

LIST OF FIGURES

Figure 1. Inline hyperlinks	44
Figure 2. Hypermedia course content.....	45
Figure 3. Hyperlinked gallery of student work	66
Figure 4. Course structure	77
Figure 5. Hyperlink use in blog posts.....	78
Figure 6. Hypermedia content	90
Figure 7. Accessible hypertext course content 1	111
Figure 8. Accessible hypertext course content 2	111
Figure 9. Non-clickable hyperlink.....	112
Figure 10. Plain text course content	131
Figure 11. Hypermedia in dropbox instructions.....	132
Figure 12. Learning management system hyperlink difficulties	133

Chapter 1: Introduction

We live in a time of rapid technological change. Internet service is fast and widely available, mobile phones are obsolete before their two-year service contracts have expired, news media outlets are moving away from traditionally printed newspapers and magazines toward online multimedia experiences, and more students are learning in virtual classrooms than ever before.

One component of daily life for most Americans that been conventionally tied to both the acts of reading and of learning is the daily news. News media have not been immune to changes brought about by the advent of the Web; indeed they may serve as an example of new kinds of reading. For example, *The New York Times* is one of the most respected publications in the world. The newspaper traditionally so text-heavy it was once affectionately dubbed “The Grey Lady” now lives as much in the virtual world as the printed one. One online article on Ebola efforts in January of 2015, linked to 11 other articles and resources beyond the story it told. The Web version refers readers to the print version of the article, and the print version of the article refers readers to related resources on the Web. Thus, the role of the reporter is re-cast as someone who guides the reader to a larger hyperlinked view of the subject.

Faculty members at institutions of higher education are seeing their instructional roles recast in similar ways. They have opportunities, via hyperlinking, to extend the range of their teaching. They are asked to be Web guides, of a kind. In essence, faculty members are increasingly seen as content curators rather than only content creators, as is seen in the field of journalism.

This is a study of instructional uses of hypermedia, in the context of faculty learning and online course design. It features five chapter-length accounts, based on interviews of the experience of faculty members who teach online.

This introductory chapter begins with an account of growth in the demand for online learning. Next comes a look at teaching and learning in the digital age, including how technology has affected teaching practices and learning environments. Third, I discuss the nature of hyperlinks and their uses. Next, I consider work on faculty learning, including how technology has changed how faculty understand their roles. There follows a discussion of the methods used in this study. Finally, I briefly discuss my role as the researcher and the how my work as an instructional designer might reflect in this work, ending with a summary of where the field and community of educators stands today.

The Demand for Online Learning

In 2012, the long-time president and CEO of Educause (a prominent non-profit organization focused on technology in higher education) Diana Oblinger said, “We are no longer in the information age - we are in the connected age. Everyone and everything is interconnected.” (p. 4) With this connectedness has come increased demand from college students for a dilution of the lines between themselves and the physical campus: blended courses, the ability to access course content from their smartphones, and flexible online learning to name a few. The changing nature of education has fueled demand for online instruction, both in the form of fully online courses or blended learning (Oblinger, 2012, 2013).

From an institutional standpoint, experienced researcher and President Emeritus of both Princeton University and the Andrew W. Mellon Foundation, William Bowen (2013), notes that “far greater access to the Internet, improvements in Internet speed,

reductions in storage costs, the proliferation of increasingly sophisticated mobile devices, and other advances have combined with changing mindsets to suggest that online learning, in many of its manifestations, can lead to at least comparable learning outcomes relative to face-to-face instruction at lower cost” (p. 44). Frequent Chronicle of Higher Education contributor and author of *College (Un)Bound*, Jeff Selingo (2013), sees online education (especially of the open, or free variety) as having the potential to change the way institutions operate, including how they define academically “elite” students (p. 92). Most faculty, however, do not clearly see the future of online education at their institutions. 73% report that they don’t see a clear strategy in the online initiatives on their campus, and 78% are interested in bringing more technology into their teaching (Dahlstrom & Brooks, 2014).

Enrollment in online courses at institutions in the United States has not only grown rapidly, but that growth has remained relatively steady over the course of a decade. Approximately 41% of academic programs at public institutions reported steady online enrollment, with only around 5% reporting declines, and 54% reporting growth (Allen & Seaman, 2011¹). Further, in 2011, 69.1% of chief academic officers reported that online education was critical to the long-term strategy of their institutions, compared with 50% in 2006 (Allen & Seaman, 2013).

¹ Allen and Seaman, researchers for the Babson Survey Research Group (BSRG), have collaborated with the Sloan Consortium for over ten years to release yearly reports tracking online education in the United States. These reports have become important resources for researchers, administrators, and practitioners of higher education. In 2014, the Sloan Consortium became the Online Learning Consortium (OLC), a self-sustaining professional association focused on supporting eLearning professionals and academics in the delivery of quality online education. In 2011, OLC expanded the report-creation partnership to include sponsorships from outside vendors in an effort to maintain the independence of these reports.

