of using social media to communicate with his parents, especially because they were a very young and transient population, but using it in the classroom as a tool for learning was still questionable for him. He explained,

> For me, I am still a little conscious about that piece. I think you have to have a very in-tune staff as far as social media and make sure they have to have an understanding—what I call social media literacy. How informed they are about social media and how to use it as a tool that way and then increasing our kids understanding about the good and bad things that come with social media. As a former assistant principal in dealing with the evils of social media, it is still a difficult transition for me as how to use it appropriately.

P4 was unclear how to use social media as a tool for learning and stated:

> I have to understand better which social media you are talking about. I think social media really connects with the young students these days. That is what their life is all about. If there is a responsible way to use social media to educate kids I think it is definitely worthwhile looking at.

There were twenty-three survey respondents (15.54%) who stated they *did not support* the use of social media as a tool for learning and they were provided an opportunity to explain their reasoning. There were 20 responses to this question with the most frequently stated concept was *a fear of misuse* mentioned in nine out of the 20 responses and aligns to the concerns stated by

interview respondent P3. The other concepts that emerged in the open response data include *not for school use*, *learners are too young, lack of understanding, lack parameters, hard to monitor* and *would support with supervision*. Table 7 shows some direct quotes from survey respondents explaining their lack of support and the corresponding concepts showing how they were coded. Note that some survey responses highlighted multiple concepts within one response, while others highlighted only one concept. This is true for all the open response questions.

Table 7

Quotes/Concepts from Survey Respondents Who Do Not Support Social Media Use

Examples of Open Ended Responses	Concept
We have had too many instances where students misuse it and also have found it to be a huge time waster for students (Get sidetracked easily!)	Fear of Misuse Not for School Use
I would support supervised sites where students and teachers can share information. I am uncomfortable with independent sites where it is unclear that there is supervision.	Support with Supervision
I do not think our current policies and guidelines are specific enough for regular use in the classroom.	Lack of Parameters
Students at a K-5 school have no business on social media since it is clearly defined that you must be at least 13 years old to participate. Our students are not within the age limits.	Too Young
Limited understanding of how social media can be used as a tool for learning. Social media conjures up images of people addicted to drama and with too much time on their hands . . . not an educational tool.	Lack of Understanding Fear of Misuse Not for School
I don't have enough information yet. This is a new idea for me. I have previously only seen social media used in schools as a tool for communication and messaging.	Lack of Understanding
Because of the lack of ability to monitor and control access.	Inability to Monitor

Support for social media but access is blocked. For survey respondents who indicated they worked in schools where social media was blocked, they were asked to hypothesize how

they would respond to questions *if there was access* at their school. Survey respondents indicated that *if students had access* to social media, 51.19% (*n*=43) of the respondents *would have* supported its use in their school and 48.81% (*n*=41) *would not have* supported its use in their school. This is a stark contrast to survey respondents who indicated that there was student access to social media where 69.59% (*n*=103) supported its use in their school and 15.54% (*n*=23) did not support its use. Survey respondents were able to share how they would like to see social media being used *if there was* student access in their school. There were 26 responses with the concepts most mentioned: *to connect and collaborate with others* which was referenced 14 times, *to showcase learning* which was referenced eight times and *to receive feedback* which was referenced five times. Table 8 shows direct quotes from respondents and the corresponding concepts showing how they were coded.

Table 8

Quotes/Concepts Describing If Access How Would You Like Social Media to be Used

Examples of Open Ended Responses	Concept
I would like to see social media used in the classroom through the use of experts in their area of study blogging about that subject, i.e., biologists discussing their study in Google +. I would like to see them form study groups with a diverse group of students on Facebook or posting presentation ideas on Pinterest.	Collaborate/Contribute Research Showcase Learning
One specific was *[sic]* is reading and reviewing student work with teacher and peers . . . commenting and revising.	Collaborate/Contribute Feedback
Referencing current research and topical events as they happen, as a tool to connect to experts, as a method of demonstrating what they have learned to others.	Research Collaborate/Contribute Showcase Learning

Description of social media use in schools. In review of the interview data, those interview respondents who supported social media use in schools were able to describe uses related to learning and those who were unsure or did not support social media use in schools were less able to describe uses related to learning. Principals 1, 2, 5 and 6 all support social media use and provided detailed examples of social media use.

P1 described that after reading books about insects, primary students created their own stories about insects and used voice recording to read their stories that were then shared on YouTube. She also shared how her middle school students video captured their science experiments and then published them on YouTube and sought feedback. P2 shared how they were using a flipped classroom model where they used YouTube and Kahn Academy to enhance instruction, allowing students to dig deeper into concepts at home. P5 described how her staff used Twitter to leverage their professional networks to bring resources to their school and to reach out to authors. Her students Skyped with an author and then posted 30 second videos on Twitter related to that discussion and to establish a rapport with that author. P6 explained how social media helped her high school students learn about Romeo and Juliet in English class. Instead of doing a traditional family tree, the students each created a Facebook page for a given character and used those as resources throughout the unit.

In contrast, P3 and P4, were less able to discuss the possibilities of social media use. Throughout the interview, P4 waivered in support for social media use in his school and stated that there were not any overt ways social media was being used in his school as a tool for learning. When I asked how him to consider how social media could be used he stated, as previously reported,

> I'd have to understand better which social media you are talking about. I think social media really connects with young students these days— that is what their life is all about. If there is a responsible way to use social media to educate kids I think it is definitely worthwhile looking at.

Principal 3, who does not support the use of social media as a tool for learning in his school, was able to talk generally about social media use but when probed could not go further. He stated,

> I can't think about it right now. To be honest, social media and how it can be used in our school. I know that depending upon certain programs here like PBS and Scholastic News who have regular updated news feeds with our kids especially our SS and ELA teachers are using it with that type of info *[sic]*. Really that is about all that I know right off hand. We have a very veteran staff they are not in tune with tech at all. There is not a lot of it happening in our school at this point in time. In the next few years we will begin to increase as a lot of those teachers retire and we hire a younger staff. But it is not something that is widely used at this time.

In review of the survey data, of the 69.5% of survey respondents who supported the use of social media use in schools, a larger percentage (n=81, 72%) perceived that social media was being used as a tool for learning in their school than respondents who perceived that it was not being used as a tool for learning (n=33, 28%) at the time of the survey. When asked to provide examples of social media use in their school, there were 62 responses and the concept *to collaborate/contribute* was referenced 48 times, which is almost double the next most frequently mentioned concept, *to communicate information* which was mentioned 25 times. See Figure 6 for a summary of the responses. Additionally, Table 9 identifies direct quotes from respondents

representing some of the concepts listed above. The interview and open response data reveal that administrators who support social media are able to describe uses that are learning related.

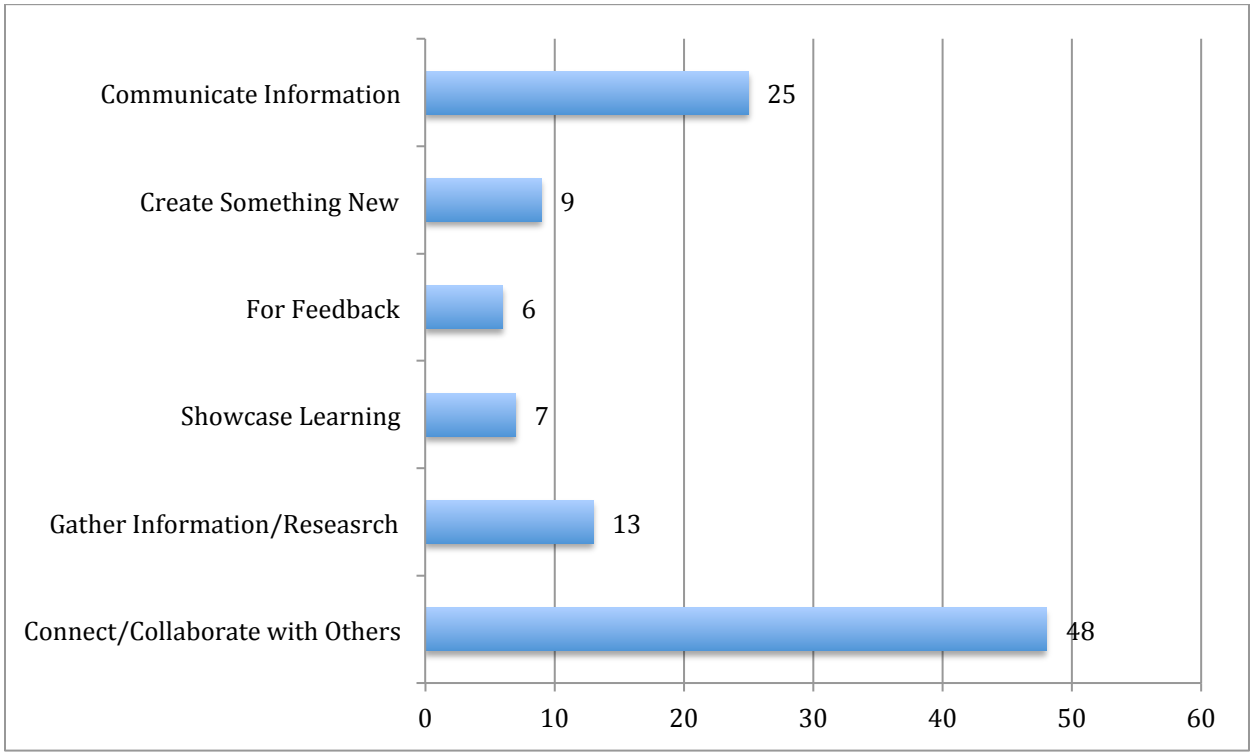


Figure 6. Frequency of responses related to how social media is being used as a learning tool.

Table 9

Quotes and Concepts Describing How Social Media was Being Used

Examples of Open Ended Responses	Concept
Students create Facebook pages for various causes. Students Skype with experts around the world. Students Skype with other students around the world.	Create Collaborate/Contribute
YouTube videos are used to expand student learning through educational videos and virtual field trips.	Research/Gather Information
Teachers use Twitter to communicate with parents. The students use Skype, Face Time and Google Hangouts to facilitate the inclusion of community and global experts in the classroom.	Communicate Collaborate/Contribute
Students blog for Journalism class and have an online presence for various entrepreneurial projects.	Create Showcase Learning

Table 9

Cont.

Examples of Open Ended Responses	Concept
Discussion on posed topics. Interaction with outside sources regarding a specific topic or event. It is also used as an informal assessment tool and as a way for less vocal students to participate in discussions and have their thoughts heard and responded to.	Collaborate/Contribute Feedback

Survey respondents were asked— *How would you like to see social media being used in your school* which garnered sixty open-ended responses with the most frequently referenced response was *to collaborate/contribute*, mentioned twenty-two times. The next most referenced concept was *to gather information/research,* mentioned thirteen times and *to create new things,* mentioned seven times. Table 10 shows direct quotes from a few respondents and the corresponding concepts for which they were coded. The survey data from this section suggests that survey respondents would like to see social media to be used mainly for learning. In a comparison of the responses to the questions *how are students using social media* and *how would you like to see them using social media*, the responses showed similar support by concept across both data sets with the most support for using social media to *collaborate/contribue*.

Table 10

Quotes/Concepts Describing How Principals Would Like to See Social Media Used

Examples of Open Ended Responses	Concept
Students being contributors to the knowledge base in the world, rather than simply consumers of it.	Create
For students to look up information or create projects, solve problems, but not just for "social" type reasons. All activities must be tied to a learning objective and support our school-wide goals.	Gather Information/Research Create

Table 10

Cont.

Examples of Open Ended Responses	Concept
Sharing of great things happening in our school. Collaboration!!!	Showcase Learning Collaborate/Contribute
I'd like to see teachers actively supporting students using social media to actively engage with experts and audiences without physical boundaries to further their learning and deepen their understanding of the world.	Collaborate/Contribute
To add information on a topic, but always using a critical eye and strategies to decipher purpose when reading on-line articles.	Gather Information/Research Create
As with all educational technologies it promotes engagement. The ultimate goal would be to provide evidence of learning.	Student Learning

Social media purposes and levels of support. Throughout the survey, respondents were given opportunities to provide more detailed information through open response questions. There were 356 total responses to ten open response questions that, through the analysis and coding, became 481 responses because multiple concepts were often included in an individual response. Of the 481 responses, 392 were related to the research questions and 89 were not usable in the analysis because there were responses such as "NA," "No", or "I don't know." I analyzed the 392 responses using open coding and 26 different concepts emerged and are organized into two different categories; *Social Media Purposes* and *Level of Support*. For each of the two categories, dimensional levels emerged to further explain how the responses within each category varied (Strauss & Corbin, 1998).

For the category of *Social Media Purposes*, two dimensional-levels emerged from the data—*For Learning Purposes* and *Not for Student Learning Purposes*. The second category, *Level of Support*, included data related to the level of support in three different but related areas -

social media, the development of digital literacy skills, and the use of informal learning practices. Three dimensional levels emerged within the category of *Level of Support* to include; *We Support It, We are Open But Cautious,* and *We Do Not Support It*. These categories and dimensional levels from the survey data were corroborated by the interview data as previously reported in this section. Appendix P shows the categories, dimensional levels and concepts that emerged to include the number of times referenced in the analysis of the open response data. These concepts and dimensional levels are referenced frequently throughout Chapter 4.

Roles and levels of interaction when using social media. In a synthesis of both the interview and open response survey data, it became clear that there were different roles that students take when engaging with social media and differences in the degree of student interaction based on the roles and tasks as respondents described them. Figure 7 shows two roles that surfaced to describe the social media user: *consumer* and/or *producer* and a continuum of interaction, based on those roles, using Bowers (2007) descriptors from low (static/instructive) to high (productive) interaction. On the low end of the student interaction continuum, students interact with social media as *consumers of information*—in a more static/passive role moving to students as *producers of content*—being on the active/productive end of participation. It is important to note that these are not fixed roles, as students might move back and forth between roles and/or engage in both roles simultaneously. Figure 7 also shows the types of social media uses that are related to learning, as respondents described it, and how those types align to the roles and levels on the student interaction continuum.

