From Novice to Independent Researcher: A Content Analysis of PhD Student Blogs

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FROM NOVICE TO INDEPENDENT RESEARCHER:  
A CONTENT ANALYSIS OF PHD STUDENT BLOGS

by

Sarah J. Cox

A dissertation submitted to the Graduate College  
in partial fulfillment of the requirements  
for the Degree of Doctor of Philosophy  
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The work of completing a PhD is complex, requiring a student to make sense of many uncertain processes in multiple contexts as they move toward independent scholarship. A setting that provides support in learning the tasks of PhD-related work is the informal learning environment of the Internet. Social media sites, such as blogs and wikis, supply a vast number of resources related to PhD work. Of particular interest to this study, are blog sites maintained by students who are sharing practices related to PhD work. It is possible to use a qualitative method to explore what blogs show us about PhD-related work in the informal learning context of the blogosphere. The purpose of this qualitative content analysis is to explore the context of the blogosphere as an informal learning space, specifically looking at the content of various PhD student’s blogs, and what that content reveals about PhD-related work practices. The theoretical framework of this study acknowledges the changing patterns, contexts, and content of 21st-century PhD-related work by drawing on Bronfenbrenner’s (1979) ecological systems' theory. Moreover, the practices of PhD-related work are represented using the work of Cumming’s (2010) integrative model of doctoral enterprise, and Milligan, Littlejohn, and Margaryan’s (2014) workplace learning in informal networks and the associated four informal learning behaviors. An exploration of the blog content from a sample of 14 blogs reveals that the blogs are not confined to any country, discipline, or gender. Data in this study shows that the bloggers represent both full-time and part-time PhD students and do not fall into a particular category based on age. The content of each blog is recorded as a separate
narrative in this study. In reading through the narratives, patterns, similarities, and themes emerged that provide a platform for thematic analysis, interpretation, and discussion.

The content of this study reveals that PhD-related work takes place in a variety of settings and is impacted directly and indirectly by multiple relationships across many differing environments. Themes emerged that echo those in the literature: supervision, validation, and professional participation; the important role of the Internet and social media; widening participation and access; and informal workplace learning in relationship to PhD-related work. While these themes are extensively explored by others working in the field, two emergent themes are underscored through this study’s data, not because there is abundant evidence, but rather because there is little evidence. That is to say, in the research, I expected to find content related to coursework and mentorship, however, the opposite was true, leading to new questions for future studies. The study also resulted in several recommendations for policy and practice in higher education related to PhD level work.
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To all who have nourished and cherished, cheered, and challenged, questioned, and listened, as I pursued, (albeit, reluctantly at times), the gifts that emerge through inquisitive play and quirky inquiry into ways of knowing the world. For Glenna, Brenda, Elizabeth, Alice, and Peter.

“Learn to be quiet enough to hear the genuine within yourself so that you can hear it in others”

Marian Wright Edelman, 1992

Sarah J. Cox
# TABLE OF CONTENTS

**ACKNOWLEDGEMENTS** ............................................................................................................ ii

**LIST OF TABLES** ......................................................................................................................... ix

**LIST OF FIGURES** ....................................................................................................................... x

**CHAPTER**

I. INTRODUCTION .......................................................................................................................... 1

- Rationale ................................................................................................................................. 2
- Problem and Purpose ............................................................................................................. 6
- Research Questions ................................................................................................................. 8
- Theoretical and Conceptual Framework .............................................................................. 8
- Significance ............................................................................................................................. 11
- Chapter Summary .................................................................................................................. 11

II. REVIEW OF THE LITERATURE ............................................................................................. 13

- Key Theories and Concepts Regarding the PhD ......................................................... 14
- Socialization, Development and the PhD Student .................................................... 15
- Professional Identity Development and the PhD Student ........................................... 17
- Academic Identity Construction ...................................................................................... 20
- Theories of Adult Learning .............................................................................................. 23
- Informal Learning Theory ................................................................................................. 27
- Self-Direction in Learning ................................................................................................. 29
Table of Contents—Continued