There have been a number of studies about why students pursue online education (Allen & Seaman, 2010, 2011, 2013, 2014; Allen, Seaman, Lederman & Jaschik, 2012; Aslanian & Clinefelter, 2013; Coates, 2006; Larreamendy-Joerns & Leinhardt, 2006, Seaman, 2009), finding that flexibility, the desire for updated credentials in the pursuit of career goals, and the reputation of the institution offering the online course were the students' primary motivators. And, while recent studies show that explosive online growth may be flattening (Allen & Seaman, 2014), the demand for online education is still considerable and growing. In 2013, the number of students taking at least one online course numbered 7.1 million. For the past decade, online enrollment growth rates have far exceeded enrollment growth in traditional face-to-face college courses. The 9.3% growth rate found in a 2013 study by the Sloan Consortium was the lowest recorded growth rate in ten years of investigation until the 2014 report which saw enrollment grow by only 6.1% for the year (Allen & Seaman, 2013, 2014). While the growth rate has slowed, it is important to make this distinction: currently as of the 2014 report, more students than ever are enrolled in online courses, with "the proportion of higher education students taking at least one online course...33.5 percent" (Allen & Seaman, 2014, p.4).

It also becomes important to define what "online" means in the context of online courses. This study first refers to online courses as those that are delivered completely via the Web, whether they use synchronous or asynchronous components. Additionally, in the course of the interview process for the subjects of this study, faculty may refer to "blended," or "hybrid" courses². This study defines these courses as integrating

² Updated in September of 2014, the Online Learning Consortium (previously the Sloan Consortium) offers a widely-used standard by which institutions can classify how "online" and "blended," or "hybrid" courses are defined. Hybrid courses are defined as

technology as a means of replacing face-to-face instruction time, but for this research no ratios regarding the amount of face-to-face instruction compared to online instruction will be specified. Here, if any face-to-face time is regularly replaced with online instruction, the course will be defined as a blended or hybrid course. Finally, an “enhanced” course refers to a course that is, for all intents and purposes, a face-to-face course, but incorporates a heavy technology presence to enhance the course experience. For example, “flipped courses,” or “flipped lectures” refer to courses in which faculty members have replaced lectures in the classroom with pre-recorded video, saving the lecture time for in-person activities. In some contexts, these courses would be referred to as blended, but here they will be defined as enhanced, because no seat time is replaced.

Hyperlinks are widely, if inconsistently used in course design, and there is more that could be understood about how faculty members learn about teaching online courses at Carnegie classified doctoral institutions (Research I). For example, whether or not they think about their use of hypermedia, specifically hyperlinks, in course design. Hyperlinks can create opportunities for exploration (Burbules & Callister, 1996, 2000; Caulfield, 2011; DeMayer, 2011), but that they can also cause cognitive problems for students such as decreased attention span, increased distraction, difficulty with navigation of hypertext learning resources, and challenges with processing information from multiple sources (Amadieu & Marine, 2009; Cagnoz & Altun, 2012; DeSchryver & Spiro, 2009; DeStefano & LeFevre, 2007; Hardman and Edwards, 1989; Kim & Hirtle, 1995). They

courses in which “Online activity is mixed with classroom meetings replacing at least 20 percent, but not all required face-to-face-meetings (Mayadas & Miller, 2014).” Online courses are defined as courses where “all activity is done online; there are no required face-to-face sessions within the course and no requirements for on-campus activity (Mayadas & Miller, 2014).”

are at once lauded as important tools for teaching and learning (Burbules & Callister, 1996, 2000; Chen & Chen, 2011; Harasim, 1995, 2000, 2006), and criticized for creating a generation of Internet-reliant, shallow readers and learners (Baron, 2013; Carr, 2008, 2010; Haile, 2014).

The increased demand for online instruction has also placed heightened pressures on faculty to learn new skills (such as the incorporation of hypermedia into their course design), which often fall outside of their areas of expertise and experience. Yet, as online enrollment numbers increase, so does the student audience for the hypermedia used in the courses faculty teach. Just as the *New York Times* has begun incorporating hypermedia into the delivery of the daily news, so has higher education moved toward incorporation of hypermedia in the delivery of online courses. With each passing year, it becomes increasingly important for practitioners of higher education to understand the effects that technologies of the digital age have had on teaching and learning, even when the technology may seem simple or unimportant, like the hyperlink.

Teaching and Learning in the Digital Age

Online education is typically an exercise in reading and processing hypermedia. As an instructional designer in the field of higher education, I have worked with and been exposed to countless online courses, all of which rely on hypermedia and hypermedia creation and delivery systems as a means of delivering content to students at a distance. While video has seen growth as a teaching strategy in recent years, the current crop of learning management systems from which a majority of online courses are delivered (Edtechnica, 2014; Feldstein, 2014) still rely on hyperlinks and written descriptions to

contextualize video and visual content. Therefore, reading is a key component of online learning.

To navigate learning environments and access content, students must have the ability to read, navigate, and learn from links and written content, even if the primary learning materials they are attempting to find are visual or video-based. Reading, and the ability to parse written information efficiently enough to find not only the information needed to succeed in the course, but also the ways to click and navigate to additional content, is crucial for students learning online. This need introduces pedagogical implications for faculty, especially those teaching fully online courses.

Faculty members in the digital age, especially those teaching online, are expected to learn about the diverse factors inherent in using technology to teach. This means that they increasingly must know how to seek and incorporate technical knowledge into their work to succeed in an increasingly technological academy. As noted by Austin and Sorcinelli (2013) “as higher education institutions incorporate online and blended learning, even highly experienced faculty members, as well as those new to the profession, face new challenges, as well as fresh opportunities for their pedagogical practice; teaching online is not the same as teaching face-to-face (p. 87).” Faculty development programs provided by institutions can help, but remain a small piece of the overall faculty learning picture. In making the switch to online learning, faculty assume additional responsibilities, change their online personas, re-learn how to build relationships with their students, and learn to look at their content in more structured ways than their face-to-face classrooms (Major, 2010). Further, within the body of knowledge that must be pursued while online teaching, there falls a deceptively complex

technology most individuals interact with every day but often overlook. It has the potential to impact every aspect of the learning environment and process. It is the hyperlink.