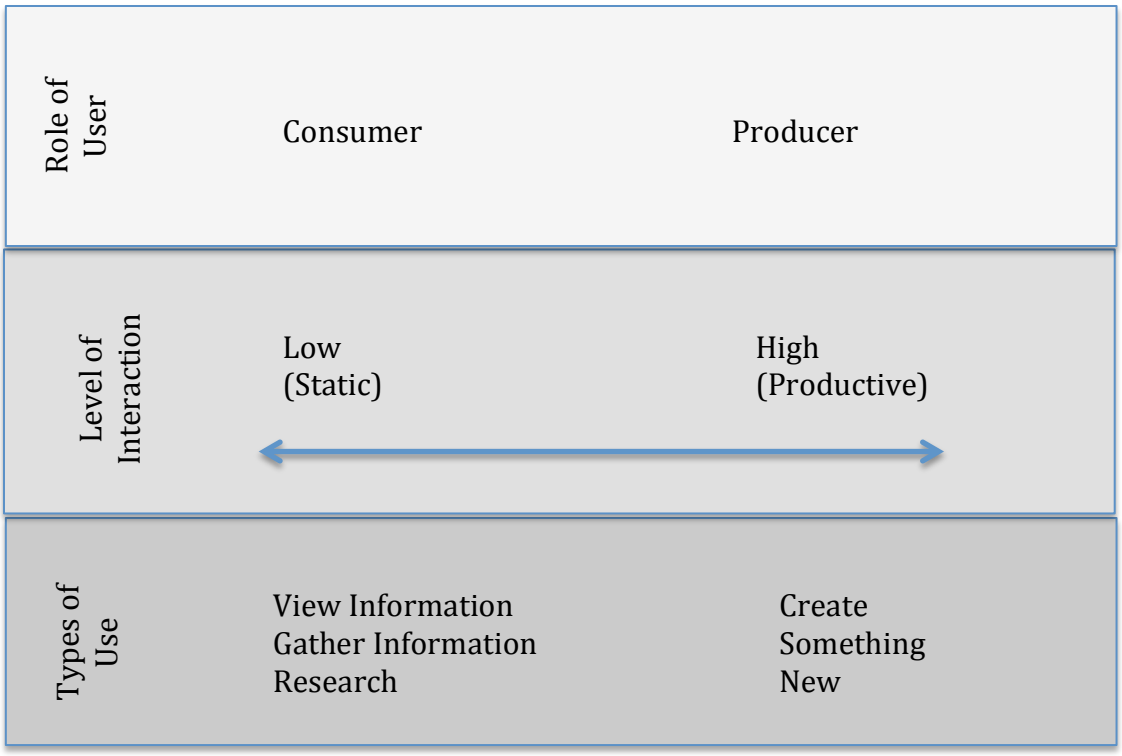


Figure 7. Roles and levels of student interaction with social media use.

Through a careful analysis of the responses from the interview and survey questions, a clear pattern emerged where respondents indicated that social media is being used, or respondents would like it to be used, most often for the purposes of contributing to something followed by the purpose of consuming information and then for the purpose of production. The previously discussed research from Polit and Tatano Beck (2009) describes a series of activities that nursing education students engage with that lies in between the roles of consumer and producer. This has surfaced in my research as well where there are actions that social media users are engaging with that lie between that of consumer and producer. In this research, I describe activities that fall in between consumer and producer as—contributor. Actions for a contributor move beyond the use of social media for mere consumption but are not at the level of independent production. Rather they are contributing, often in small ways, to the collective for which they are engaged. Survey respondents mentioned types of social media where students

were contributing—116 times, acting in the role of consumers—65 times and in the role of producers—19 times.

In addition to the roles and levels of interaction, the collaborative aspect of learning is at play when social media is used as a tool for learning. As I reported in the literature review, social media as a tool for learning asks students to learn through socially formed connections via the internet which is less structured learning than what is commonplace in schools today (Dron & Anderson, 2014). The three social forms that emerge with the use of social media include *groups* (structured/named entities), *networks* (people we know/largely unplanned) and *sets* (people we likely don't know but share known interests, abilities or locations) (Dron &Anderson, 2014). These social forms are an important consideration with using social media in PK-12 schooling. An additional social form that emerges as a result of the actions of many people is called a *collective* (Dron & Anderson). A collective can transform and be treated as a single entity where individuals are adding to the greater good, which aligns to the theory of connectivism. In addition to looking at how learners are interacting with social media and the roles they take (consumer to producer) based on their interactions, the collaborative nature of those interactions can also be described using the before mentioned social forms. For the analysis in this study I examined the open response survey data and interview data to determine the roles and levels of interaction but I did not further examine the level of collaboration.

The descriptions provided by interview respondents about how social media was being used as a tool for learning in their schools can be organized according to the previously mentioned roles and the differences in the degree of student interaction. The responses below, from five of the principals, describe how different uses of social media fall along the continuum of student interaction given the role the type of activity requires. P4 stated that there were not

any overt ways that social media was being used in his school to educate his students so his response was not considered along the continuum of interaction.

P3 described his English Language Arts and Social Studies classes regularly using both Public Broadcasting System (PBS) and Scholastic news feeds to share information with their students. He stated he has a very veteran staff that is not in tuned with technology and that social media is not something that is widely used at this time in his school. This kind of social media use falls on the low end of the student interaction continuum where students are acting in the role of consumers of information.

P2 described that at his school social media is used for collaboration, peer editing and through a flipped classroom model. He explained the flipped classroom:

> I call it a blended model where they use YouTube and Kahn Academy to enhance instruction. Some of the work is sent home. It is structured for us via blended classroom and the media time has to be under 8 minutes. It is really structured for us with the time of media that is sent home prior. That time is something we set up through our technology committee. If teachers want to use that model for preparatory instruction or to reinforce instruction it had to be in that within the window of a student's attention span. If you put a 40-minute lesson for kids to watch at home and you are building your instruction that they are not going to watch a forty-minute video.

The use of a flipped classroom, as described by P2, puts students in the role of a consumer as they are most likely using social media to gather information for their homework. The other uses of social media P2 described, for collaboration and peer editing, are more active for the students than what P3 described with watching news feeds and fall on the midpoint of the student interaction continuum where students contribute. P1 described active participation from the

students where they are using social media to share their work and ask for feedback as well as to collaborate on shared documents. Both P1 and P5 described their students as using social media to showcase their learning for the purposes of sharing as well as to receive feedback. These are also considered midpoint between consumers and producers, the interaction described is more active than simply being consumers but not yet to the level of interaction required of producers.

P5 described similar types of social media use as P1 where there is much collaboration however, the difference in the descriptions between P5 and P1 is that students in P5's school sought out and collaborated with experts in the field and produced something as a result. For instance, after Skyping with an author, students in P5's school created 30-second videos related to the discussion with the author, which were posted on the school Twitter feed and shared with the author. This is an example of moving along the continuum of interaction toward being more of a contributor and producer.

Another example of how social media was being used at P5's school involved the grade two students who created book trailers through iMovies and posted them on their own school YouTube channel. The students made QR codes for those trailers and parents (after downloading a QR reader on their smartphones) listened to those during student conferences. In P1's school, primary grade students created stories about insects and used voice over technology to record themselves reading the stories, which were posted on the teachers YouTube account. Older students in P1's school created YouTube videos about their science experiments. They posted questions they were pondering and invited feedback and/or they created videos capturing the scientific process for an experiment they led and shared that with others. P6 described students creating Facebook pages for characters from a novel study and other students who collaboratively prepared for an external exam by creating graphic organizers of key content.

They took pictures of those graphic organizers and posted them on Instagram so all students could benefit from each other's thinking and share their learning. These are all examples where students are interacting at a higher interactive level with the social media as they are put in the role of producers of content.

The responses from the interview participants who stated they were very comfortable with social media as a tool for learning showed that they more clearly understood the possibilities of social media for learning. The descriptions from these administrators revealed that students in their schools were likely to be interacting with social media through their contributions and in the role of producers and not just as consumers. An examination of the 88 open responses from the survey question *how would you like to social media being used,* 97% (*n*=85) resulted in categories of learning purposes that they would like to see for student use of social media in their schools. The interview and survey data suggests that survey respondents would like to see social media to be used mainly for learning.

How to ensure social media is for learning and not socializing. Interview participants were asked to explain how they determined *if social media was being used for learning purposes*. Three concepts emerged in the analysis of the six interview responses: *the teacher being present in the learning*, *the ability for the teacher/student to connect the tool to the learning goals*, and *the use of technology tools to monitor student online presence*. P1 aptly summarized the need for *teachers to be present* when she explained:

> I guess that is a question you ask yourself all the time as educators even if students are sitting and talking in a group without technology. I think you just listen and look. We need to be present on what they are doing. We have to be entrenched in what they are doing. As the person who is asking them to do something on a social media platform I

> would fully expect that the teachers are going in their looking at what the students are doing reading their streams even if it is a one-time stop. Reading the comment screens. Just listening and being present in what kids are doing.

P6 elaborated and reiterated her point about teaching students the necessary skills to make the right decisions:

> It is about active teaching. Teachers who make the assignment but are staying at the board or at their desk need to walk. I know there are software applications where you can see everyone's screen but it goes back to my philosophy around digital citizenship that we shouldn't have to monitor you - you should be a responsible citizen. You know what the rules are, you know what the expectations are so follow them because when you get out in the workplace, you and I both know companies monitor employees all the time. You never know when you are being monitored. I don't want a kid of ours going out into the workplace and losing a job for irresponsible use of technology. We stress with the teachers it is about active teaching not relying on the technology to catch it.

P6's philosophy was in direct conflict with two of the other interview participants where P1 and P2 suggested *the use of technology tools to monitor students' online presence*, such as Draftback and SMART Sync. These responses suggest that the different levels of comfort with social media use affect the approaches principals' use in their support of social media use for learning.

Social media use not related to learning. In another open response survey question, respondents who indicated that social media was not being used for learning purposes were asked to describe how social media was being used. There were forty-nine responses and the two most referenced concepts were: *to communicate information* mentioned in twenty responses and *for personal use* mentioned in thirteen responses. The following quotes illustrate some of these

concepts: “We use social media as a promotional tool for school. We advertise or share the good things happening at our site” and “For marketing, research and sometimes when they are not supposed to be using it.”

Additional thoughts related to social media use. Survey respondents were asked to share additional thoughts related to social media use for learning. There were thirty responses with the most frequent response, coming from nine respondents, *I am beginning to see the benefits* of social media use as a tool for learning, followed by seven respondents who stated a *need for more related professional development*. Table 11 shows some direct quotes from respondents and the corresponding concepts that show how they were coded.

Table 11

Quotes/Concepts Describing Additional Thoughts About the Use of Social Media

Examples of Open Ended Responses	Concept
I just think it is something that can [*sic*] extremely dangerous if not used correctly. Students have to be prepped on the expectations and overseen if they are going to be allowed to use it during the school day.	Fear of Misuse
Having been at schools where it is all blocked and a school where it isn’t I see huge values to allowing access. We need to teach all students to be literate in social media. They need to acquire a trans-literacy.	Support Social Media
Social media is a double-edged sword. It opens a doorway to the world, and the people within it, to our students. On the other hand—it opens a doorway to the world, and the people within it, to our students.	Beneficial but Risky
Procedures and guidelines must be in place and taught for students to be safe. Need more time devoted to professional development.	Need Parameters Professional Learning
I think schools have to get on board and teach students appropriate use. They are going to use it regardless of whether we take advantage or not. Education is about directing them in the right way to use resources.	Support Social Media

Professional learning. When examining the professional learning for administrators, all six of the interview respondents strongly agreed that they would benefit from professional learning in the use of social media as a tool for learning. Additionally, 93.6% (*n*=161) of survey respondents agreed or strongly agreed that they would benefit from professional learning in the use of social media as a tool for learning.

Survey respondents were asked to identify the kind of professional learning support they provided to their teachers in the use of social media as a tool for learning. The option *by encouraging teacher collaboration in the use of social media for teaching and learning* had the highest percentage of support (78.91%, *n*=101) and the option, *provide release time to facilitate teachers becoming familiar with social media technology* had the lowest percentage of support (45.31%, *n*=58).

Section Three: Research Question 2—How are school administrators supporting the development of digital literacy skills for their teachers and students?

Two interview questions and six survey questions were designed to examine the development of digital literacy skills. Interview questions 8 and 9, were as follows:

- What do today's learners need to be digitally literate?
- What digital literacy skills are taught in your school?

I had known from their survey responses that all six of the interview respondents supported the development of digital literacy skills for their teachers and students. So I used the interviews to examine more closely what administrators believed students needed to be digitally literate.

Skills necessary to be digital literate. There were three concepts that emerged: *students understanding the pros/cons of social media use, students being critical users of social media*

and *students understanding the different social media types and their purposes.* Principals 2, 3 and 4 all referenced the need for students to have strong research skills and to be critical users of social media content. The following quote from P3 represents the ideas from P2 and P4 as well:

> I think they have to have a clear understanding of what the overall goal of the site is. What is the intention of the material? To be able to have the ability to pick out what is right what is not right what they should take with the grain of salt. I just want to be able to grow our kids as researchers and what they understand about information at the surface level – what they know about research. They can't take it as factual until they dove into it more. They have to take it with the grain of salt and determine what supports what. And be able to present that with fidelity. I want kids to be intuitive about what they are reading and how it affects them overall. Whether is it propaganda or factual information want them to take what they are learning in our building and as they go to HS and the rest of their lives to be great human beings.

Principals 1, 3 and 4 all expressed a need for students to understand the pros and cons of social media use especially related to their digital footprint. P1 explained skills that students need to be digitally literate:

> An understanding of what are the ramifications and the possibilities that are out there. But I also feel that when we function in life and be good human beings and that carries over into their digital world. To understand the permanency of technology. Kids are shocked that they put something on Instagram during or after a band conference— they realized oh no, we could get in trouble for that and they deleted it. It was on Instagram for two minutes but in that time all these kids have screen-shotted [*sic*] it from kids in my office. It was up there for two minutes and 8 kids have it presumably forever if they have

> it screen-shotted [*sic*]. As a young person it is hard to understand the ramifications of their actions and their impact. To me that is the more important thing I try to convey to the kids in terms of being literate in a digital society and how to navigate things in a safe way.

The responses from P5 and P6 were different from the other principals and revealed that the skills they believe their students should possess related to students understanding the different types of social media and the purposes for those different types. P5 explained:

> They have all grown up in a digital world and they are all natives. I think you need to be able to give a chance to experiment with different devices and different platforms. For instance, using Twitter on a phone or a laptop. It is making sure that they can access social media from a variety of devices. Giving them a variety of purposes. So letting them do a role play, a debate or letting them pretend to be a character from a particular book. Those things are fun but having a meaningful purpose for something. They need to see the relevance for the different purposes of these devices.

And P6 further explained:

> Know what tool is more appropriate for the task and why they think it is most appropriate. They have to be able to identify what makes something an appropriate tool whether it is an online app, website, productivity tool from a suite (Google), they need to be able to make their choices rather than be told. The NASSP says that the US adults and students are dead last in the world in the use of technology for complex problem solving. We can Google better than anyone but we don't know what to do once we found an answer. I think learners need to know it is not just the latest greatest typewriter it can enhance productivity and help you create products that aren't even around. If they are not

using it that way they are wasting our money. We might as well let them check their answers on the cell phone.

Survey data corroborated the interview data indicating that 93.12% (*n*=176) of respondents *supported the development of digital literacy skills* for their teachers and students, 6.35% (*n*=12) of respondents indicated that *it depended upon the specific skill* and one respondent (.53%) indicated they *did not support the development of digital literacy skills* for their teachers or students. When asked about professional learning, 66.67% (*n*=120) of respondents provided some professional learning support to teachers in the development of digital literacy skills and 33.34% (*n*=60) provided little to no professional learning support in the development of digital literacy skills.