CHAPTER

Self-Direction in Learning and Academic Workplaces .................................................. 34
Self-Directed Learning and PhD-Related work .............................................................. 34
Academic Work and Academic Workplaces ................................................................. 35
PhD-Related Work and the PhD-Related Workplace .................................................... 38
The Internet as a Student Site for Work ..................................................................... 40
Informal Learning and the Internet .......................................................................... 42
Informal Behaviors and Informal Learning in the Workplace .................................... 46
Knowledge ................................................................................................................... 49
Types of Knowledge .................................................................................................. 50
Knowledge and PhD Students .................................................................................... 52
Knowledge Sharing ..................................................................................................... 54
Blogs ........................................................................................................................... 56
Blogs and Higher Education ....................................................................................... 57
Content Analysis ......................................................................................................... 63
Qualitative Content Analysis ................................................................................... 66
Chapter Summary ....................................................................................................... 68

III. METHODS .................................................................................................................. 69

Research Design .......................................................................................................... 70
Setting, Population, and Sample .................................................................................. 71
Sampling ....................................................................................................................... 71
Table of Contents—Continued

CHAPTER

Data Analysis Process and Procedures ............................................................................... 73
Methods for Data Analysis .................................................................................................. 74
Section One-- The Practices Related to PhD Work .......................................................... 74
Section Two--Personal Contexts and Informal Learning Behaviors ................................. 75
Pilot Study .......................................................................................................................... 76
Qualitative Analysis of Data Using Computer-Assisted Software (QADCAS) ............. 78
Issues of Trustworthiness ................................................................................................. 79
   Credibility, Dependability, and Transferability ............................................................. 79
Ethical Considerations ....................................................................................................... 81
Delimitations and Limitations .......................................................................................... 82
Chapter Summary ............................................................................................................. 83

IV. THE BLOG NARRATIVES ......................................................................................... 85

The Sample ...................................................................................................................... 85
Demographic Data ............................................................................................................ 86
The Blog Narratives .......................................................................................................... 87
Blog_01 .......................................................................................................................... 88
Blog_02 .......................................................................................................................... 90
Blog_03 .......................................................................................................................... 92
Blog_04 .......................................................................................................................... 93
Blog_05 .......................................................................................................................... 95
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blog_06</td>
<td>99</td>
</tr>
<tr>
<td>Blog_07</td>
<td>100</td>
</tr>
<tr>
<td>Blog_08</td>
<td>103</td>
</tr>
<tr>
<td>Blog_09</td>
<td>105</td>
</tr>
<tr>
<td>Blog_10</td>
<td>107</td>
</tr>
<tr>
<td>Blog_11</td>
<td>111</td>
</tr>
<tr>
<td>Blog_12</td>
<td>114</td>
</tr>
<tr>
<td>Blog_13</td>
<td>116</td>
</tr>
<tr>
<td>Blog_14</td>
<td>119</td>
</tr>
<tr>
<td>Chapter Summary</td>
<td>121</td>
</tr>
</tbody>
</table>

V. ANALYSIS AND FINDINGS ................................................................. 122

Section One -- Practices Related to PhD Work ........................................ 122

The Sub-Category Practices Related to PhD Work ..................................... 125

Analysis of Text using Linguistic Inquiry and Word Count (LIWC) ............. 130

Section Two-- Personal Contexts and Informal Learning Behaviors .......... 133

Contexts and Impact on the Practices of PhD-Related Work ................... 134

The Four Informal Learning Behaviors .................................................. 135

The Major Themes .............................................................................. 137

Theme One: PhD-Related Work Supervision and the Supervisory Relationship 137

Theme Two: Internet and Associated Technologies for PhD-related work .... 141
# Table of Contents—Continued

## CHAPTER

- Theme Three: Opportunities for Academic Preparation ........................................... 144
- Theme Four: Widening Participation and Access .................................................. 148
- Theme Five: Informal Workplace Learning and PhD-Related Work .................. 152

### The New and Emergent Themes

- Theme One. Online Peer Mentorship and PhD-related Work ......................... 156
- Theme Two. PhD-related Coursework ............................................................... 162

### Analytical Categories

- Chapter Summary ............................................................................................... 168

## VI. RECOMMENDATIONS AND CONVERSATIONS ................................................... 169

### Overview of Major Findings and Recommendations ......................................... 169

- Supervision and the Supervisory Relationship ............................................... 172
- Internet and Associated Technologies for PhD-Related Work ......................... 173
- Opportunities for Academic Participation ....................................................... 173
- Widening Participation and Access ................................................................. 174
- Informal Workplace Learning and PhD-Related Work ..................................... 175