The past 15 years have been tumultuous for the field of higher education. Technologies have surfaced, and just as quickly become obsolete. The facets of instruction in the traditional classroom have been transformed, and teaching strategies in classrooms have been changed by technology's ability to extend the physical space into the virtual world. The growth of the Internet has connected us to more people and resources than could have been imagined a few short years ago. Instruction has changed in the age of technology, and hyperlinks are prevalent. Instruction with hyperlinks has evolved from simply using them to create connections between individual resources, to using a web of hyperlinks to build interactive hypertext, to image-based links that were built into packages and CD-ROMS to facilitate interactivity with content, to the newer hypermedia environments that live in "the cloud" and are constantly accessible with an Internet connection.

In 2013, Bowen released *Higher Education in the Digital Age*, which offers an academically grounded account of how "advances in communications, and the development of networks and systems for managing text and exchanging perspectives with colleagues at a distance, have revolutionized the way papers are prepared and revised" (p. 8). The hyperlink has not exactly advanced technologically since the earliest days of the Internet, but this study shows that it has re-defined academic governance, digital learning and course design even in the current academic technology climate. Further, advances in the Internet and digital scholarship have changed faculty and

academic work as well as student work. Articles and databases are searchable, back issues of journals are more readily accessible and navigable, written instructional content can be easily created, published, and delivered using provided templates, and the sheer amount of accessible information (immediately and from anywhere) is more than could ever be consumed.

To understand the context within which this study is centered, here I provide a brief history of online teaching at Midwest University. Midwest University has offered online technology for teaching since 1992, when the first learning management system was deployed. In 1996, a department was established on campus to develop online learning tools, and help faculty convert their courses to an online format. In 1997, the College of Education offered one of the first fully online courses at the university, “The Concept of a Learning Society.”

The College of Education also offered the first degree-granting, fully online program at Midwest University. The program began in the year 2000, with pressure from the university president and a dean’s office initiative to provide laptops and funding to faculty electing to teach online as part of the newly-formed MA in Education program. Upon their agreement to teach online for the College of Education, faculty came together in a workshop that taught them about effective online teaching practices and campus technologies. According to faculty accounts, the first courses in this program went online in 2001. In 2007, Midwest offered 177 online course sections, with 6,828 student enrollments. In 2013, those numbers had increased to 623 online course sections, and 22,488 student enrollments.

Why Hyperlinks?

Since the advent of Web-based distance learning, the focus of online course design and faculty learning literature has been, in large part, dominated by research and conversation about community building and creating online presence. In other words, practitioners and academics have focused on how to best create the feeling that the virtual classroom is as socially connected as the face-to-face environment. Hypermedia, on the other hand, a key component of online course design and delivery, has been largely ignored. The hyperlink, defined as “a link from a hypertext file or document to another location or file, typically activated by clicking on a highlighted word or image on the screen” (Google, 2013), is one of the key ways that teaching in online environments is different from teaching face-to-face. Best practices books about online education tend to focus in two ways: broad pedagogical concepts, and technical implementation such as how to configure discussion forum settings for desired results, or mechanisms and tips for positioning course content (Barkley, 2010; Boettcher, 2010; Caulfield, 2011; Lehman & Conceicao, 2010; Pullman & Gu, 2009; Smith, 2008; Stavredes, 2011; Thorman & Zimmerman, 2012; Vai & Sosulski, 2011). Hyperlinks and hypermedia are rarely addressed, aside from technical documentation about how to create a hyperlink in the learning environment.

For the purposes of this study, I will often use the terms “hyperlink,” “hypertext,” and “hypermedia” in interchangeable ways. Historically, however, they were different. Hyperlinks often stood alone, and served as navigation components, or “a connection among documents” (Schlosser & Simonson, 2010). Hypertext was text built with hyperlinks throughout created with the intention of providing a dynamic reading

experience, or “a computer-based text and document retrieval system that can be accessed in a nonsequential or nonlinear format” (Schlosser & Simonson, 2010). Finally, hypermedia was hypertext built out to include interactive multimedia such as Web videos, audio files, and images that viewers could manipulate, or “a computer-based information retrieval system for accessing sound, text, images, graphics, or video” (Schlosser & Simonson, 2010). So, over time, and with the proliferation of electronic media formats like video, audio, and electronic images, the term “hypermedia” has become increasingly interchangeable with the words “hypertext,” and “multimedia” to refer text that incorporates elements of these new technologies. This evolving definition is important for online teaching and learning in that the act of learning online is still largely an exercise in reading. From articles to Web resources, to content created by instructors, online courses are navigated by reading, and most of the content delivered to students is written, in one form or another.

While much was added to the body of literature regarding the potential of hypermedia in education in the late 1990s and early 2000s, hypertext is rarely mentioned in resources published more recently than 2005. After 2005, work studying hypertext shifts toward its impacts on reading comprehension and retention, an important component of this study. Another important evolution to note in the discussion of hypermedia is the evolution from closed systems of media delivery to open systems such as the World Wide Web. Hypermedia originated in a time where CD-ROMS were the primary delivery mechanism for content. Thus, while hyperlinks were used, they linked only to other materials on the CD-ROM and not to the open Web. This type of interaction offers different implications for learning, as all of the content within a closed system is

related. A click on a closed hyperlink takes individuals to other closed resources, designed for a specific purpose. On the open Web, however, a link to a web page can result in clicks to other Web resources linked from that page, user comments, advertisements, and more.