Digital literacy skills taught in your school. The concepts and examples that emerged in the response to the interview question, "*What digital literacy skills are being taught in your school?*" mirror the concepts that emerged from the responses to the previous question, *"What do students need to be digitally literate?"* When asked to describe digital literacy skills being taught interview respondents were able to provide very clear examples. P1 explained what was being taught her school:

> Kids make an agreement or norms for themselves as a group of students in terms of what they are going to abide by. I agree to appropriately use language, I agree to post appropriate pictures. As they get older, appropriate citations. What does that even mean? If you use someone else's words how do you cite that appropriately? There is always digital safety. What is bullying? What do you do if that situation arises in the digital world? How do you get someone to help if that situation arises to help you with that? That is something. Going places safely. How do you navigate the digital world so you

know who you are talking to or how to filter out who you are talking to and who you shouldn't talk to. What you should or shouldn't post online. Where do you keep your passwords? How do you protect your passwords?

P6 provided a response unlike the other principals that addresses the idea of students as creators and not just consumers. "We are starting to create lessons that focus on how to get more from the computer. How do you get the computer to help you create something new and not just to find an answer." P6, more than the other interview participants supported the use of social media in her school and focused on students contributing in some way and acting as producers.

Digital literacy skill development for students and teachers. Survey data, as shown in Table 12, indicated that the percentage of support for the development of the seven different digital literacy skills for teachers only varied by 12% across all skills. The most supported skill (*n*=142, 78%) was *the ability to use social media in ethical ways* and the least supported skill (*n*=122, 68%) was *the ability to reach networks within networks.* Survey question 3, as shown in Table 13, indicates that the percentage of support for the development of the different digital literacy skills for students varied by 20% across all skills with the most supported skill (*n*=127, 70%) was *the ability to use social media in ethical ways* and the least supported skill (*n*=89, 49%) was *the ability to reach networks within networks*.

In comparison of the teacher and student data, the percentage of support in the development of digital literacy skills was consistent in terms of the percentage of support across all skill areas for teachers with a greater variance of support across the skills for the students. Additionally, the percentage of support was greater in all skill areas for teachers than for students and the most and least supported skills were the same for both groups. However, there was one

area of discrepancy, administrators supported the ability *to use social media to communicate with others* at 74.03% (*n*=133) for teachers and at 50% (*n*=91) for students.

Table 12

Support for Specific Digital Literacy Skill Development for Teachers

Skill	Yes	Not Yet	No	Total
To use social media to search for information	76.24%	22.65%	1.10%	181
To use social media to communicate with others	74.03%	21.55%	4.42%	181
To use social media to reach networks within networks	67.78%	30.56%	1.67%	180
To use social media to create new content	70.72%	28.18%	1.10%	181
To use social media in ethical ways	78.45%	21.55%	0.00%	181
To discuss how their attitudes/beliefs shape behavior	71.82%	26.52%	1.66%	181
To use different social media types	74.03%	25.41%	0.55%	181

Table 13

Support for Specific Digital Literacy Skills Development for Students

Skill	Yes	Not Yet	No	Total
To use social media to search for information	65.19%	29.83%	4.97%	181
To use social media to communicate with others	50.28%	39.78%	9.94%	181
To use social media to reach networks within networks	49.44%	43.89%	6.67%	180
To use social media to create new content	59.12%	37.57%	3.31%	181
To use social media in ethical ways	70.17%	27.07%	2.76%	181
To discuss how their attitudes/beliefs shape behavior	66.30%	30.39%	3.31%	181
To use different social media types	59.67%	35.91%	4.42%	181

Additional thoughts related to the development of digital literacy skill. There were 47 responses to the survey question asking for additional thoughts related to the development of digital literacy skills with the most frequent responses included *the need for engaging in related professional development*, and *the need for teaching digital literacy.* Table 14 shows direct quotes from some of the respondents and the corresponding concepts for which they were coded. Respondents who *did not support the development of digital literacy skills* were asked to explain their thinking in an open response format. There were no responses to this question, which may be explained by the fact that there was only one respondent (n=180) who indicated they did not support the development of digital literacy skills.

Table 14

Quotes/Concepts Describing Additional Thoughts about Digital Literacy Skills

Examples of Open Ended Responses	Concept
Until administrators themselves understand the value of these skills, they will continue to be under taught. Students living in this digital world need scaffolding to arrive at a skill set that enables them to utilize social media in appropriate and thoughtful ways.	Lack of Understanding Need Professional Learning
We seem to walk a fine line between appropriate and inappropriate use of social media, especially Facebook, Instagram, and Snapchat.	Beneficial but Risky
I think it is very important and I am also concerned with balancing the digital literacy skills for teachers and students. We prefer students learn the dos/don'ts of technology now, in elementary school, but this was a significant amount of time to spend on a discipline issue that is unique to technology use.	Digital Literacy Beneficial but Risky
We need more! We are open to the development of skills, but have not promoted the use of these skills as tools for learning.	Beginning to See Benefits

Table 14

Cont.

Examples of Open Ended Responses	Concept
This is a new frontier. I know myself and my staff need a lot more training. I know social media can be a powerful tool if used correctly. We need a lot more training for our staff and students. Some of our more experienced teachers (more veteran) are afraid of the technology due their inexperience with it and lack of time to get comfortable with it.	Need Professional Learning
The effort needed to monitor social media use/abuse, and then put out the subsequent fires, cost more than it benefits. Kids will do this on their own time; I'm not sure they need school time to use social media.	Fear of Misuse Don't See the Value
We are at an elementary school—I strongly believe that elementary aged students should not be on social media sites until they meet the age requirement for social media sites, which is usually age 13.	Too Young

Section Four: Research Question 3—How are school administrators supporting the development of more informal approaches to learning such as those used in social media?

There were three interview questions to related to the topic of informal learning:

- What does the role of informal learning have in a formal school structure?
- Is informal learning a plausible alternative to formal school?
- Can informal learning, learned outside the school setting, be legitimized and lead to credit?

During each of the interviews, I shared Bjornavold's (2007) definition of informal learning: "learning resulting from daily activities related to work, family or leisure. It is not organized or structured in terms of objectives, time or learning support. Informal learning is in most cases unintentional from the learner's perspective" (pp. 45–46). I further explained that

informal learning does not have to take place during the school day and I provided examples of what it could look like. For the purposes of reporting the interview data for this section I will combine responses to the first two questions above (*role of informal learning* and *is informal learning plausible*) and I will report the third question separately. All six principals agreed that informal learning has a place in formal schooling.

Support for informal learning. Two concepts emerged from the interview responses; *informal learning has a place in formal schooling* and *critical thinking matters for our learners*. These two concepts are represented independently in some of the responses but also merge in others. P2 explained,

> Absolutely—yes. I think it is the job of the instructor to find whatever methods, style to meet student-learning needs. To present a one-size fits all is certainly the wrong approach especially for middle schoolers. To find ways to integrate and make connections to kids with content in a more informal fashion is a way our middle schoolers are going to make connections.

P3 described,

> I think it is and I think it has to be. But I know a lot of teachers and a lot of educators are not always comfortable with going off topic or going away from what their lesson planning is or what their expectations are for the day or what their objectives are for the day. Know that becomes difficult for some who are linear-sequential in their thinking and in their presenting. But informal kind of questioning or whatever the kids did, at that point it is a learning opportunity or a teachable moment for whatever the kid wants to know about. If it is important enough for a kid to ask the question it is important enough for us to respond to it.

P6 described herself as a veteran administrator who was not worried about job security and was willing to make bold decisions as a result. She explained, “You have hit on one of my soap boxes, I could talk all night about this. A mantra around our school - school is a state of mind and not a physical space.” She further explained,

> My idea of a perfect school is that teachers are here- they have office hours. They put up a syllabus and say they are teaching this content on this day. Students are told if they are not comfortable with the topics they should come to the lecture. Other than that, teach it to yourself, be ready for these assessments on these days. Set up learning that excites you. That would democratize learning so that learning quality isn’t dependent upon what neighborhood you live in. Students are all learning by passion and can learn anywhere. I know this is a high school model and I am not sure about the model for middle schoolers who are trying to get their hormones under control. I think our current education system does more to hold students back than it does to enhance their ability to believe in themselves and get them excited about their future. I could go on for hours.

P1 showed her support for the use of informal learning explaining the critical skills we should help our students develop when she stated,

> Absolutely has a place. When I was a kid I went to school to gain knowledge and this is not why kids go to school anymore. They carry a computer in their pockets and they can get anything they want. The old school teaching of important places and events doesn't work anymore. We have to teach kids how to solve problems, think critically and take the skills we are teaching them to apply them out in the real world in a whole host of problems in the real world. The world is changing and we need to prepare them adequately. I absolutely think informal learning fits in a formal structure. If we just stick

> to math, English, science, social studies, etc. as we have always done that doesn't work for the world we are sending them out to. If we don't allow the informal learning opportunities, we are not sending them out to the world ready.

P3 shared support for the use of informal learning but expressed concern over the capacity for some staff to do so when he explained:

> I think it is (viable) and I think it has to be. But I know a lot of teachers and a lot of educators are not always comfortable with going off topic or going away from what their lesson planning is or what their expectations are for the day or what their objectives are for the day. I know that becomes difficult for some who are linear-sequential in their thinking and in their presenting.

In comparison of the interview and survey data, both groups showed support for the use of informal learning practices. There were five survey questions related to the use of informal learning practices. Survey data indicates that 51.41% (*n*=91) of respondents supported the use of informal practices in their school, 4.52% (*n*=8) did not, and 44.07% (n=78) said it depended upon the individual practice. The two most supported informal learning practices included *learning that is flexible* (89.88%, *n*=151) and *learning that connects to others beyond school walls* (87.43%, *n*=146). The two practices with the lowest percentage of support included *learning that is not overly organized* (60.12%, *n*=101) and *learning that is unintentional* (68.86%, *n*=115). Survey data indicates that 62.88% (*n*=105) of respondents provided some professional learning support related to informal learning pedagogies and 37.12% (*n*=62) of respondents provided little to no support.

Informal learning leading to credit. The final interview question to address research question 3 asked administrators "Can informal learning (obtained outside of the school day) be

assessed and lead to credit or legitimacy?" When I asked this question I provided the following scenario as an example.

> Imagine a middle or high school teacher is beginning a unit of instruction on informational writing. The teacher explains to the students that they will be spending the next five weeks honing their skills in informational writing which will culminate in a blog, newspaper article, etc. on a topic of their choice. What if a student approached the teacher to explain that they are fascinated by basketball shoes and have been for many years. In fact, what if the student showed the teacher a blog that they have been maintaining for over 18 months on the latest/greatest basketball shoes and that this blog has over 120 followers, is endorsed by Nike, Under Armor and Adidas and is updated weekly. What if the student asked the teacher if this blog could act as evidence that they understand informational writing and met the learning goals. Do you support informal learning leading to credit?

All six principals supported this idea and are quoted as follows:

- P1 "Absolutely Yes!"
- P2 "Hypothetically, I think it is awesome."
- P3 "100% Yes!"
- P4 "That is exciting to me. I would be really enthusiastic about that. It is an enthusiastic yes for me."
- P5 "Yes!"
- P6 "Yes, with clear expectations."

After responding with full support, many of the principals described how they did not know how to do that in their school or that students did not know it is an option. Three clear concepts

emerged, *yes informal learning can be assessed and lead to credit*, *yes—but we don't know how to do that*, and *it shouldn't matter where they learned it*. P1 explained:

> Should it? Yes! Is it? No. Specific to my site I can't think of an example of a kid coming to the school with that question—I have done this, does it apply? Can I get credit for it? That has not happened but part of it may be because that is out of the box thinking. We haven't ever done that . . . thinking hypothetically absolutely makes sense.

P2 stated,

> Yes, it could be a viable option or legitimate option toward any students learning process. I think we do do [*sic*] it to some degree. I don't think that students know that they necessarily have the option so it is not practiced.

P4 explained, "Do we need to take some time to build the culture? Yes. The teachers need to feel a sense of trust and rapport with the administrators because we are so evaluation centric in this state."

The final concept that emerged was the idea that *it shouldn't matter when/where a student met the learning goals*. P1 shared,

> In the US as we move to and continue with Common Core we are talking about students meeting standards for academic performance in broad categories and if students show they are applying them— Can they do it? Can they apply these things? If they can show they are applying these things in some time during their day it seems arbitrary to say well if you do something between 8:30 to 3:30 it counts but at 4:30 it doesn't count. It would have to go to powers beyond me but I would advocate for that on behalf of a student.

P3 explained,

> If you are assessing where kids are and you give it to that kid and he says I already have a blog with 100 followers can I use that as my source for this assignment. Why not? The kid has already done it. We look at standards based grading. This kid already has that knowledge and are going beyond where you want to take it. Why not use that to say this kid has already mastered that standard? If I already know something why do I have to redo it? If kids come to you with that knowledge why do they have to sit through it again? Why do they have to get what everyone else gets when they already have a keen understanding of that standard and they can prove that to you? Why don't we use those personal experiences outside of that building to add to that?

P6 stated, "You just have to demonstrate the skills. Nothing says that skill has to be demonstrated the same way for all learners. Even AP College Board is doing that at a massive scale with their free response essays."

P6 offered an additional idea that was not mentioned by other principals—professional learning should follow an informal learning path as well. She further explains:

> I would take it further and say that teacher professional development can be more informal when you set the expectations. We do that. We use Canvas, a learning management system like Blackboard. My administrative team, we set up a course with 6 modules on student driven learning. The modules are setup that way so teachers have from January to May 1st to work at their own pace. They turn in their learning products. They are gathering their badges and going through their own learning and it has been fun to watch how it has changed the talk around the lunch table.

No support for use of informal learning practices. Survey respondents who *did not support* the use of informal learning practices at their school were given the option of explaining their thinking. Their reasons included a *fear of misuse*, *not seeing a benefit to student learning*, *it not being a priority*, a *need for clear parameters,* and *a lack of understanding of how to properly use informal learning practices*. A *fear of misuse* and a *need for clear parameters* will be explored more closely in Section Four of this chapter. Table 15 shows direct quotes from the respondents and the concepts for which they were coded.

Table 15

Quotes/Concepts Describing Why They Do Not Support Informal Learning

Examples of Open Ended Responses	Concept
The impact of social media in middle school is difficult as is. To allow in-school social media would create more problems than positive.	Fear of Misuse
New to the school. Prioritizing other instructional areas to support.	Not a Priority
There just has not been enough opportunity to identify when this would happen or what it looks like.	Lack of Understanding

The final survey question in part four asked participants to provide additional comments related to the use of informal learning practices in their school. There were 34 responses and the following concepts emerged the most frequently: *I am interested to learn more, I fully support the use of informal learning in my school* and *we are giving it a try*. Table 16 shows direct quotes from the respondents and the corresponding concepts for which they were coded.