### Recommendations ............................................................................................ 176

### Critique, Future Research, and Personal Reflection ........................................ 179

### Critique .............................................................................................................. 179

### A Future Research Agenda ............................................................................... 180

### Personal Reflective Statement ........................................................................... 182
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter Summary</td>
<td>185</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>186</td>
</tr>
<tr>
<td>APPENDICES</td>
<td></td>
</tr>
<tr>
<td>A. Code System</td>
<td>2121</td>
</tr>
<tr>
<td>B. Sample Of In Vivo Codes and Associated Memos</td>
<td>215</td>
</tr>
</tbody>
</table>
LIST OF TABLES

1. Bloom’s taxonomy of educational objectives, the knowledge dimension.......................... 52
2. PhD-related work practices, pilot study data examples...................................................... 77
3. Demographic data from the 14 blogs analyzed................................................................. 87
4. The practices related to PhD work..................................................................................... 123
5. Analytical categories......................................................................................................... 167
LIST OF FIGURES

1. Conceptual framework ............................................................................................................ 10
2. PhD-related work practices in the blog content ................................................................. 124
3. Positive and negative sentiment of the blogs ........................................................................ 132
4. Overall PhD-related work practices and positive emotional tone ...................................... 133
5. Tone for each PhD-related work practice per blog ............................................................ 133
6. A new conceptual framework ............................................................................................... 180
CHAPTER I
INTRODUCTION

In my household, two students are pursuing their PhDs. Both are above the average age of a traditional doctoral student (National Science Foundation, 2013) and therefore are easily characterized as adult learners (Kasworm & Bowles, 2010). Personal and professional reasons motivate each to succeed. Both students readily acknowledge that the PhD process presents multiple challenges for them in juggling work, family, and community responsibilities. In addition, both students regularly question their commitment to the process and feel that there is a tug-of-war between feelings of not being good enough and knowing what is required for becoming a scholar.

Prior to beginning their PhD programs, both students experienced academic successes and had similar experiences in meeting the requirements of academic work even though they come from different countries. Academic reports throughout their schooling describe both students as being highly motivated toward academic success. Overall, both articulate that they met their prior educational achievements with few challenges. All of these are the typical characteristics of doctoral students as reported in the literature (Austin, 2010; Golde, 2010; Kasworm & Bowles, 2010; Lovitts, 2001, 2005).

When the two students in my home finally sat down together to reflect on their experiences of pursuing a PhD, however, they realized that they shared some unspoken anxieties about the process. Their prior academic successes had not prepared them for the expectations involved in pursuing a PhD (Golde, 2010), resulting in feelings of “impostership” (Brookfield, 1999; Kasworm & Bowles, 2010) in the program, along with feeling underprepared to move from being consumers of research to being independent researchers (Austin, 2010; Lovitts,
PhD learning is centered on learning about research and then applying that knowledge in one’s own original research (Delamont & Atkinson, 2001). But the PhD learning experience also involves changes in identity as the students move toward independent scholarship (Baker & Lattuca, 2010; Green, 2005; McAlpine & Amundsen, 2008).

In conversing, both students recognized the importance of communicating with other PhD students but acknowledged sometimes feeling fearful of appearing less knowledgeable than their peers, colleagues, and supervisors (Austin, 2010). They rarely contacted their advisers for academic support and advice (Kasworm & Bowles, 2010) because they feared exposing themselves as the imposters they believed themselves to be. For both, the experience of being a PhD student, being expected to move from readers and consumers of research to producing their original contribution to their field of study, was, as explained by Austin (2009), “a demanding new experience” (p. xiv). Both freely acknowledged that, given the anxiety-inducing feelings of impostership, it is easier and feels safer to fill in their gaps in knowledge via the Internet.