Burbules and Callister (1996) see hypertext as “a kind of informational environment in which ideas are linked to one another in multiple ways... a system for organizing information, just as a library card catalogue or a Rolodex file are systems for organizing information” (p. 24). Here, I again refer to Google’s definition of hypertext as “a software system that links topics on the screen to related information and graphics, which are typically accessed by a point-and-click method.” The building block of hypertext, hyperlinks create “a link from a hypertext file or document to another location or file, typically activated by clicking on a highlighted word or image on the screen (Google, 2013).” Another way, Schlosser and Simonson (2009) define the hyperlink as “a connection among documents in a hypermedia or hypertext format” (p. 154).

In a face-to-face classroom, potential connections and distractions are everywhere. They differ, however, in a virtual classroom where instructors may not be able to intervene in a timely manner. Depending on their implementation, hyperlinks can at once open doors to new knowledge and derail topical focus. In a course design structure, hyperlinks can provide a clickable path for students to find their way methodically through a course space, or can lead them into places they did not expect, leaving them unsure what to do next. In a face-to-face environment, especially in smaller and medium sized courses, the faculty can often see the need for remediation as distraction or confusion occur, and address it immediately. Online, these problems can be

largely invisible, harder to diagnose, and often require students to ask for help, which they may never do, or do only after they have exhausted their cognitive capacities in trying to find a solution themselves. While the hyperlink is essential to online instruction even when viewed at its most basic function as a means of navigation from place to place, understanding how reading, way finding and discourse in online course design can be affected is crucial. Hyperlinks can enhance text and information gathering, but depending on the role they play in course design, they can also result in feelings of disorientation, affecting reading comprehension.

The hyperlink is often referred to as the building block of the Internet. Hyperlinks are defined by the Oxford English Dictionary as “a piece of text...which, when selected or clicked onscreen, causes another related object (esp. a file or program) to be displayed or activated” (OED, 2013). Technology innovation in education has presented new opportunities, but at a cost to faculty that must not be overlooked. In 1939, Vannevar Bush had his initial visions of the memex, short for “memory extender,” a forbearer of the World Wide Web and the modern Internet. “Consider a future device for individual use, which is a sort of mechanized private file and library...A memex is a device in which an individual stores all his books, records, and communications, and which is mechanized so that it may be consulted with exceeding speed and flexibility” (p. 111) wrote Bush in “As We May Think,” published in 1945. “It consists of a desk, and while it can presumably be operated from a distance, it is primarily the piece of furniture at which he works. On the top are slanting translucent screens, on which material can be projected for convenient reading. There is a keyboard, and sets of buttons and levers. Otherwise it looks like an ordinary desk” (p. 112). This description of the memex vision conjures

images of the modern, Internet-enabled desktop computer, and served as a foundational idea that served Tim Berners-Lee as he worked to invent the World Wide Web and, ultimately, the Internet (Burbules, 2000; Easley & Kleinberg, 2012).

Theodore Nelson forged the term “hypertext” in 1967, visualizing text with clickable branches that readers could explore in the order of their choice (Fekete, 2013). In 1996, and again in 2000, Nicholas Burbules and Thomas Callister saw the dynamic promise this hypertext branching brought to the field of education. They saw speed and choice, and with them the potential for instantaneous discovery. They also saw, however, the importance of the context in which all technologies (including hyperlinks) were used, saying “The technology, then, is not just the thing but the thing and the patterns of use to which it is put, the ways people think about and talk about the thing, and the changing expectations and problems the thing introduces” (2000, p. 7). The hyperlink is not only the most basic building block of the Web, but also a reflection of the pedagogical and technological tensions between distraction and exploration. Clicks can take learners anywhere, including places they did not intend to go, potentially creating adverse effects on student learning.

As an object the link seems simple, and certainly not cutting edge. The idea is that a reader sees text, clicks it, and resumes reading. However, as an epistemological and pedagogical tool, its implications reach far beyond the simple click, especially for faculty members delivering content online. In the world of higher education, and faculty development offerings, it is possible to lose sight of the fact that faculty members teaching online are largely, at their core, people who are learning to do new things, using new technologies. To some, though hyperlinks have existed since the advent of the World

Wide Web, this feature of online reading and writing is new, especially as a teaching tool.

They may not understand or consider the implications introduced when reading or

navigation flow is disrupted by the choice (or requirement) to click on a hyperlink.

Perhaps this is because they have not been taught, or had time to seek out, whether or not

they should do so. Thus, the primary research questions I attempt to answer are:

- How do faculty members' professional histories, primarily their experiences in reading (including the now often-recognized competition between print and screen) and writing shape their online teaching practices, particularly in their use of hypermedia?
- What new forms of faculty learning are important in how they prepare to teach online?
- What significance do they find in the role of hypermedia, and how do they use it in online course design?
- How do faculty members understand the instructional uses of hypermedia in relation to the technologically influenced emerging abilities and interests of students?

These questions and their answers are crucial, as online course offerings continue to see high enrollments and increased technological complexity. Understanding hypermedia use matters, but perhaps even more so, understanding the impacts and implications of faculty learning practices matters if teaching, learning, and research is to be effectively supported in the field of higher education³.

³ This study focuses on teaching and learning, but mentions research here as recognition that research is a key element of the faculty career and heavily utilizes linked resources. The research aspects of faculty work are often not isolated from teaching and learning.