Table 16

Quotes/Concepts Describing Additional Thoughts About Informal Learning

Examples of Open Ended Responses	Concept
More information is always welcomed. Where do I get resources related to this kind of pedagogy? This is a new term for me. A lot depends on the ability of the teacher to structure the class in such a way that informal learning is beneficial.	Interested to Learn More
We are examining the use of Makerspace and how informal learning is contextualized into formal learning.	Giving it a Try
Students need to be given choice and opportunities to explore. True learning occurs when students are given ownership in their learning.	Support for Informal Learning
Applaud concept of unintentional learning. But, with full curriculum standards it is difficult to allow too much flexibility with independent goals and process.	Need Parameters
Teachers need to realize the power of informal learning. Between the classroom walls and the between the bell schedule is not the only place students learn. Their needs to be an unstructured and informal discovery during and beyond the school day.	Support for Informal Learning

Section Five: Research Question 4—What external conditions and factors affect administrators' perceptions and support in the use of social media as a tool for learning?

There were a few interview questions and 15 survey questions that were developed to examine research question number 4. Five of the survey questions appeared in part 1 of the survey and examined three areas; *policies and procedures* for social media use, *levels of access* to social media and/or *types of social media* accessible. Ten questions appeared in part 5 of the survey that examined the demographic data of the survey respondents and have been previously reported. A summary of the demographic analysis of the interview and survey data can be found on pages 83-84 and in Tables 5 and 6.

Social media access. When examining control over social media access, 49.14% (*n*=115) of survey respondents indicated the control over social media access was decided at the school level. For 18.38% (*n*=43) of survey respondents, the control over social media access was decided at the district level and 26.07% (*n*=61) of respondents indicated that control was managed through a partnership between the school and district personnel. For 6.41% (*n*=15) of survey respondents who chose *Other*, all but one of their explanations can be categorized into one of the responses already listed or coded as not applicable to the question. The only outlier was, "We have hired a company to do the social media." See Table 17 for the recoding of the open responses.

Table 17

Recoding of the Open Response Data Describing Access to Social Media

Response	Recoding
District Tech Specialist and District Technology Committee	District
Teachers have the control at the classroom level, but our IT Department has the overall control, with suggestions/direction from administration.	School/District
We have a committee that would need to recommend opening up social media for use. It would need to be approved by the BOE.	District
We have hired a company to do the social media.	Other
We are working towards a gradual release model. Currently the principal controls the use of social media and is modeling what best practices look like. Next year this control will be passed over to a team of teachers, and by the third year we are hopeful all teachers will be suing social media in their classrooms.	School
NYC schools system has control over the policies governing social media. Sites are blocked.	District
IT Staff.	District

Table 17

Cont.

Response	Recoding
We have a Direct of External Communications. All formal tweets and posts come from her, but teachers and stall are able to tweet and post themselves, just not to the official site.	District
Teachers use it in their classroom in limited ways, and an administrator controls the school's social media presence.	School
There is one central tech person that police it, but all staff and administrators help control it.	School/District
It is controlled in that most sites are blocked and therefor inaccessible.	District

Survey respondents were asked to select the level of student access to social media in their school for which they were provided four choices: *social media is blocked, there is limited access (controlled by the school/district), there is guided access (controlled by the teacher)* and *there is open access*. A larger percentage of survey respondents 43.4% (*n*=102) worked in schools with *limited access* to social media, 25.53% (*n*=60) of survey respondents worked in schools where students had *open and/or guided access* and 27% (*n*=64) worked in schools where there was *no access*.

For those survey respondents who worked in schools where there was some access to social media, they were asked to identify which social media types to which students had access. Survey respondents indicated, as shown in Table 18, that students had the most access (59%, *n*=68) to *collaborative development sites* followed by the second most access (43%, *n*=62) *to blog comments and forums*. Students had the least amount of access (18%, *n*=26) to *virtual worlds* followed by (21%, *n*=31) *social networking sites*.

Table 18

Access to Different Types of Social Media

Social Media Type	None	Limited	Full	Unsure	Total
Social Networking Sites	30.61%	46.94%	21.09%	1.36%	147
Bookmarking Sites	25.34%	39.73%	23.29%	11.64%	146
Media Sharing Sites	12.93%	59.86%	24.49%	2.72%	147
Micro Blogging Sites	29.86%	32.64%	30.56%	6.94%	144
Collaborative Development Sites	3.40%	31.97%	58.50%	6.12%	147
Blog Comments and Forums	13.79%	28.97%	42.76%	14.48%	145
Social News Sites	17.93%	34.48%	25.52%	22.07%	145
Virtual Worlds	22.60%	21.23%	17.81%	38.36%	146

Synthesis of concerns for social media, digital literacy, and informal learning. I examined the open response data from multiple questions in order to surface the collective concerns related to all three areas—the use of social media for learning, the development of digital literacy skills and use of informal learning practices. The most frequently mentioned concerns, as shown in Figure 9, included a *fear of misuse by the students* (*n*=24)*, the need for related professional learning* (*n*=17*)* and a need for *clear parameters* (*n*=11). Many of these concerns are related to external factors and/or conditions that may affect administrators' support of the use of social media for learning and thus reported in this section.

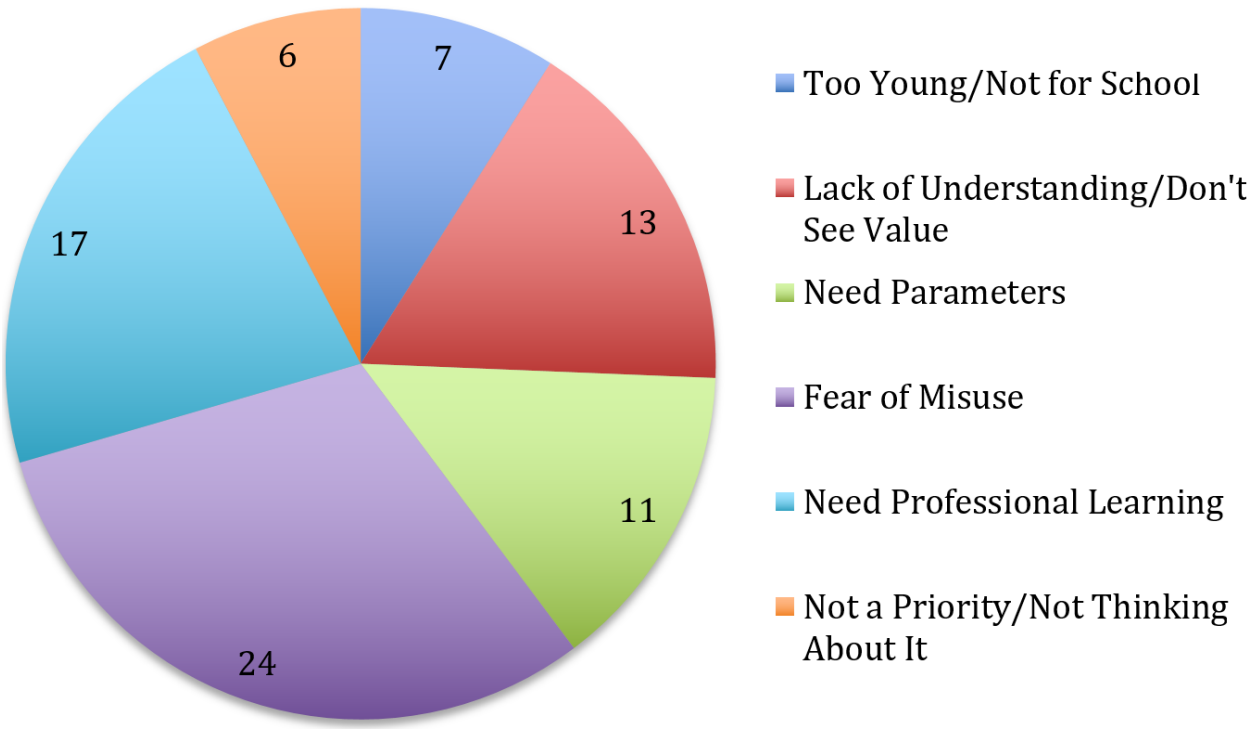


Figure 8. Frequency of responses related to concerns for social media use

Policies and procedures for social media use. To better understand the parameters administrators felt were necessary for them to support the use of social media for learning, I asked interview respondents what parameters should be in place for social media to be a viable tool for learning. There were six different themes that emerged regarding the recommended parameters that need to be in place for social media to be a viable tool for learning. Three of these responses surfaced across multiple interviews including: *a strong digital literacy program, clear social media use policies,* and *high staff competence in the use of social media for learning*. All six interview respondents mentioned the need for *clear social media use policies* as one of the parameters for social media to be a viable tool for learning in their school.

The survey data corroborated the interview data related to the need for clear policies/parameters for social media use. Survey data revealed that 13% (n=25) of respondents said there were no policies for students, 35% (n=70) said there were a few/loosely defined

policies for students and 53% (*n*=103) stated there were clearly defined and/or a comprehensive set of policies for students. Survey data, as shown in Figure 10, indicates that there are more clearly defined policies/procedures for students (53%, *n*=125) than for teachers (41%, *n*=95).

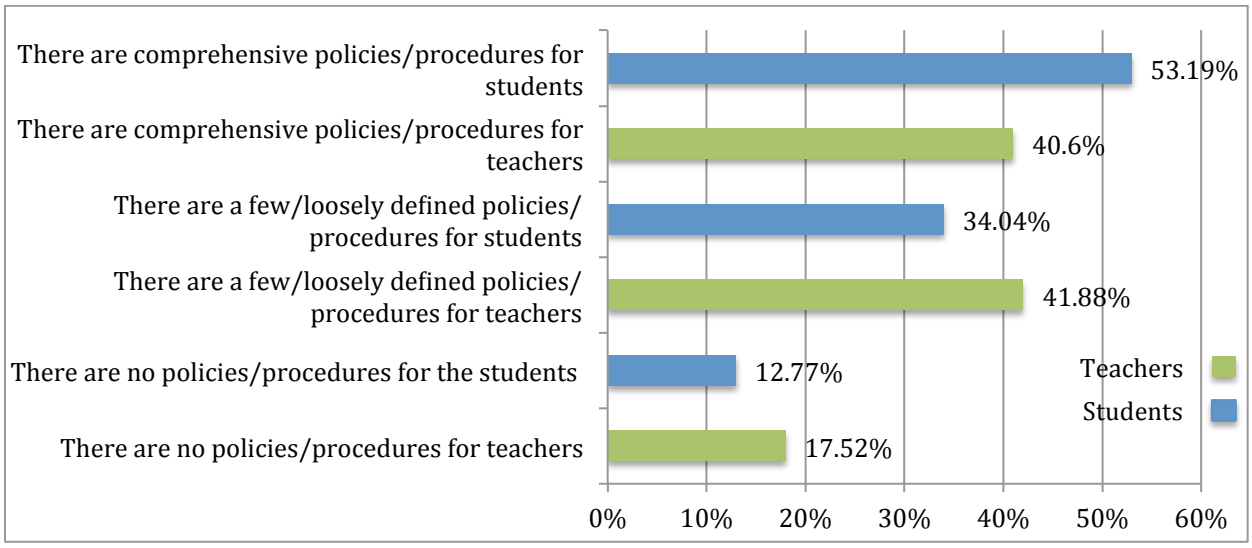


Figure 9. Policies for teacher and student use of social media.

The *development of digital literacy skills* was the next most frequently mentioned parameter. P2 stated a need for digital citizenship as a parameter and P1 explained:

> I think the first thing that needs to be in place is some kind of digital awareness education for the kids. I wouldn't feel comfortable putting something in kids' hands without teaching them a little bit about it and asking questions about the device they have been given and the abilities it has and thinking about the positive and negative of that technology. That is one parameter.

P6 was in favor of educating students to make their own choices instead of applying stringent filters on the use of social media as some of her colleagues supported. She stated,

> We teach our students about digital citizenry and creating the digital footprint in the world. We are pretty loose on letting teachers choose their own tool and how to use them. We are stringent on requiring teachers to conform to the rules. We don't allow our

> teachers to use Snapchat because we see kids using that for harassment. They (students) need to understand that with Snapchat, no it is not really gone, people with knowledge can still pull it down. We want our students to understand that they are leaving a digital footprint with everything that they are doing. I do have colleagues who are in favor of applying stringent filters on social media use at school. I have had heated discussions with our instructional technology department and even parents. We are a 1:1 school and we use iPads. Within a month of them coming to our school they are issued an iPad. We have had parents tell me they want me to restrict their students' use of the iPad before we give it to them. If the students can't resist the urge to go to places they know they shouldn't go to they shouldn't be at our school. Some schools have a mandatory filter in the way they setup their network. We try to teach the students to be their own filter so it all falls under being a responsible digital citizen.

While only three of the six interview respondents indicated that the development of digital literacy skills should be a key parameter to support social media for learning, the other three interview respondents listed digital literacy as critical to social media use in schools through responses to other questions. For instance, P3 discussed in depth, the literacy skills students needed to "discern what they are reading." He further explained, "social media can be an ugly dog—if they are not conscious of what they are watching, listening to and seeing. I just want to make sure they become great understanderers [*sic*] of what research is." P4 stated that students needed to learn about their digital footprint and how to become reliable researchers. P5 stated that students needed to be provided open access to social media and taught the skills necessary to use it responsibly. This shows full support in the development of digital literacy

skills from all interview respondents, which aligns to the survey data where 93% of respondents (*n*=176) indicated they supported the development of digital literacy skills.

Three interview respondents mentioned *high staff competence in the use of social media* as another parameter that needed to be in place for social media to be a viable learning tool in their school. As previously reported, all interview participants expressed the need for related professional learning in the use of social media use in their school as did 93.6% (*n*=161) of survey participants; which would help with the development of high staff competence in the use of social media for learning. P3 stated, "I would feel comfortable if I knew my staff have a very high literacy with the program and the different social media sites." P6 described,

> The biggest piece in terms of using is it a clear understanding of why this is the best tool. We are past the technology being novel. Teachers have to articulate why did you choose to do it this way? Why is that a better tool than other social media options, other technology or paper and pencil? I want to make sure teachers are metacognitive and in turn they make the students metacognitive about social media as a tool.

In review of the open response data from two survey questions: *why don't you support the use of social media for learning* and *do you have additional thoughts related to social media use as a tool for learning*, there were 11 responses (22%) that stated the need for professional learning for staff.

Other parameters mentioned by the interview respondents included *safe use of social media*, *the ability to monitor student use* and to *ensure social media is used for learning purposes*. I further analyzed these parameters by comparing those with related survey data. Two interview respondents (33%) suggested the *safe use of social media* should be a key parameter. In review of the open response data from two survey questions: *why don't you support the use of*

social media for learning and *do you have additional thoughts related to social media use as a tool for learning*, the safe use of social media was mentioned 13 times (26%).