Rationale

The literature on strategies for best practices in doctoral education has increased considerably over the past 20 years (Gardner & Mendoza, 2010; Golde, 2010). Many researchers have provided frameworks that have helped to develop an understanding of PhD students, their development as scholars, their socialization into the scholarly community, their experiences of the PhD process, and issues related to retention and attrition (Austin, 2010; Golde, 2010; Weidman, Twale, & Stein, 2001). Hopwood (2010) points out that, the dominant trend in research examining PhD students using socialization and professional development theory is too narrow. Cumming (2010) has commented that contemporary PhD-related work is too diverse to fit neatly into these linear frameworks.
Therefore, alternative frameworks and conceptualizations of PhD-related work have emerged with broader perspectives. Hopwood (2010) applied sociocultural theory and agency theory to understand students’ relationships. Kiley (2015) and Trafford and Leshem (2009) examined the lives of PhD students framed by threshold concepts and theory. Ward (2013) used liminal space to consider statuses of PhD students. Cumming (2010) looked at re-imagining PhD-related work as that of an enterprise, making it possible to shift away from the traditional views. Enduring an experience characterized as a perilous passage (Weidman, Twale, & Stein, 2001), students as lonely scholars who beaver away on their research (Thorlakson, 2005). As Cumming (2010) suggested, doctoral work should be viewed as part of a larger ecosystem in which many pieces involved in PhD-related work practice “are interdependent as well as interrelated” (p. 36). Ultimately, regardless of perspective, broad agreement exists that reforms are necessary to “enhance the quality of research training in general and doctoral education in particular” (Cumming, 2010, p. 25).

Reforming research training and doctoral education is a multifaceted problem (Krull, 2010), in part because of the vast diversity between PhD program models. By concentrating reform efforts on students’ academic requirements as emerging scholars, the problem is twofold. First, begins with students’ perceiving themselves as being prepared to meet the challenges of PhD-level work and continues through the existing misconception in higher education that a student’s prior success has prepared him or her for PhD-level work (Golde, 1998). Success at the undergraduate and master’s levels is not always an indicator of achievement at the PhD level. Second, although there may be similarities in the experience and understanding of being a PhD student, substantive differences in content knowledge are necessary for producing the final product, the dissertation, required for obtaining a PhD (Ward, 2008).
The basic processes of successful PhD-related work are simple. Students have to demonstrate a high level of conceptual thinking and an ability to analyze and synthesize data (Hart, 1998). Nevertheless, achieving this is not so simple, and many students, for a multitude of reasons, will never realize success in PhD-related work. Until recently, the dominant task of doctoral education was to prepare future faculty; becoming experts was expected of PhD students. The process itself becomes its own knowledge, learned through a transition that begins with a command of descriptive knowledge, evolves into an ability to analyze ways of knowing that leads to thoughtful evaluation, and culminates with the development of an original way of knowing. This process has been at the heart of developing the doctoral student from novice to expert and has largely initiated students into the culture of the organizations in which they are to work. It is not a huge leap to suggest that gaining a PhD might be understood as a protracted orientation to the job of being a scholar.

Recent research shows that PhD students, along with faculty, are informally interacting on a global scale through the virtual spaces and forums afforded by the Internet (Nerad, 2012). Students can collaborate, share research notes and academic papers, and engage in joint research assignments by using tools such as blogs, wikis, and academic sites such as Mendeley.com, Methodspace.com, and Academia.edu. Critical to this study and echoing the concerns of Ward (2013), there is a lack of specific studies that address what PhD students are sharing in these informal learning spaces, connected to PhD-related work practices. When referencing some of the core features of a PhD, Golde (2010) observed that many of the components of PhD-related work are no longer familiar or recognizable as formalized education, and in the age of the Internet, Golde’s observation has significant implications for how we approach a study of PhD student blog sites. As Wilmott (2010) asserted, the place and role of higher education have
shifted significantly in a world where students can access knowledge outside formal learning opportunities via the Internet.

Ultimately, the informal learning opportunities afforded to students via the Internet have the potential to enhance and to hinder students’ ability to carry out high-quality research. Other research into social networking patterns, usage, and behaviors has suggested that we must seek to understand how informal knowledge is shared across seemingly unconnected groups using tools such as Facebook, Twitter, and blogs (Johnson, 2009). More recently, findings have demonstrated the potential for the Internet to allow students to personalize their learning experiences, and share knowledge, and remain engaged (McLoughlin & Lee, 2011).

Regarding PhD students’ use of blogs, and through my use of the World Wide Web for research, two important points emerged that have guided this study. It is evident on a large scale that PhD students are engaged in sharing knowledge relating to PhD work using social media, and the Internet is a network of an overwhelming number of sites dedicated to “all things PhD.” An open-ended search on Google using the term writing a dissertation generated a staggering 51,200,000 possible choices. That same search term through the online book retailer Amazon generated over 6,000 titles. A Google search for completing a PhD returned even more overwhelming results of 52,100,000. Adding quotation marks—“completing a PhD”—provided a far more “reasonable” 278,000. A search on BlogSearchEngine.org, a dedicated search tool for blog sites, for “completing a PhD” returned about 18,300 results. Kamler and Thomson (2008) have referred to these myriad resources as the doctoral researcher’s do-it-yourself supervision materials.