Faculty Learning

This section focuses on the broad topic of faculty learning. That is, not simply institutional faculty development, but also faculty experiences, as well as self-directed and organized learning opportunities. Understanding the experiences that lead faculty to make instructional choices about integrating hyperlinks and hypermedia into their online course designs can offer insight into practices and interactions, ways that can and perhaps should be replicated, ways that might be better to avoid for the purposes of student learning. This understanding can also help us better discover how the faculty in question learned about these methods, how they came to see them as something that would be effective if incorporated, and shed some light on the kinds of learning experiences that faculty find most enriching. This data could begin to paint a picture for not only what good online course design for distance teaching and learning is, and what it could be, but offer implications for improving the faculty learning and development opportunities offered on campuses as well.

In what follows, I begin with a look at faculty learning, then move to an exploration of where the thoughts and perceived value of faculty learning, specifically faculty development in instructional technology have been, then progress to an updated snapshot of where these values surrounding faculty learning are now, and finally wrap up with some research that considers how learning opportunities might be changing. While the literature on faculty learning often centers on the more commonly known term “faculty development,” this study focuses more broadly on faculty learning and how individuals configure it to fit their needs.

Neumann (2009) finds that “although central to their work and careers, professors’ scholarly learning is a ‘black box’ in the public’s understanding of what it means to be a

professor and to engage in academic work" (p.2). Common perceptions of the faculty career from outside of the academy center on teaching and research, while faculty learning is frequently excluded from view. This study looks at faculty learning from the perspective of how they decide to incorporate new technologies and how they learn enough to do so, including graduate education, professional learning networks, books, consulting services they have engaged, and the informal learning experiences they bring to their practice.

When it comes to the literature based in learning to teach online, Neumann (2009) highlights the critical nature of faculty learning as preparation for the job, and everything that "comes at them" (p. 5). Baran, Correia and Thompson (2011) did an extensive literature review focusing on the changing faculty role in online teaching, and the pedagogical and technical competencies that accompany on online course. Online instructors undertake many roles in the virtual classroom, ranging from manager, instructional designer, teacher, tech support, facilitator (Baran, Correia & Thompson, 2011, p. 433). These studies illustrate just how many new things "come at [faculty]" as they learn what is involved in online instruction.

Major (2010) found that fundamental shifts in self-identity take place when instructors begin teaching online, and that the professional development that takes place incorporates more than technical know-how. Through an extensive literature review, Major found that faculty "change public presentation of selves, often becoming more reserved online" (p. 2169), "feel professional rejuvenation from teaching online" (p. 2172), "increase structure in online courses" (p. 2175), "assume additional responsibilities" (p. 2180), and "feel increased demands" (p. 2180), and "reconstruct

relationships with their students” (p. 2181), when teaching online. Baron (2013) echoes the change in faculty role online, and highlights that faculty must learn to be facilitators more than experts, and to increase the structure and organization of their course content.

As academic work changes, and technology becomes more and more necessary, the preparations needed are rapidly changing (Coppola, Hilts & Rotter, 2002; Gornall & Salisbury, 2012; McShane, 2004). While they are interested in extending their subject matter knowledge across the span of their career, faculty must also reach beyond disciplinary borders to recontextualize content and engage in a different kind of learning in order to be successful with technology (Neumann, 2009). Technology integration, especially in fully online courses, requires broad re-thinking of academic work. Workflows, teaching philosophies, and sometimes even the subject matter itself must be considered from the perspective of how technology will impact course dynamics and processes.

Faculty must be excellent learners in order to also be excellent teachers and researchers (Neumann, 2009; O’Meara, Terosky, & Neumann, 2008; O’Meara & Terosky, 2010). However, Gayle, et al. (2013) note that “surprisingly little is understood about what theoretical frameworks are most effective in explaining the way faculty members learn about or incorporate their knowledge of scholarly teaching into their cognitive schema” (p.81). The same can be said for how faculty members learn about or incorporate their knowledge of teaching with technology. While there are best practices in online teaching and learning, no single online teaching method or pedagogy has emerged as a common standard to be followed (Baran, Correia & Thompson, 2013; Levine & Sun, 2002). Faculty are hesitant to move away from their known methods, and

try new ones, and little of what they learn in professional development workshops ever makes it into practice (Gayle et al., 2013; Tabata & Johnsrud, 2008; Yelon et al., 2004). There may be interest in trying a few new things in conjunction with previously adopted methods, but for true change to take place, faculty members in professional development needed to have motivation to make changes to their teaching methods specifically for the purposes of increasing their knowledge of, and improvement upon, their own technique (Gayle, et al., 2013).

As adult learners, faculty members engage in the learning process in a fluid way, incorporating what they learn to their prior knowledge. Opportunities for self-direction and collaboration are important to their success, as well as activities that work toward the end goal of improvements to their practice (Gayle et al., 2008; Harasim, 1995; Sorcinelli, 2006; Tabata & Johnsrud, 2008).

One of the most common ways that faculty members on modern university campuses seek learning and skill development is through faculty development offerings. As technologies have advanced, the problem of faculty learning has become more acute. As early as 1976, 66% of survey participants in a well-known faculty study by John Centra noted that faculty found that bringing experts in to help them incorporate audiovisual components into their teaching was “effective or very effective” (1976, p. 21). Baldwin, (1998) found evidence that, despite claims of technology as a catalyst for instructional change, e-mail and word processing were actually the most commonly used applications, not tools of teaching and learning. In 2014, this is still largely true (Allen & Seaman, 2012, 2013; Jaschick & Lederman, 2013). While the faculty roles have changed, as have the technical methods of sending and receiving communication, instruction itself

has remained largely unchanged. However, the beginnings of true concern about faculty teaching and expertise in the face of rapid technology innovation begin to emerge as the body of literature calls for faculty members to become less “sage[s] on the stage” and more “guide[s] on the side” in their approach (Baldwin, 1998, p.10; Barr & Tagg, 1995).