Summary

Overall, the survey data revealed that principals were more likely to support the use of social media, the development of digital literacy skills, and the use of informal learning pedagogies when there was more open access to social media tools at their school. There are more clearly defined policies for students' use of social media than for teachers' use. And, principals indicated a higher percentage of support for teacher's use of the different types of social media than for the student's use of the same types of social media.

Administrators were very clear in this survey that they would benefit from professional learning in the all three areas: the use of social media as a tool for learning, the development of digital literacy skills and the use of informal learning practices. Those administrators who stated they were not yet comfortable or knowledgeable with the use of social media as a tool for learning worked in schools where students were more likely to interact as consumers of information. In analysis of the open response survey data, there were many more examples of students interacting with social media through some sort of contributions and least often as producers of new content. The interview data revealed that the principals who better understood the potential of social media as a tool for learning were more likely to have students interacting with social media as collaborators and producers.

In Chapter 5, I share a brief summary of the background and purpose of the study, the methodology used, and the research questions. I present a discussion of the findings in relation to the literature review and share implications for future practice. The chapter closes with suggestions for future research.

Chapter 5

Summary, Findings, and Implications

The purpose of this study was to identify the perceptions of PK-12 public school administrators in the use of social media as a tool for learning. There was one main research question and three supporting questions as follows: What are K-12 school administrators' perceptions of using social media as a tool for learning in school across the U.S.?

1. How are school administrators supporting the development of social media literacy for their teachers and students?
2. How are school administrators supporting the use of more informal approaches to learning such as those used in social media?
3. What external conditions and factors affect administrators' perceptions and support in the use of social media as a tool for learning?

This chapter is organized into four sections: the findings, the implications for educators, recommendations for further research and final reflections.

Findings

The data outlined in Chapter 4 have led to several findings. This first section is organized according to the findings to include the relevant research.

Finding One. *Most interviewed and surveyed administrators indicated a clear level of support for the use of social media as a tool for learning.* Four of six interview respondents (66.6%) and 69.59% (*n*=103) of survey respondents indicated support for the use of social media as a tool for learning, which aligns to findings in the research. The theory of perceived usefulness has shown that attitudes, beliefs, knowledge and skill regarding the use of social technology for

learning determine the extent of the technology integration (Levin & Wadmany, 2006; Mueller et al., 2008; Cao & Hong, 2011).

The use of social technology promotes a sense of community and cooperation, allowing users to learn from each other (Lusk, 2010; Wankel, 2009; Minocha, 2009a; Woodley & Meredith, 2012; Bordelon, 2011; Coklar, 2012; Gulbahar, 2005). Social technology is engaging and relevant for today's youth and helps build critical skills for their future (Coklar, 2012; Hartshorne & Ajjan, 2009; Lederer, 2012 Minocha, 2009a; Papaioannou & Charalambous, 2011). Social technology provides a naturally supportive environment and when collaborating in areas of interest has proven to increase students' self-confidence and foster a positive attitude (Lusk, 2010; Minocha, 2009a; Papaioannou & Charalambous, 2011; Hartshorne & Ajjan, 2009). Social media as a tool for learning has a positive effect on student learning beyond the obvious engagement (Cao et al., 2013).

Finding Two. *Interviewed and surveyed administrators who indicated they supported the use of social media as a tool for learning were consistently able to describe uses of social media that support learning.* There were 148 responses to the survey questions related to *how social media was* or *could be used* and the majority of the responses identified purposes related to learning. Four of the six interview respondents supported the use of social media as a tool for learning, and two waivered or did not support the use of social media for learning. There were differences in the degree of detail the interview respondents provided related to how social media was or could support learning. Those interview respondents who supported social media use were easily able to provide specific classroom examples of social media use tied to learning goals. Respondents who were less supportive or who did not support the use of social media for

learning provided very generic examples for how to use social media for learning (such as to collaborate or to share documents) or were not able to provide examples at all.

Cao and Hong (2013) identified *task technology compatibility* as a condition that leads to successful social media use. Administrators being able to identify clear learning outcomes for the use of social media show understanding of task technology compatibility, which focuses on the learning and not on the technology. Minocha (2009a) identified key principles for effective social technology integration for which the principle of *being learner-centered* applies to this finding. This principle asks teachers to ensure the technology supports the learning outcomes and is an important perspective for social media to be successfully used as a learning tool. Wagner (1997) explains, "The best rule of thumb for effectively designing an interactive learning experience—whether it happens to be distance learning, on-line learning, or face-to-face, instructor-led learning experiences—is to first consider the goals and objectives of a specific learning experience" (p. 25).

Finding Three. *The two most frequently stated reasons for not supporting the use of social media as a tool for learning (as indicated by interviewed and surveyed administrators) included a* ***fear of misuse*** *by the students and the* ***need for related professional learning*** *in how to use social media for learning.* Misuse is a broad term; common misuses of social media as described in the research involve inappropriate student posting, sexting, cyberbullying, "friending" between educators and students, and issues related to freedom of speech where the result becomes defaming others (Lovecchio, 2013). The ease of uploading and the permanency of that uploading (Brown & Slagter van Tryon, 2010) and sexual solicitation (Rainie et al., 2013) are other concerns that could result in misuse of social media by students. These types of concerns prevent some educators from supporting the use of social media in the school setting.

The second most frequently mentioned reason for not supporting social media use is the need for professional learning in how to do so effectively. There is very recent research purporting that little peer-reviewed literature exists regarding the support provided by administrators to ensure effective use of social media for learning (Chen & Bryer, 2012; Cox & McLeod, 2014; Piotrowski, 2015). In a 2014 study, Dron and Anderson revealed that educators are left to their own devices to determine how to use social media as a learning tool because there is a lack of training and support related to pedagogical uses of social media.

The Papaioannou and Charalambous (2011) study highlights the importance of the administrators' personal understanding and use of social technology in order to effectively support its use for learning by teachers and with students. Their research asserts that administrative leadership matters more than technology infrastructure and expenditures. Additional research shows that technology itself does not promote learning; it only works when technology is effectively integrated into learning (Summak, Samancioglu, & Baglibel, 2010). As this finding suggests, in order for social media technology to be successfully integrated as a learning tool, principals and teachers need to understand how to do so.

Finding Four. *All six interviewed administrators and most of the surveyed administrators (93.6%) indicated that they would benefit from professional learning in the area of social media as a tool for learning.* In addition to the research presented in finding three, Gordon (2012) found that high school principals felt it was important to participate in some form of professional learning for technology integration. Sheninger (2013) describes the responsibilities given in today's technology dependent society where "it is incumbent of leaders to harness the power of digital technologies in order to create school cultures that are transparent, relevant, meaningful, engaging and inspiring" (para. 1). To do this well, principals need effective

professional learning support in the use of social media for learning- and that is where a challenge lies because there is little guidance from research-based literature (Chen & Bryer, 2012; Cox & McLeod, 2014; Piotrowski, 2015).

A 2011 study revealed that even principals who held positive attitudes toward technology integration needed tailor-made professional learning and incentives in order to transfer their attitudes to habitual practice (Papaioannou and Charalambous). Koehler and Mishra (2009) suggest professional learning for technology integration is complex and needs to go well beyond typical uses of technology because the complex nature of current technologies can no longer be considered an add-on. The support for social media as a tool for learning requires a different kind of support than other instructional strategies and/or traditional technologies (Kozloski, 2006; Cao & Hong, 2011).

Finding Five. *The ways students are being asked to use social media in school aligns to roles (consumer, producer) and levels of interaction (static, productive) as indicated by interview and survey data.* This finding is consistent with the research. The use of social media puts students in the role of both consumers and producers and Vanwynsberghe and Verdegem (2013) contend that each type of social media use has its own set of competencies that students need to develop in order to successfully use social media for learning. While the roles of consumer and producer and the actions of a contributor are inter-related, often used simultaneously and align to different social types, they require role specific competencies to be successful.

While the roles of consumer and producer are consistent with the research, the percentage of time spent in the various roles when using social media is an interesting finding from this research. The activities that lie in between the roles of consumer and producer are described in

this research as "contributor." **Respondents cited students engaging in experiences as a contributor 1.78 times more often than in the role of consumer and 6.1 times more than the role of producer.** The level of interaction impacts engagement as evidenced by Roblyer and Weincke (2004) who found a correlation between perceived high interaction within a course and course satisfaction. Wagner (1997) identifies different types of interactions that are employed to engage students in the learning process but emphasizes that the outcome of learning should determine the use of the technology. Bower (2007) identified technology affordances to be considered when matching learning tasks to e-learning technologies. Combining Bower's level of interaction (2007) with the typical roles for which students are asked to engage with social media that surfaced in this research allows educators to ensure proper alignment between tasks, learning goals and engagement.

Finding Six. *Most interviewed and surveyed administrators (93.12%), support the development of digital literacy skills for both teachers and students and indicated this is a critical skill set for students.* This finding is consistent with the research. Technology has changed how users seek, use, create and share information (Dresang & Koh, 2009; Kelm, 2011) expanding how literacy is defined to include technology literacy, digital literacy and social media literacy, among other things. This broadening definition has implications for how students are taught and resources for which they engage. Vanwynsberghe and Verdegem (2013) define social media literacy "as the practical, cognitive, and affective competencies needed to access, analyze, evaluate, and create social media content across a wide variety of contexts" (para. 11). Another definition of social media literacy is "the ability to access, analyze, evaluate and create messages across a variety of contexts" (Livingstone, 2004, p. 18). The expansion of how we define literacy

actually requires teachers to expand their practice in terms of what they teach students (Vanwynsberghe & Verdegam, 2013).

Finding Seven. *All interviewed administrators and over 60% of surveyed administrators support the use of informal learning practices and indicated a need to better understand the possible uses of informal learning in a formal school structure.* Informal learning is a relatively new area in PK-12 education and is being formalized through blended learning models which incorporate both formal and informal learning practices (Lai et al., 2013; Bull, 2008). Informal learning puts the learner in the driver seat and in control of the instructional process (Horn & Staker, 2011). Social media provides easy access to informal, interest based learning, which flourishes outside of school (Halverson & Smith, 2009). The challenge for administrators is to harness the engagement provided via informal learning within a more standardized educational program (Ravenscroft, Warburton, Hatzipanagos, & Conole, 2012).

Another challenge rests in the structure of schooling where 80% of education budgets are allocated for formal teaching and learning. This competes with the fact that 80% of learning via social technology is informal (Leslie & Landon, 2008). Social media use in an educational setting requires students and teachers to have strong digital literacy skills and for teachers to be comfortable with less control over all aspects of the learning. It was clear from my research that administrators understand and are comfortable with digital literacy skill development for their teachers and students. Where administrators are supportive but less knowledgeable, as identified in the survey and interview data, is in the use of informal learning practices in a formal school setting. As stated in finding three, professional learning is needed to better prepare administrators to support social media use in schools, which includes the effective use of more informal learning practices.

Finding Eight. *Interviewed and surveyed administrators indicated they would be more likely to use social media as a tool for learning if there were very clear parameters for that use.* This finding is supported in the research. Minocha (2009a) found no case studies reporting coherent institutional policies about the usage of social software tools for either educators or students. Brake (2014) found in researching teachers' perceptions of ethical uses of social media at the high school level, that existing social media policies were ambiguous and, several participants noted their existing school policy, "did not provide concrete explanations for use in the classroom" (p. 78). In the survey data, respondents who indicated they did not support the use of social media in their school referenced a need for clear parameters and/or a need to better understand how to use social media in their school in 9 out of 20 responses.

The collective findings described in this section support the findings from Wilmore and Betz (2000)—technology for learning purposes can only be successfully integrated if the administrator is an active supporter, clearly understands the potential as a learning tool, provides effective professional learning and supports faculty through the change process.

Implications

The following section outlines implications for educational administrators based on the findings provided in this chapter.

For principals. *Principals should provide professional learning in the use of social media as a tool for learning especially related to informal learning practices where there is more learner control.* The implementation of social media as a tool for learning is vastly different from the implementation of typical technologies commonly used in education and requires changing pedagogy and the structure of the typical learning environment (Kozloski, 2006). There are many research studies related to technology integration that focus on student

interaction as a key criterion for engaging learners. Wagner (1997) delineates between interactivity and interaction to ensure the learning outcomes focus on the learner's level of interactions instead of the focus being on the technologies interactivity. Roblyer and Weincke (2004) developed a rubric to assess the degree of interactive qualities in distance education courses because previous research revealed high interactive courses cause higher rates of student satisfaction.

Bower (2007) developed a framework for matching learning tasks with learning technology to show the potential of the technologies being employed. In his framework he described the different degrees of interaction required of tasks and how those engage learners. As learners engage with social media as a tool for learning in more highly interactive ways such as in the role of producers, their level of control over their learning increases. When students are in the role of producers, they are creating new content to add to the collective knowledge base already in the mainstream, which Siemens (2004) and Downes (2007) call connectivism. The use of social media requires a less traditional pedagogy and aligns to a more constructivist and connectivist approach to teaching and learning, which may not be a comfort for all teachers.

Principals should monitor teaching and learning to ensure the use of social media moves beyond the role of consumer toward producer and engages students in activates that ask for their contributions. Students have been taught how to access information on the Web since its first iteration in the early 1990s. The transition from a static Web 1.0, to the read/write Web 2.0, and to the mobile Web 3.0 has created technology that is more and more accessible, powerful as well as intuitive. As discussed in the previous implication, these changes allow more freedoms for the users putting them in the driver seat. The educational uses of the current and future Web need to advance along with the technology advancements moving from students using the Web mainly in

the role of consumers to include the role of producers. These roles are neither static nor linear, identify the level of interaction required of the learners and are often at play simultaneously. The importance of these roles for educators is to ensure that learners are given opportunities to not just use the Web to consume information but also to contribute and produce. While it is clear that the learning outcomes must determine the role for the learners, administrators need to ensure their teachers understand and harness the potential of social media for all three roles.

For division/district leadership teams. *District leaders should examine their social media use policies, related professional learning programs and related curriculum design to ensure alignment to the use of social media as a learning tool. Where there is misalignment, changes need to occur.* There is clear administrative support for the use of social media as a tool for learning and the research supports the educational benefits. But, the use of social media for learning is more complicated than other technologies and the success is based on attending to three separate, but inter-related areas: social media types, digital literacy skill development and informal learning practices. Koehler and Mishra (2009) argue that because

> teaching with technology is a complex, ill-structured task, we propose that understanding approaches to successful technology integration requires educators to develop new ways of comprehending and accommodating this complexity. At the heart of good teaching with technology are three core components: content, pedagogy and technology, plus the relationship among and between them. (p. 62)

More specifically, the use of social media for learning requires the effective use of digital literacy skills and informal learning practices, as well as the ability to discern which social media type aligns to the learning outcomes. While these three areas interweave to support the effective

use of social media for learning, they need to be attended to individually for successful social media integration into teaching and learning.

A review of social media use policies, the curriculum development and implementation for social media use, and related professional learning to support social media for learning allows district administrators a chance to update policies and practices as necessary. Another benefit of a review would be the chance to develop and/or revise related professional learning opportunities for administrators and teachers accordingly. Keeping the focus on learning is a critical lens for this kind of review especially if the use of social media for learning is a district goal. Minocha's principles for effective social technology integration support this implication under the principle of *to evaluate the initiative* (2009a). After integrating social technology into a key learning outcome, soliciting feedback from teachers and students on the use of the social media given the learning goal will allow for important discussion around the benefits of social media as a learning tool and "enhance its potential for sustainability and transferability" (Minocha, 2009a, p. 390).

Districts leaders should review the policies/procedures for the use of social media as a learning tool and include the right level of detail necessary for administrators to be comfortable supporting social media for learning. There are two broad policy considerations for administrators when using social media in school- the policies and procedures for safeguarding students and the recommendations for the use of social media for learning purposes. Administrators mentioned a need for more details in both of these areas. Often, policy and procedure documents focus on the safeguarding needs of the learners and curriculum documents focus on the pedagogy and learning goals. One consideration would be to develop a comprehensive set of resources that combine both the safeguarding related recommendations and

the learning related recommendations. This might help administrators move beyond the sole focus on safeguarding to include the potential of social media as a learning tool.

District leaders should examine if the current social media access policies are helping or hindering the development of students who have grown up in a digitally connected world and face this in their future workplace. Around 30% of survey respondents indicated student access to social media was blocked and an additional 42% indicated there was only limited access to social media at their school. Additionally, the interview participants who worked in schools with limited access were less able to describe the possibilities of social media as a tool for learning. Some of the open response and interview response data indicated administrators wanted to challenge the notion of schools blocking access to social media claiming that students do not learn to manage their social media use if they don't have access in settings where they can learn what are/are not safe and effective practices. District leaders need to consider the knowledge and skills necessary for today's students to be successful outside of school, both now and in the future, and determine if social media plays a role in that success and respond accordingly.

District leaders should examine how they are defining social media to ensure it is not being narrowly defined as only social networking sites. There are many different types of social media and these types are defined by their purpose and for each type, there are products available online. For instance, social networking is a type of social media and Facebook, LinkedIn, Google +, and Instagram are a few of the social networking products available (Grahl, 2014). Media sharing is another type of social media and YouTube, Flickr, Vine, Snapchat and Vimeo are products available for the purpose of sharing media (Grahl, 2014). While the social media types remain pretty consistent, the available products change frequently. Too often, social media is thought of solely as social networking for which Facebook is the leader in that type.

When administrators define social media as Facebook, a natural response would be to limit access to social media as a tool for learning. When determining if and how social media can be used for learning, it is important to examine the learning goals and then determine the technology that is the best support for those goals. If social media technology is a good support for the learning goal than the type of social media must be considered first and then the most appropriate product would follow. A better understanding of how social media is defined, and the purpose for each type of social media would benefit administrators and teachers as they learn to align learning outcomes with available technologies.

For university level educators. *Leaders of principal preparation programs should provide professional learning related to the use of social media as a tool for learning.* This professional learning should help principals see the value of social media for learning and when/how it can be used safely and effectively. Principals should walk away with an understanding that the focus is always on the learning outcomes first and then if/how social media technology can support those learning outcomes. Additionally, professional learning should help future principals understand that today's technologies are complex and require a deeper understanding than technologies of the past. Principal preparation programs need to unpack the complexities of today's technologies and provide appropriate training and support so future administrators can lead the use of technology in schools safely and effectively for learning purposes.

Leaders of principal preparation programs should help future administrators understand the changing dynamic of K-12 education given the advances with technology. No longer are teachers the keepers of the knowledge and the main experts in the room, especially as students progress through their K-12 experience. Technology is allowing anytime, anywhere access to

information, tools and processes that were once not accessible without years of training, support and often-financial resources. K-12 education needs to continually evolve with society and the current trends with technology enable students to be more in charge of their learning. The constructivist pedagogy has proven to be a successful approach to learning and aligns to practices needed for social media to be used as a tool for learning. The advances in technology that put students more in charge of their learning needs to be embraced to keep K-12 education relevant, necessary and engaging.

Recommendations for Future Research

The findings from this study suggest the following recommendations for further research.

1. Examine how schools and/or administrators define social media for learning. A clearer definition of using social media as a "tool for learning" is necessary. Social media narrowly defined as only being about social networking sites such as Facebook, may impact perception of use as a tool for learning.
2. Research the impact of social media for learning across K-12 levels.
3. Examine how administrator's use of social media impacts educational use. If their use is most likely personal and/or for communication, does that affect the potential for the use of social media as a tool for learning in their school?
4. Examine the impact of required social media use by administrators for professional purposes and if that would increase or not the likelihood of social media being used as a tool for learning.
5. Test the usability of Cao and Hong Model (2013) as a planning framework for implementation of social media related initiatives. All of the antecedents and consequences mentioned in their model surfaced in the analysis of my data.

6. Examine the most commonly used curriculums for teaching digital literacy to determine alignment to more recent trends in social technology. Do the digital literacy curriculums encourage the use of social media to ensure students engage in the roles of consumer and producer and ask for their contributions?
7. Define and develop structures that need to be in place for learning that happens outside of the school day (informal learning) to be legitimized and lead to credit.
8. Compare the pedagogy of teachers who are creating effective learning experiences where students engage with social media for learning to the pedagogy of teachers who are not comfortable with social media as a tool for learning. What is the impact of a teacher's preferred pedagogy on the use of more informal learning practices such as those supported by social media?
9. Use Wagner's (1997) descriptions of interactions to study the kinds of interactions students are doing while on social media to determine if that aligns to current research into quality learning.
10. Examine the kinds of collaborations for which students engage when using social media for learning using the social forms described by Dron & Anderson (2014).
11. Examine the use of professional learning funding models to ensure funds support the professional learning beyond the stage of *learning the new innovation* and continue through the *maintenance/habitual practice* and into a *full integration stage*.
12. Replicate this study with a larger interview base.

Reflections

I began this research process to determine if social media is a viable tool for learning. I wanted to understand if the technology that is so engaging and consuming to today's youth could

be harnessed and used for learning purposes. The level of engagement, ease of use and accessibility with social media is clear. The social media tools are becoming so intuitive that the learning curve is no longer a barrier. In fact, the learning curve for the use of social media often does not rest with the learners but rather with the educators. I chose to examine administrators, as they are the lead learners in their school and initiatives do or do not happen under their leadership. If social media was to be used for learning it was under the leadership of the principals.

My research advisors suggested that I develop a mixed method design in order to provide a clearer picture of what administrators grapple with related to social media use in their schools. To be honest, I was a bit skeptical at first feeling as though the research would become too big for me to handle for my first research experience. After gathering and analyzing both the quantitative and qualitative data, I am a firm believer of mixed method research design because the numbers alone do not tell the entire story. The richness of the interview data provided a clearer picture into the challenges administrators faced in their roles as well as the possibilities social media afforded which allowed for more thorough explanations of the survey data. Additionally, with a low return rate and the possibility for non-response bias, I was able to focus my analysis on the interview data and used the survey data as secondary support.

An interesting picture that emerged from the interview data was related to the elementary principals' perspectives on the use of social media in their schools. Open response survey data revealed that some administrators felt ES learners were too young because the social networking sites likes Facebook had age restrictions. There are many different types of social media beyond social networking sties and two of the interview participants revealed how they worked within the age restrictions and kept school and teacher accounts to allow younger students to use social

media in a supervised way in their elementary schools. Another interesting anecdote relates to students having open versus closed Internet access. I wasn't able to statistically confirm through this study that access impacts support but I have a hunch that it does and if schools had more open access for students more administrators would support social media use.

I am encouraged by the results especially for the support that administrators showed related to the use of informal learning practices. K-16 schooling is starting to change at a pace never before seen. The Web is ensuring distance is no longer a barrier allowing learners to access information and experts from their homes. There are handheld language translators, GPS watches, robotic assistants, etc. For schools to be responsive to these changes, personalized and informal learning needs to be embraced. Christopher Sessums (2011) sums this up well:

> We are all active participants in new digital media exploration. We are not merely consumers of new digital media, we are also creators. It is our business to show others what we've learned and to offer new perspectives on how these new tools might be used to support teaching and learning. (p. 187)

This process has helped me gain confidence in the use of research as a key tool for developing policies and practices within K-12 education. My research skills and in depth study of social media as a tool for learning have given me results and resources to share with others. I believe my research will enhance current research allowing educators at all levels to engage in discourse related to educating students in contemporary society that relies on social media. It is my hope that educators and scholars can use my research to make informed decisions about how to use social media safely and effectively to enhance not only engagement, which is critical to learning, but also learning for any aged learner.

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Appendices

Appendix A

Definitions of Social Media

After culling the research, the multiple definitions listed below have emerged that define social technology, social networking and/or social media. Also included are three definitions of social media not from research but from popular Internet sites.

Definitions of social technology/social networking/social media	Source
"networked tools that support and encourage individuals to learn together while retaining individual control over time, space, presence, activity, identity and relations."	Anderson, 2005
Internet use for "interpersonal communication, personally valued information, self-expression, entertainment and consumptive motives."	Gordon, Wong & Syed, 2007
"The current family of technologies that this term (social networking) refers to range from tools emphasizing social networking (e.g. Facebook, Bebo, and LinkedIn) and media sharing (e.g. MySpace, YouTube, and Flickr) to virtual worlds (e.g., Second Life), which constitute this more social and participative web."	Ravenscroft, 2009
Web 2.0 referred to as the read/write web is participatory technology allowing users to modify and share content (not obtain it) changing the way documents are created, used, shared and distributed.	Ajjan and Hartshorne 2008/2009
"Web 2.0 is characterized by its mobile and virtual world collaborative platforms."	Wankel, 2009
"The term Web 2.0 or 'social software' covers a range of software tools which allow users to interact and share data with other users, primarily via the web, Blogs, wikis, social networking websites . . . that are being used to share and collaborate in educational, social and business contexts. The key aspect of a social software tool is that is involves wider participation in the creation of information which is shared."	Minocha, 2009
"Set of technology and channels targeted at forming and enabling a potentially massive community of participants to productively collaborate."	Bradley, 2010
"A group of internet based applications that allow the creation and exchange of user generated content (UGC)."	Kaplan & Haenlein, 2010
". . . technology and platforms that enable the interactive web's content creation, collaboration and exchange by participants and public."	Cohen, 2011

"Web 2.0 technologies *are* tools that allows users to contribute to content formation of users providing high level of interaction between users."	Coklar, 2012
"Forms of electronic communication (as Web sites for social networking and microblogging) through which users create online communities to share information, ideas, personal messages, and other content (as videos)." http://www.merriam-webster.com/dictionary/social%20media	2014
"**Social media** are computer-mediated tools that allow people to create, share or exchange information, ideas, and pictures/videos in virtual communities and networks." http://en.wikipedia.org/wiki/Social_media	2014
Social media are computer-mediated tools that allow people to create, share or exchange information, ideas, and pictures/videos in virtual communities and networks. http://www.oxforddictionaries.com/us/definition/english/social-media	2014

Appendix B

Social Media Types

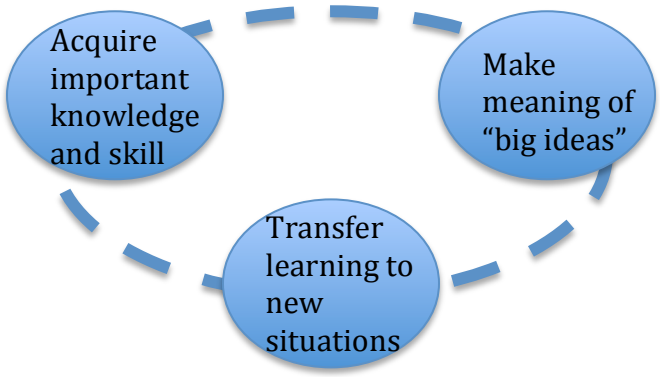
Media Types	Examples	Description
Social networks	Facebook, LinkedIn, Ning, Google+, Instagram	Services that allow you to connect with other people of similar interests and background. Usually they include the ability to set up a profile, interact with other users, set up groups, and share and comment on content.
Bookmarking sites	Pinterest, Delicious, StumbleUpon	Services that allow you to save, organize, and manage links to various websites and resources around the Internet. Most allow you to "tag" your links to make them easy to search and share.
Social news	Digg, Reddit	Services that allow people to post various news items or links to outside articles and then allow their users to "vote" on the items. The voting is the core social aspect as the items that get the most votes are displayed the most prominently. The community decides which news items get seen by more people.
Media sharing	YouTube, Flickr, Vine, Snapchat, Vimeo	Services that allow users to upload and share various media such as pictures and video. Most services have additional social features such as profiles or commenting.
Microblogging	Twitter	Services that focus on short updates that are pushed out to subscribers.
Blog comments and forums	Blogger, Wordpress	Online forums that allow members to hold conversations by posting messages. Blog comments are similar except they are attached to blogs and usually the discussion centers around the topic of the blog post.
Virtual worlds	Second Life, Planet HS	A computer-based simulated environment accessible via the web with players from all over the world playing simultaneously as teams and/or opponents.
Collaborative development	Moodle, Wikis	Web-based sites allowing collaborative editing of the content and the design of the site.

Source: Grahl, 2014.

Appendix C

Teaching and Learning for Understanding: TMA Construct

According to Grant Wiggins and Jay McTighe (2011), within every learning environment it is important to understand the learning goal for the learning events being designed. There are three distinct yet interrelated learning goals for any learning event: (a) acquisition of new information and skill, (b) making meaning of that content (i.e., coming to understand), and (c) transfer of one's knowledge (i.e., applying one's learning to new situations).



Focusing on these learning goals help teaches determine the kind of learning event to be designed, the role the teacher takes, and the corresponding student actions.

Learning Goals and Teacher Roles

Interrelated Goals	Acquire	Make Meaning	Transfer
	This goal seeks to help learners acquire factual information and basic skills.	This goal seeks to help students construct meaning (i.e. come to understand) of important ideas and processes.	This goal seeks to support the learner's ability to transfer their learning autonomously and effectively in new situations.
Teacher Role	Direct Instruction The teacher's primary role is to inform the learners through explicit instruction in targeted knowledge and skill; differentiating as needed.	Facilitative Teaching Teachers in this role engage learners in actively processing information and guide their inquiry into complex problems, texts, projects, cases or simulations; differentiating as needed.	Coaching Teachers in this role establish clear performance goals, supervise on-going opportunities to perform (independently) in increasingly complex situations, provide models and give ongoing feedback.