Much of the early push for connected, student-centered learning was a result of the establishment of the *Anytime, Anyplace Learning Program* by the Alfred P. Sloan Foundation, which lasted from 1992 to 2012 and provided over \$72 million to institutions wishing to expand their online learning initiatives (Picciano, 2012). From this program, the Sloan Consortium (Sloan-C) was formed, initially by grant-receiving institutions, and eventually as an incorporated 501(c)(3) professional development organization (Picciano, 2012). Much focus was placed in Sloan-C’s efforts around creating interactive online environments for students and faculty alike. Faculty were encouraged to form or join communities of virtual knowledge sharing called Asynchronous Learning Networks. Great importance was placed on the facilitation of these social and learning connections in the online environment in the years before social media and learning management systems were considered the norm (Picciano, 2002; Swan, 2004; Picciano, 2012), while other aspects of course design such as hypertext were less visible. This focus on connection, along with the evolution of Internet technologies and the World Wide Web, the influence of Alfred P. Sloan Foundation grants, and the work of Sloan-C changed how the field of higher education defined quality in online courses and course design.

In 2001, the Professional and Organizational Development (POD) Network conducted a study that placed technology and teaching integration into the top three concerns faculty had about their development (Sorcinelli, 2006; McKee, 2013). An

unpublished study about faculty development activities by McKee et al. in 2010 did not ask about technology, but researchers found that participants “repeatedly mentioned in the open response section of the research that they used technology to enhance pedagogy” (McKee, 2013, p. 20).

Today, and as technology has advanced, however, faculty development activities have remained relatively consistent. Sabbatical leave, grants, workshops, professional memberships, and seminars are all standard offerings on campuses providing faculty learning opportunities (Austin & Sorcinelli, 2013; Centra, 1976; McKee, 2013; Sorcinelli, 2006), though in 1976 the leave was often unpaid while currently compensation for time is regularly considered a benefit granted to those faculty who seek out development opportunities. Sorcinelli’s 2001 survey found that many faculty members seeking development (72%) were interested in “creating or sustaining a culture of teaching excellence,” while a lower, but still significant number (49%) were interested in “advancing new initiatives in teaching and learning” (2006, p. 48). Tabata and Johnsrud (2008) found that faculty members were more likely to incorporate technologies when they can do so in ways they find relevant and meaningful to their work. “It would seem that the more they view technology as beneficial in fulfilling their professional duties, the more likely they are to engage in other uses of technology, such as those associated with delivering distance education” (p. 635). Further, this study found that faculty members who feel confident using technology tend to view competency through the lens of work completion. In other words, they feel the most competent in the use of technologies that require the least variation in the ways they already teach or work. For example, a recorded lecture that they post for their students might require very little

deviation from their already comfortable approach to content delivery, thus responses regarding comfort with that technology and its integration into their teaching practices would tend to be higher as they perceive they would have to learn less to deploy it successfully. It seems that, despite the challenges, technology has the potential to advance the teaching and learning goals of faculty, perhaps helping to explain its topical prevalence in faculty development surveys.

A 2013 survey conducted by Gallup ® and *Inside Higher Education* surveyed higher education faculty and technology officers about their attitudes in regard to technology and online teaching and learning. Only 3% of instructors overall responded that lack of training opportunities was a factor (Jaschik & Lederman, 2013) in their hesitations regarding online learning. A 2014 report from the Educause Center for Analysis and Research found that 80% of faculty have access to IT training resources, and 59% of the faculty surveyed agreed or strongly agreed that they could be more effective teachers if they were better informed about how to incorporate technology into their courses (Dahlstrom & Brooks, 2014, p. 23). Dahlstrom and Brooks also explored the types of training faculty were interested in. “Faculty with less than 10 years of experience desire training for each of the top 4 technologies (free web content, online collaboration tools, LMS, and simulations/educational games) more than faculty with 10 or more years of experience. Part-time faculty were also more likely to report training needs for each of the top four items” (Dahlstrom & Brooks, 2014, p. 24).

98% of institutions offer individual technology training for their faculty (Dahlstrom & Brooks, 2014, p. 25)⁴. So, training is offered, but faculty either do not seek it or do not find that it fits their needs. Also, if they do not wish to teach online, providing training for them does not generally change their mind. This is important in that, in looking at hypermedia in online course design, practitioners must consider how faculty came to teach online and their attitudes about it as an influencing factor in how they think about their online course spaces.

Aside from the standard faculty development format that includes seminars, sabbaticals, and professional organization memberships, faculty members are looking to other resources in the pursuit of online teaching knowledge. In the *Inside Higher Education* survey, questions were asked about faculty members' experiences with online learning, with 29% of faculty overall reporting they had taken an online course for credit, compared to 50% of technology officers. Of the faculty having reported taking an online course, tenured faculty represent 19% to non-tenured faculty's 36%. Further, these numbers were different for faculty teaching online courses, with 49% of overall faculty reporting having taken an online course for credit (Jaschik & Lederman, 2013).

In many cases, faculty members teach in the way they experienced higher education themselves (Conceicao, 2006; Gallant, 2000), or try to replicate face-to-face teaching methods online (Bowen, 2013). In other words, they incorporate the methods

⁴ At Midwest University, faculty teaching for-credit courses can seek learning opportunities in a number of places, including a central university department of faculty development. Online instructors, or those who choose to incorporate technology into their teaching can also attend sessions delivered by the centrally-supported IT Services department. Finally, department technology coordinators are active on Midwest's campus, often creating discipline-specific workshops and resources for department faculty.

and behaviors they observed in their professors, keeping and re-using the ones they found most effective. For the minority who have taken online courses, this could mean modeling online course design and communication techniques, but the majority of faculty teaching online are likely relying on face-to-face instructional techniques and what they can learn in faculty development courses, or on their own.

Additionally, faculty members are increasingly self-organizing to obtain the training they perceive as useful. The rise of the Internet, and networked information and people also saw the rise of Professional Learning Networks, or PLNs, which have become an increasingly popular way for educators to share ideas, resources, and knowledge (Harasim, 1995). In higher education, Faculty Learning Communities (FLC), have also gained in popularity as a means for faculty members to collaborate, share ideas, and learn from one another in a self-directed way. Gayle et al. (2013) found that, overall, faculty members seek formalized faculty development opportunities as a means to: “(a) interact, exchange, explore ideas about teaching and learning with colleagues; (b) increase repertoires of instructional theory and practice; and (c) experience and contribute to a sense of community” (p. 87). Each of these variables is present in FLCs, which are organized and directed by the faculty themselves.

So, where is faculty development going, in the face of rapid technological change, how faculty members learn, and demand for skills in teaching and technology integration? Austin and Sorcinelli (2013) predict that faculty development will evolve to incorporate the flexibility needed for, and offered by, teaching with online technologies. Additionally, they see the potential for growth in faculty development offerings that support technology in research as well as teaching. Others see promise in more localized,

or department-based faculty development offerings, as opposed to broader institutional programs (Kukulska-Hulme, 2012). Still others see the creation of communities of practice focused on technology, or faculty learning communities, as the answer to facilitating a growth in comfort regarding the unknowns that technology introduces to the faculty role (Cook & Steinert, 2013; Hagler, et al., 2013). Demand for technology in teaching and learning will not subside in the near future. The more practitioners and scholars understand how faculty members learn the technology skills they use in online teaching, Internet use, and reading, the more guidance in the adoption of emerging technologies and pedagogical strategies, and improvement in online teaching efficacy can be offered.

Methods

This is a study in classic grounded theory (CGT). I selected grounded theory for this work as a systematic way to account for what could be learned from five distinct accounts of experiences and history with hypermedia hyperlinks and hypermedia. Kathy Charmaz, a foremost scholar in grounded theory, highlights how grounded theory methods allow a researcher to (as cited in Smith, 2007), “begin to construct [an] analysis by comparing bits of data – ideas and incidents – with each other” (p. 82). I do this by relaying faculty members’ personal experiences with online teaching and learning with an eye toward better understanding their approach to online course design, and how they came to learn what they know.

Sample. The 2010 Sage Handbook of Grounded Theory notes the necessity of obtaining the appropriate sample participants in studies situated in grounded theory. Originally, the sample for this study was intended to be drawn from the entire faculty

population of Midwest University. However, I decided upon input from my guidance committee to focus on a single unit, in this case the College of Education. The College of Education faculty represent diverse backgrounds, disciplines, and teaching experiences. While the decision to focus on a single department sacrificed interdisciplinary variety, it allowed for me to account for the impacts of departmental culture in a more reliable way.

“An excellent participant for grounded theory is one who has been through, or observed, the experience under investigation” (Bryant & Charmaz, 2010, p. 231). Further, she says that participants “must be willing to participate, and have the time to share the necessary information; and they must be reflective, willing, and able to speak articulately about the experience” (Bryant & Charmaz, 2010, p. 231). After deciding to focus on the College of Education, individual faculty were selected. They were identified through not only their involvement in the online teaching initiatives in the College of Education at Midwest University, but through recommendations from other faculty members in the department. Each faculty member was asked a question: “Do you make use of hyperlinking in your courses apart from simply linking to the required readings/articles?” Those indicating they did not were removed from the pool of potential interviews. This reduced the viable sample, and allowed for coding of considerations such as teaching experience, discipline, gender, age, and tenure status to be considered in the final selection process to ensure representation. Each chapter describes participants in detail, but demographically this sample was represented by three females and two males, ranging in age from mid-30s to mid-60s. Four of the interview subjects were tenure track faculty, while one was fixed-term.

In the context of this study, the rationale for selecting only faculty members using, or perceiving that they use hyperlinks for more than simple navigation to reading assignments, is that this work focuses on the delivery of technologies which could fundamentally change the way teaching and learning takes place. How faculty learn about and understand them as they become increasingly complex is important to understanding by what means faculty approach online course design, and what support mechanisms are needed to facilitate the development of quality online courses.

Instrumentation. Once I identified the sample, and selected participants agreed to a meeting time, the interview process began. Semi-structured interviews (the survey instrument is available in Appendix B) of 60-90 minutes were conducted with each of the selected faculty members in a location of their choosing, with four out of five selecting to meet in their offices. With permission, the audio of the interviews was recorded and transcribed.

The survey instrument was developed to gather a range of data reflecting faculty members' experiences with reading, hypertext, online instruction, online course design, and student observations. Participants in the study also opened one or more of their online course offerings to exploration, for the purpose of allowing an observation of how hyperlinking played a role in the online course design.