Learning Goals and Student Actions

Three Interrelated Goals	Acquire	Make Meaning	Transfer
	This goal seeks to help learners acquire factual information and basic skills.	This goal seeks to help students construct meaning (i.e., come to understand) of important ideas and processes.	This goal seeks to support the learner's ability to transfer their learning autonomously and effectively in new situations.
Student Actions	In order to acquire knowledge and skills, learners need to: • Listen, read, and view carefully • Respond • Take notes • Ask questions • Link to prior knowledge • Compare • Self-assess	In order to making meaning of important ideas and processes learners need to: • Listen, read, and view critically • Respond thoughtfully • Take reflective notes • Critically question • Make inferences • Create analogies • Make connections • Self asses	In order to develop the capacity to transfer their learning students need to: • Apply learning in novel and increasingly complex situations • Observe the results • Listen to and act on feedback • Engage in focused practice • Retry, refine, revise, reflect • Employ productive habits of mind

Appendix D

Rubric for Degree of Understanding

3	THE GAME: The learning event is presented without cues as to how to approach or solve it, and may look unfamiliar or new. Success depends upon a creative adaptation of one's knowledge, based on understanding the situation and the adjustments needed to achieve the goal – "far transfer." No simple "plugging in" will work, and the student who learned only by rote will likely not recognize how the task taps prior learning and requires adjustments. Not all students may succeed, therefore, and some may give up. • In a writing class, students are given a quote that offers an intriguing and unorthodox view of a recently read text, and are simply asked: "Discuss" • In a math class, students must take their knowledge of volume & surface area to solve a problem like: "What shape permits the most volume of M & M's to be packed in the lease amount of space – cost effectively and safely?
2	GAME-LIKE: The learning event is complex but is presented with sufficient clues/cues meant to suggest the approach or content called for (or to simplify/narrow down the options considerably). Success depends upon realizing which recent learning applies, and using it in a straightforward way – "near transfer." Success depends on figuring out what kind of problem this is, and with modest adjustments using prior procedures and knowledge to solve it. • Writing: same as above, but the directions summarize what a good essay should include, and what past topics and ideas apply. • Math: the above problem is more simplified and scaffolded, by the absence of a specific context, and through cues provided about the relevant math and procedures.
1	DRILL: The learning event looks familiar and is presented with explicit reference to previously studied material and/or approaches. Minimal or no transfer is required. Success requires only that the student recognize, recall and plug in the appropriate knowledge/skill, in response to a familiar (though perhaps slightly different) prompt. Any transfer involves dealing with only altered variables or details different from those in the teaching examples; and/or in remember which rule applies form a few obvious recent candidates. • Writing: the prompt is just like past ones, and the directions tell the student what to consider, and provide a summary of the appropriate process and format. • Math: the student need only plug in the formulae for spheres, cubes, pyramids, cylinders, etc. to get the right answers, in a problem with not context.

Wiggins and McTighe (2011)

Appendix E

Table of Specifications

Construct	Q#	Operationalized	Suggested Item Stem
Social media use as a tool for learning	1	Acquisition as a learning Goal	When social media is used in my school, it (Likert with Very Likely to Un Likely) supports the goal of acquisition.
	1	Make Meaning as a learning goal	When social media is used in my school, it (Likert with Very Likely to Un Likely) supports the goal of making meaning.
	1	Transfer as a learning goal	When social media is used in my school, it (Likert with Very Likely to Un Likely) supports the goal of transfer.
	1	Support use for the following goals	I support the use of social media for the following learning goal(s) (check all that apply): • Acquisition • Meaning • Transfer
Digital Literacy Skill Development	2	Seven Digital Literacy Skills that promote social media competency	I actively support the development of the following digital literacy skills for my teachers (check all that apply) . . . I believe in but do not yet support . . . I do not support . . . Repeat question RE students
	2	Professional Learning for Digital Literacy Skills	I support the development of digital literacy skills for my teachers by providing the following professional learning (check all the apply) Repeat question RE students
Informal on-demand learning	3	Six Informal Learning Practices that support use of social media use	I actively support the use of informal learning practices in my school . . . I actively support certain informal learning practices in my school . . . I believe in but do not yet support . . . I do not support . . .
	3	Professional Learning to support informal learning pedagogy	I support the development of informal learning pedagogy for my teachers by providing the following professional learning (check all the apply)

Generational Differences	4	Web 2.0 Classifications	I consider myself to be… What percentage of your staff, out of 100, do you consider to be…
Conditions/ factors the support or impede	5	Policies/Practices /Access	Are there policies/practices for use of SM? What is the level of access to SM? Who controls the access? Who decides how SM is used? Which types are used in your school?
	5	Demographics	What is the…size of school, size of staff, region of us, and level?

Appendix F

U.S. Census Bureau Regions and Divisions

*Denotes States targeted for this study
**Denotes Other States represented in the data

Region 1: Northeast	
Division 1: New England • Connecticut • Maine* • Massachusetts • New Hampshire • Rhode Island • Vermont	**Division 2: Middle Atlantic** • New Jersey* • New York* • Pennsylvania
Region 2: Midwest	
Division 3: East North Central • Indiana* • Illinois • Michigan* • Ohio • Wisconsin*	**Division 4: West North Central** • Iowa • Kansas • Minnesota* • Missouri • Nebraska • North Dakota • South Dakota

Region 3: South		
Division 5: South Atlantic • Delaware • District of Columbia • Florida* • Georgia • Maryland** • North Carolina • South Carolina • Virginia** • West Virginia	**Division 6: East South Central** • Alabama • Kentucky • Mississippi* • Tennessee*	**Division 7: West South Central** • Arkansas** • Louisiana • Oklahoma • Texas*
Region 4: West		
Division 8: Mountain • Arizona • Colorado • Idaho* • New Mexico*	Division 8 Cont'd • Montana • Utah • Nevada • Wyoming	**Division 9: Pacific** • Alaska • California* • Hawaii • Oregon • Washington*

Source: U.S. Census Bureau, 2015

Appendix G

Search Summary for Public Websites Listing Administrators for PK-12 Schools in the U.S.

Name of State	Address	Notes
WEST (four states with a total of 13,659 email address)		
Arizona		Not Readily Available
California	http://www.cde.ca.gov/ds/si/ds/pubschls.asp	Accessed
Colorado		Not Readily Available
Idaho	https://apps.sde.idaho.gov/IDCI/Reports/ViewReport.aspx?id=3	Accessed
New Mexico	http://webed.ped.state.nm.us/sites/schooldirectory/Extracts/Forms/AllItems.aspx	April 2015 data
Montana		website down 12/7/2015
Nevada		Not Readily Available
Oregon		Not Readily Available
Utah		Not Readily Available
Washington	https://eds.ospi.k12.wa.us/DirectoryEDS.aspx	Accessed
Wyoming		Not Readily Available
MIDWEST (3 states with a total of 5,212 email contacts)		
Indiana	http://www.doe.in.gov/accountability/find-school-and-corporation-data-reports	Accessed
Kansas		Not Readily Available
Michigan	http://www.cepi.state.mi.us/eem/PublicDatasets.aspx	BAD import has charter schools.
Minnesota	http://w20.education.state.mn.us/MdeOrgView/search/tagged/MDEORG_DISTRICT_SCHOOL	Accessed
Missouri		Not Readily Available
Nebraska		website down 12/7/15

Name of State	Address	Notes
Wisconsin	https://apps4.dpi.wi.gov/SchoolDirectory/Search/PublicSchoolsSearch	Accessed
NORTHEAST (3 states with a total of 10,048 email contacts)		
Maine	https://www.medms.maine.gov/medms_public/ReportPortal/ShowReport.aspx?CurrentLocation=%2fPublic+Reports%2fDirectory+of+Maine+Schools%2fSchoolPrincipalsInMaine	Accessed
Connecticut		Not Readily Available
Massachusetts		Not Readily Available
New Jersey	https://education.state.nj.us/directory/	Accessed
New York	http://www.p12.nysed.gov/irs/schoolDirectory/	Accessed
Pennsylvania	http://www.edna.ed.state.pa.us/Screens/Extracts/wfExtractPublicSchools.aspx	Not Readily Available
SOUTH (4 states with a total of 8,891 email contacts)		
Florida	http://doeweb-prd.doe.state.fl.us/EDS/MasterSchoolID/Downloads.cfm?CFID=9735976&CFTOKEN=542d9fb78d748f93-9E498D7A-5056-8C3F-16BFBB6A257D3F34	Accessed
Louisiana		Not Readily Available
Mississippi	http://reports.mde.k12.ms.us/xls/PRINCIPALS%20SY%202015-2016%20v1.xls	Accessed
Tennessee	http://www.k-12.state.tn.us/sde/CreateSchoolList.asp?status=A&schtype=000,003	Accessed
Texas	http://mansfield.tea.state.tx.us/tea.askted.web/Forms/Home.aspx	Accessed

Appendix H

Emails to Survey Participants

Email #1 Introduction with Survey Link
Subject: Social Media Use as a Tool for Learning - Doctoral Research

Dear Colleague,

I am a doctoral student at Virginia Tech in the School of Educational Leadership and Policy Studies and a fellow K-12 administrator. I am currently working on my dissertation focusing on the use of social media as a tool for learning in K-12 education. I am contacting K-12 principals and assistant principals from public schools across the United States for participation in this research.

The goal of the research is to examine administrators' perceptions of using social media as a tool for learning. Specific areas of study include: the development of social media literacy for students and teachers; the use of informal pedagogies within the formal school structure; and whether certain external conditions or factors enhance or impede the use of social media for learning. Conclusions and recommendations from the study will be valuable for administrators as they navigate the challenges of educating students in the globally connected world of Web 3.0 and beyond.

This voluntary survey will take about twenty minutes to complete and you may opt out at any time. All demographic and survey response data are removed from associated emails ensuring that individuals and/or schools cannot be identified when analyzing and reporting the data and when publishing the results. By completing and submitting the survey you are consenting to participate in this educational research. Link here to continue to the survey.

If you have any questions concerning the study and/or the survey, please contact me at (703)980-2406 or via email at erossini@vt.edu. Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at moored@vt.edu or (540) 231-4991. Thank you for your consideration and support in the research effort.

Sincerely,

Elizabeth M. Rossini
Virginia Tech Doctoral Candidate

Email #2: First reminder
Subject: Follow up to Research on Social Media Use as a Tool for Learning

Dear Colleagues,
For my doctoral research through Va Tech, I am studying the use of social media as a tool for learning in K-12 public schools across the US.

As a fellow administrator (Director of Curriculum and Professional Learning) I understand the challenges of educating students in our globally connected world. As we navigate the world of blended learning, Web 3.0 and contemporary education, how do we ensure that these modes of learning are good for the students under our care?

Please take this short (twenty minute) survey to share your perceptions' of social media use as a tool for learning in your school. Your responses are voluntary, anonymous and you can opt out anytime. By completing and submitting this survey you are consenting to participate in this educational research. Link here to continue to the survey.

If you have any questions concerning the study and/or the survey, please contact me at (703)980-2406 or via email at erossini@vt.edu. Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at moored@vt.edu or (540) 231-4991. Thank you for your support.

Sincerely,

Elizabeth M. Rossini
VaTech Doctoral Candidate

Email #3: Final reminder
Subject: Final Follow up to Research on Social Media as a Tool for Learning

Dear Colleagues,

This is a final reminder regarding survey research in the area of social media use as a tool for learning in K-12 public schools across the United States.

Please take this short (twenty minute) survey to share your perceptions, as a K-12 administrator, in the use of social media as a tool for learning. All responses are voluntary, anonymous and you can opt out anytime. By completing and submitting the survey through the link below you are consenting to participate in this educational research. Link here to continue to the survey.

If you have any questions concerning the study and/or the survey, please contact me at (703)980-2406 or via email at erossini@vt.edu. Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at moored@vt.edu or (540) 231-4991. Thank you for your support.

Sincerely,

Elizabeth M. Rossini
VaTech Doctoral Candidate

Appendix I

Profiles of Interviewees

School Level	State	School Setting	Gender	Comment
HS	TN	Urban	F	Supports use of social media.
MS	WI	Urban	M	Unsure about support, not convinced.
ES/MS	CA	Rural	F	Supports social media but in a controlled setting.
MS	NY	Suburban	M	May support social media use, if used beyond engagement. (veteran principal)
PK-ES	NJ	Suburban	F	Yes, supports social media for constructivist purposes—Makerspace (new principal)
MS	NY	Suburban	M	Does not support social media but supports digital literacy skill development.

Appendix J

Informed Consent for Participants

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent for Participants
in Research Projects Involving Human Subjects

Title of Project: Administrators' Perceptions of Social Media as a Tool for Learning

Investigator:

- Elizabeth Rossini **-** doctoral student
- **erossini@vt.edu**
- 703-980-2406

I. Purpose of this Research Project

The purpose of this study is to identify the perceptions of school-based administrators regarding the use of social media as a tool for learning in their school. This is a critical area to be addressed as technological advances such as social media are challenging educators to respond to the needs of contemporary students in a changing society. Today's educational leaders are having to examine the ways school is organized, how educational programs are developed and what/how curriculum is offered to ensure we are meeting the needs of today's learners. I have chosen to survey school-based administrators, as they are the lead educators in their school and responsible for the care and learning needs of their students. I have sent surveys to 10,000 administrators from across the US and I am interviewing six to ten of those respondents.

II. Procedures

My research has two phases. Phase one is a survey of administrators from public schools across the U.S. Phase two involves phone interviews of 6-10 of the survey respondents. The interview will take place over the phone at a time convenient to you and includes 15 questions. Should you agree to be interviewed, you will be asked to participate in a 20-minute audio-recorded interview.

III. Risks

I do not believe there are any risks associated with this research. Your participation is voluntary and you are free to withdraw at any time. By participating in this interview your name is associated with your survey results for the purposes of contacting you for the interview. In the analysis and reporting of results no identifiable information will be included other than a coding such as "administrator A, from the Northeast region of the U.S..."

IV. Benefits

This study will benefit educators who are examining how to engage contemporary learners in methods that are familiar and motivating for them but in a way that promotes learning (not

socializing). No promise or guarantee of benefits has been made to encourage you to participate.

V. Extent of Anonymity and Confidentiality

By participating in this interview your name and email are the only identifiers connected to your survey results. As the lead researcher, I am the only one that has access to these identifiers. I will code your name such as “Administrator A” and include the region from the U.S. where you are located - Northeast, Midwest, South or West. In the analysis and reporting of results, only coded information will be included such as “administrator A, from the Northeast region of the U.S. . . .” The interview is being recorded in order to allow for accurate representation of your ideas. The recordings will be kept in a locked file and destroyed according to the Virginia Tech Institutional Review Board protocol for dissertation research. At no time will the researchers release identifiable results of the study to anyone other than individuals working on the project without your written consent.

The Virginia Tech (VT) Institutional Review Board (IRB) may view the study’s data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

VI. Compensation

There is no compensation to be earned through participation in this study.

VII. Freedom to Withdraw

It is important for you to know that you are free to withdraw from this study at any time without penalty. You are free not to answer any questions that you choose or respond to what is being asked of you without penalty. Please note that there may be circumstances under which the investigator may determine that a subject should not continue as a subject. Should you withdraw or otherwise discontinue participation, you will be compensated for the portion of the project completed in accordance with the Compensation section of this document.