Part I of the interview asked questions about faculty members' personal history of reading. This section aimed to identify each subject's views on reading, and the preferences and predicaments they encountered reading in the digital age. Their own use of hyperlinks in their reading was explored, as well as changes over time in their own

reading preferences including whether they preferred electronic books or printed, and whether those preferences varied in regard to reading goals.

Next, Part II explored faculty members' personal histories in online teaching and learning, including their experience with online course design. Questions regarding length of time they had been teaching, whether or not their undergraduate or graduate work incorporated online technologies, the types of online technologies they had encountered in their own learning, and their memories of online technologies were discussed. Additionally, this section looked at whether the faculty members had experienced online learning as students themselves either prior to or after undertaking the delivery of online courses of their own. They were asked to think about the course spaces they create and the design process they followed to get there. Finally, teaching formats were explored: whether they teach only fully online courses, or a combination of fully online, blended (replacing at least 50% of the course seat time with online activities), and face-to-face courses.

Part III delved into their history with and perspectives about hyperlinks and hypermedia. They were asked to share the thoughts and behaviors they associate with the terms hyperlink and hypermedia, as well as how they use links in their online course design. For example, each participant was asked if they saw links as being strictly navigational (a means of simply getting people from place to place) or explorational (facilitating browsers' desire to explore inter-related resources in their own way). Beyond their perceptions of hyperlinks and hypermedia as a technical object, they were asked to assess the pedagogical advantages and drawbacks of using hyperlinks to deliver content, and how successful their hypermedia design was in its intended aims and means

including student questions, and how they ensure that students are doing what they were asked to do. Finally, each faculty member was asked what they would absolutely do again in regard to online teaching, and what they would never do again.

The final section, Part IV, delved into faculty members' perceptions of student behaviors in their online courses, specifically how students interact with and use the hyperlinks and hypermedia they provide. This section looked at whether the student behaviors observed reflected the intentions of the course design and instructional decisions made while developing the course. A key question in this section asked faculty members what their sense of students' attention span was, whether they tried to manage that attention span, and whether or not they had seen changes in student attention span over time, or in regard to hypermedia. Finally, perceptions of their own attention span when interacting with hypermedia were explored, as well as what compels them to click on links when they are presented in a book, article, or instructional materials.

Beyond the interviews, each participant allowed an observation of their online course space. This course access provided context to each interview, providing a means by which hyperlink use could be explored as well as discussed. Instead of faculty perceptions of their hyperlink use alone, each course is represented in tangible terms that can be tied to the experiences revealed in the interview process.

Coding. As is standard in the practice of classical grounded theory, interviews were coded in open and selective rounds. In the open coding round, the base questions asked are those recommended in Chapter 13 of The SAGE Handbook of Grounded Theory, from Glaser's 1998 work: "What is this data a study of?," "What category does this incident indicate?," "What is actually happening in the data?," "What is the main

concern being faced by the participants?,” and “What accounts for the continual resolving of this concern” (p. 140)?

Selective coding was performed based on the five categories revealed by open coding: a personal history of reading and hyperlink consumption, teaching and learning with hyperlinks, learning to teach online, and assessment of hyperlink use.

Researcher Role

I have worked in instructional technology for approximately sixteen years in roles varying from support technologist to server administrator to instructional designer and researcher. Prior to that, I encountered instructional technologies (including hyperlinks and hypermedia) during my undergraduate and graduate studies. My master’s degree in education, focusing on educational technology and K-16 leadership, was completed online, with work beginning in 2006. Yet, in my job as an instructional designer, I have observed very little fundamental change in the way online courses are delivered. They are still largely an exercise in reading, be it in instructor-crafted hypermedia, or downloadable electronic articles. I am also old enough to remember when the Internet began to show itself as a useful tool for learning, and I cannot help but reflect upon how my reading and learning habits have changed since my first college course in 1996.

My work in instructional design and research has revealed to me the importance of understanding what works when it comes to student learning, and what does not. More important than to understand “what,” however, is to understand “why.” With a better understanding of the “whys” behind teaching and learning online, will come a better basis upon which to develop best practices and faculty support in the development of courses that incorporate technology.

Summary

Technology has, and continues to change the way teachers teach and students learn. It has also changed how instructors seek help and make instructional decisions based on what they know, or feel that they can do. In the chapters that follow, reading habits are a large focus. While reading may seem to be secondary to answering questions about online course design, I argue that it is not. The thoughts of the participants represented in this study reveal the similarities and differences in how they think about hyperlinks and hypermedia. The hyperlink is not necessarily in danger of becoming obsolete in the immediate future, but is a technology that is transformational in nature and deceptively complex. Over the course of each interview, faculty members reveal the impact that their reading habits have on their approach to, and perspectives on online course design. Ultimately, online faculty replicate what works for them in how they develop the hypermedia for their online courses. Their reading habits, experiences, and preferences heavily impact the online course experience for their students.

The chapters that follow relate the experiences and perceptions of five online faculty members at a doctoral-granting public research institution. Each chapter begins with an exploration of subjects' personal history of reading, and how they interact with hyperlinks and hypermedia. Chapters then move toward a discussion each faculty members' views of teaching and learning with hyperlinks including how they are perceived to fit within online course designs. In this section, I also draw parallels between their reading habits and how course designs are considered. Next, I look at how faculty members came to know what they do about online teaching, their experiences in how they seek help, and how they learn new things to incorporate into their courses or repair

problems that arise with the technologies they have selected. Finally, faculty perceptions of how their students interact with the content they develop, what (if any) measures are in place to measure how successful they are in their hypermedia aims and goals, and the changes they have observed over time in how students interact with online learning content.