VIII. Questions or Concerns

Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document. Should you have any questions or concerns about the study’s conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at moored@vt.edu or (540) 231-4991.

IX. Subject's Consent

I have read the Consent Form and conditions of this project. I understand that if I have any questions regarding this research I am free to email to Elizabeth Rossini prior to the interview through erossini@vt.edu expecting that she will respond prior to our interview. I understand that I will provide verbal consent at the time of the interview which gives my consent for participation.

Appendix K

Interview Protocol and Script

Participant Name: **Participant Code:**
Date: **Start time:** **End time:**

Overview, Purpose, and Explanation of Consent
Good morning/afternoon. Thank you so much for agreeing to be interviewed. As you know, I am a doctoral student from Virginia Tech, in the United States and I am working on my dissertation research. I have an approved protocol that I will be using to document this interview and it begins with explaining the purpose of the study and the consent process.

The purpose of this study is to identify the perceptions of school-based administrators regarding the use of social media as a tool for learning in their school. This is a critical area to be addressed as technological advances such as social media are challenging educators to respond to the needs of contemporary students in a changing society. We are having to examine the ways school is organized, how educational programs are developed and what/how curriculum is offered to ensure we are meeting the needs of today's learners. I have chosen to survey school-based administrators, as they are the lead educators in their school and responsible for the care and learning needs of their students.

And now I would like to explain the consent process. My husband, Mike Rutherford, is present right now as a witness and he will leave when we are finished with the consent process. By agreeing to be interviewed and providing your email as part of your survey responses, you provided implied consent for me to contact you. For this interview, I would like to record our conversation so that I can capture your words accurately. If at any time during our talk you feel uncomfortable answering a question please let me know, and you don't have to answer it. Or, if you want to answer a question but do not want it recorded, please let me know and I will stop the recording. If at any time you want to withdraw from this study, please tell me and I will erase the recording of our conversation. I will not reveal the content of our conversation beyond myself and people helping me whom I trust to maintain your confidentiality. I will do everything I can to protect your privacy, but there is always a slight chance that someone could find out about our conversation.

I would like to ask you if you agree to participate in this study, and to talk to me about social media as a tool for learning. Do you agree to participate, and to allow me to record our conversation for the purposes of this research study?

Response:
Researcher signature: **Witness signature:**
An introduction and overview of the process:

Thank you for your consent. I would like to wrap up with a short introduction of myself and a summary of the research process that follows this interview and then we will begin. I am a fellow administrator working in central office administration as a curriculum director. I am originally from Wisconsin but lived in Virginia for almost thirty years. I am married and have two teenage children who are consumed with social media. Watching that happen starting with their first cell phone, caused me to wonder if that engaging and motivating force in the lives of today's youth could be harnessed to support learning. And that is where the idea for my dissertation is rooted.

This interview will consist of fifteen questions over three parts – social media, digital literacy and informal learning. After I conduct all of the interviews for my study, I will analyze the results of the survey and interviews to complete chapter four of my dissertation and then summarize the findings in chapter five. I expect to complete my writing by June, 2016.

Do you have any questions before we get started?

For the purposes of my study, social media is defined as the use of web-based and mobile technologies allowing users to modify and share content changing the way documents are created, used, shared, and distributed.

The Interview

1. What is your role at your school and how long have you worked there?
2. Briefly describe your personal use of social media
3. How have your personal experiences with social media influenced or not influenced your decision to support or not the use of social media in your school?
4. How do you feel about the use of social media being used as a tool for learning in your school? Why is this so?
5. Describe three different ways social media is used for learning in your school.
6. What parameters should be in place for social media to be a viable learning tool?
7. When social media is being used in the classroom, how can educators tell it is being used for learning and not just socializing?

Please note that I am moving to a slightly different topic now.

8. What do today's learner need in order to be digitally literate?
9. What digital literacy skills are being taught in your school?

Please note, I am moving to a slightly different topic now.

10. What role does informal/non-formal learning have in our formal school structure?
11. Is there room for informal/non-formal learning in PK education as a plausible alternative to formal education? Tell me more about that…
12. Can informal learning (obtained outside or the school day) be assessed and lead to credit or legitimacy? Please tell me why you think that.

Closure:

13. Is there anything else that you would like to share?
14. Would you like me to email you a final copy of this research upon completion?

Thank you so much for your time and for contributing to my research. I wouldn't be able to complete my research without generous educators like you who are willing to share their thoughts.

Have a great rest of your day.

Appendix L

Addressing the Potential of Online Surveys

Potential Weaknesses		Possible Solutions
Perception as junk mail	→	Opt-in surveys only; brief e-mail with URL link
Skewed attributes of Internet population; upscale, male, etc.	→	Demographically balanced panels
Questions about sample selection and implementation	→	Company selection (not self-election) and randomization
Respondent lack of online experience/expertise	→	Simple instructions; "click on" access to survey; easy to answer
Technological variations	→	Use of standard colors and screen dimensions; pop up technology
Unclear answering instructions	→	Adequate pretests; use of pop-up windows
Impersonal	→	Include respondent names; send out birthday cards, etc.
Privacy and security issues	→	Clear, highly visible, respondent-friendly policies
Low response rate	→	Limited number of contacts; small incentives; good survey techniques

Evans and Mathur (2005)

Appendix M

Helpdesk Correspondence Regarding Email Distribution Settings for the Sample

From: Elizabeth Rossini [mailto:lizzy@elizabethrossini.com]
Sent: 2016-03-04 19:14:57
To: support@qualtrics.com
Subject: distribution question—please help me understand if I made an error

Dear Qualtrics Support Representative,

I am in the middle of survey research for my dissertation. I have sent 10,000 surveys over 3 rounds (2,000 round one, 3,000 round two, 5,000 round three). For each round I sent three emails—an introduction, a reminder and a final reminder and each time they were provided a link to the survey. The time between Round One and Two was two weeks. The time between Rounds Two and Three was three weeks.

As part of the survey set up (and without a ton of understanding) I set the time to wait for partially completed responses to close and record the data at two weeks for 8 of the 9 mailings. I think that was an error and just changed it to one month (before my final mailing on Tuesday).

On Tue, Mar 8, 2016 at 9:25 PM, Qualtrics Support <support@qualtrics.com> wrote:

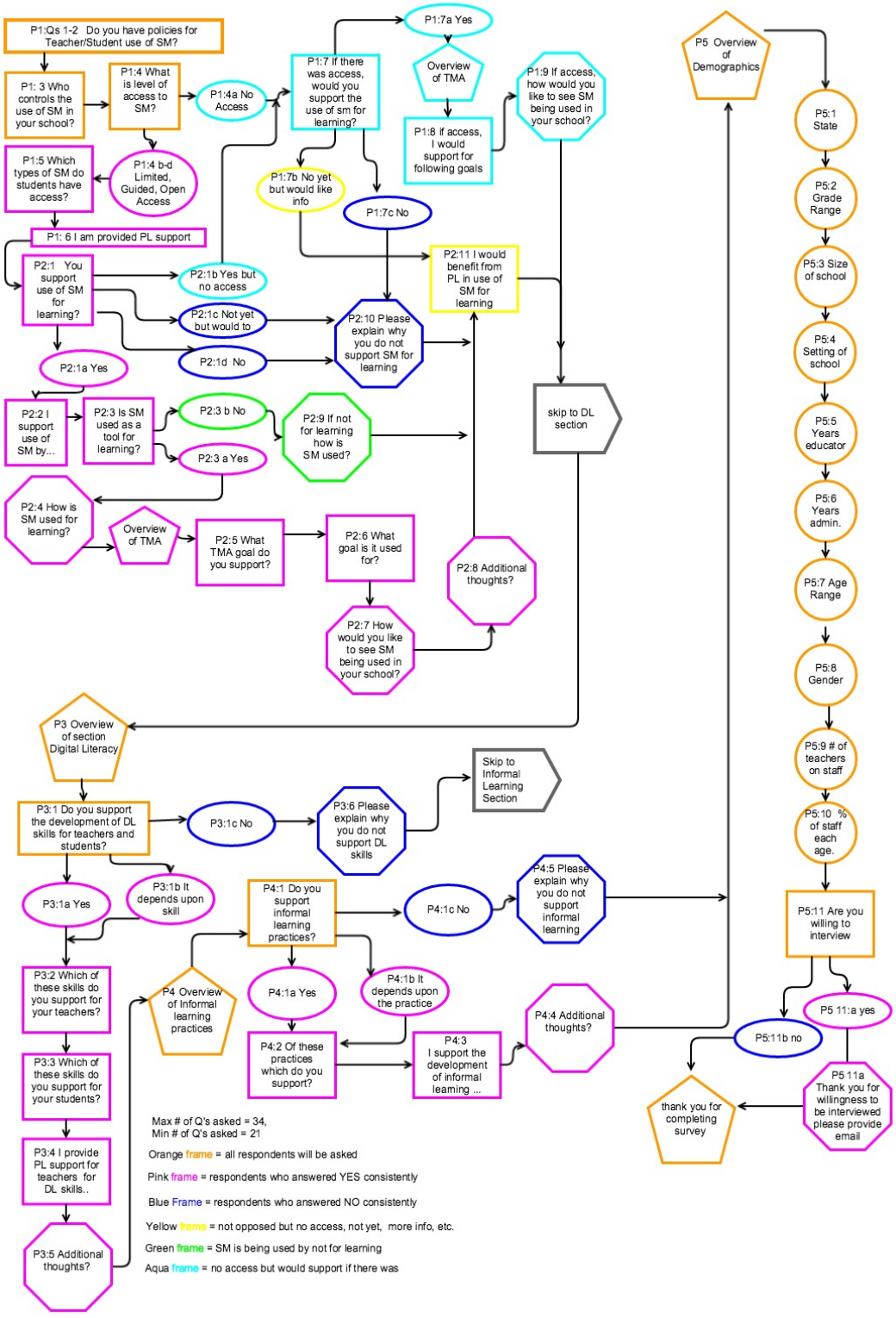
Hi Elizabeth,

It will not affect the Initial Email survey link. If they interact with this link, but do not return to it the link will close 2 weeks later. Similarly, if participants do not select this link at all, and then do not select the link in the 1st reminder, their survey will close. If participants do select the second link, they will have 2 weeks before their survey closes. However, if they reenter the link a week after they receive their second link, their survey will close 2 weeks later again. However, by this time they should have received the 2nd reminder, with the 3rd link, and they should be able to select this.

The only concern there may be is regarding the time between the 1st and 2nd reminder. If participants do not enter the link in the 2 weeks after they receive the link in the 1st reminder, they will not be able to take the survey with the link in the 2nd reminder. I hope this helps clarify things, but if there is anything else I can do for you, I'd be more than happy to.
Kindest regards, Cassandra

Appendix N

Flowchart Showing Survey Skip Logic



Appendix O

Response Rate Per Survey Question

Survey Section	Survey Section and Question:	Number of Responses
Part 1 Policies/Procedures		
Open to all respondents	Q1 Policies for Teachers	234
	Q2 Policies for Students	235
	Q3 Control of Social Media	234
	Q4 Level of Access to Social Media	235
Part 2 Social Media		
Skip logic used for these questions	Q1 Types of Social Media Accessible	147
	Q2 Admin Provided Professional Learning	148
	Q3 Admin Support for Social Media	148
	Q4 How I Support Social Media for My Teachers	128
	Q5 Is Social Media Used for Learning	125
	Q6 Examples of Social Media Use for Learning (Open Response)	62
	Q7 Support for Which Learning Goals	76
	Q8 Which Learning Goal Used	77
	Q9 How Would You Like to See Social Media Used (Open Response)	60
	Q10 If not for learning, how used (Open Response)	47
	Q11 Additional Thoughts About Social Media Use (Open Response)	29
	Q12 Support if Access	84
	Q13 If Access, Goals Supported	43
	Q14 If Access, How Like to See Used (Open Response)	26
	Q15 Why Social Media is Not Supported (Open Response)	20
Open to all Respondents	Q16 Admin Would Benefit from Professional Learning	172

Part Three Digital Literacy		
Open to all respondents	Q1 Support Development of Digital Literacy Skills	189
Skip Logic Used	Q2 Digital Literacy Skills for Teachers	181
	Q3 Digital Literacy Skills for Students	181
	Q4 Why No Support for Development of Digital Literacy Skills (Open Response)	0
	Q5 Professional Learning Provided to teachers	180
Open to all respondents	Q6 Additional Thoughts About Digital Literacy (Open Response)	47
Part Four Informal Learning		
Open to all respondents	Q1 Support for Informal Learning Practices	177
Skip logic used	Q2 Which Informal Learning Practices Supported	168
	Q3 I Provide Professional Learning	167
	Q19 No Support for Informal Learning Practices (Open Response)	8
Open to all respondents	Q20 Additional Thoughts About Informal Learning (Open Response)	34
Part Five: Demographics		
Open to all respondents	Q42 What State	175
	Q26 Grade Level	177
	Q27 Number of Students	178
	Q43 School Setting	178
	Q28 Total Years Educator	178
	Q29 Years as Administrator	176
	Q30 Age	178
	Q31 Gender	176
	Q32 Number of teachers on staff	178
	Q33 Age Range of Staff	173
	Q35 Willing to be Interviewed	176
	Q37 Potential Interviewees Provide Email	36

Appendix P

Categories and Concepts from Analysis of Open Response Survey Data

Categories	Dimensional Levels	Concepts

Social Media Purposes	For Learning Purposes (218)	• To Communicate Information (35)
		• To Collaborate/Contribute (87)
		• To Gather Information/Research (30)
		• To Showcase Learning (17)
		• To Give/Receive Feedback (12)
		• To Create Something New (19)
		• Other Learning Related (18)
		  • For Professional Learning (4)
		  • To Support Student Learning (8)
		  • To Promote Literacy Skills (2)
		  • Used Responsibly (4)

	Not for Student Learning Purposes (41)	• For Professional Learning (3) • To Communicate Information (20) • For Personal Use (13) • To Monitor Students Online (1) • To Gather Information/Research for purposes unrelated to learning (4)
Categories	**Dimensional Levels**	**Concepts**
The Level of Support	We Support It (37)	• Beginning to See the Benefits (13) • We Are Giving It a Try (4) • We Support Development of Digital Literacy Skills (14) • We Support use of Informal Learning (6)
	Open to Support but Cautious (14)	• Would Support with Clear Supervision (2) • See it as Beneficial but Risky (5) • Am Interested to Learn More (7)
	Why We Don't Support It (82)	• Learners Too Young/Not for School (7) • Lack of Understanding/Don't See Value (13) • Lack of Clear Parameters/Policies (11) • Inability to/hard to Monitor (2) • Fear of Misuse (24) • Need Professional Development (17) • Not Priority/Not Thinking about it Yet (6)

Note. There were 89 other responses unrelated to the analysis such as "NA" or "No."