Because of the vast information available to PhD seekers, I wondered how many results would return for a blog search for “my PhD”, potentially indicating how many bloggers were
posting content about PhD-related work practices. BlogSearchEngine.org returned 361,000 hits. A random skim through several of these hits revealed that they fall into three categories: (a) an individual’s digital diary; (b) a repository that aggregates content with filtered personal commentary; and (c) knowledge logs where bloggers actively create, moderate, and otherwise participate (Herring et al., 2004). In a content analysis of 100 academic blogs, Mewburn and Thomson (2014) asked specifically, “Why do academics blog?” Comments on their findings suggested that “academic blogging may constitute a community of practice in which a hybrid public/private academic operates in a ‘gift economy’” (p. 1). In this gift economy, academics share knowledge regarding theories, research methods, and perhaps other articles of use. They are offering advice and opinion as “gifts” to support one another. In thinking about this gift economy as knowledge sharing, I found the seeds for this research. I wanted to know what blogs show us about PhD-related work practices shared in the informal learning context of the blogosphere.

**Problem and Purpose**

Unlike undergraduate work, the work related to a PhD involves different sets of skills, knowledge, and expectations on the part of not only the student but also the institution. PhD-related work is the pinnacle of academic achievement, and although students may have been successful in prior learning situations, they often are not prepared for graduate-level PhD-related work. This is due in part to the nature of the work. There is enough research evidence to show that obtaining a PhD is “as much about identity formation as it is about knowledge production” (Green, 2005, p. 153).

In the shift toward knowledge production the student exits the known context of being a “course-taker . . . in tightly bounded and controlled environments” to become an independent
researcher and “a producer of knowledge that often results from uncertain processes that take place in unstructured contexts” (Lovitts, 2005, p. 138). To succeed in this work, a student must develop a sense of independence and produce work of academic originality while demonstrating a level of self-directedness in learning, all of which is dependent on the context of the formal organizational workplace of the academy. The problem is that all of these “workplaces differ substantially in how they support learning” (McAlpine & Mitra, 2015, p. 113).

However, in an Internet-connected world, with its opportunities to obtain knowledge and make sense of these “uncertain processes,” the Internet provides support for learning (Lovitts, 2005, p.138). It is a new and nontraditional place where people engage in support for one another’s learning. Students may participate in addressing areas in which they struggle, or they may acquire the PhD-related work knowledge essential to the successful completion of a PhD (Ward & West, 2008). But the very unstructured processes in unstructured contexts that give rise to new ideas, new knowledge, and original contributions are the same unregulated informal learning spaces of the Internet. The problem with all unstructured spaces is how to listen in and pick out the different conversations. We do not know in the context of the Internet what students’ conversations can tell us about PhD-related work. Further to this in the context of the “blogosphere” we do not know what shows up in the blogs related to PhD work. By using a qualitative content analysis approach, what can these blogs reveal to us about PhD-related work? Before the proliferation of social media, we did not have the access to listen in whenever and wherever PhD students gathered outside of the classroom and the laboratory to talk about work related to a PhD. By exploring the content of blogs, we have an opportunity to eavesdrop unobtrusively and expand our understanding of PhD-related work in the informal learning context of blogs.
Research Questions

Using qualitative content analysis, this study will contribute to our existing knowledge of PhD-related work practices by asking:

• What practices related to PhD work show up PhD student blogs?
• What subcategories related to PhD work show up in the blogs
• In what ways are external personal contexts impacted by the structures of the PhD-related work place?
• What informal learning behaviors show up in PhD student blogs?

Theoretical and Conceptual Framework

In this study I am concerned with the informal learning context of the blogosphere and how the activities of PhD-related work are revealed through the content of PhD student blogs. The theoretical framework for this study acknowledges the changing patterns, contexts, and content of 21st-century PhD-related work by drawing on Bronfenbrenner’s (1979) ecological systems theory. Ecological theory is easily applicable to a study concerned with the contextual space that is the “blogosphere” (Willmott, 2011) because the use of the Internet occurs differently in differing contexts (Johnson, 2010). A blog exists in an ecosystem of multiple contexts, related networks, diffused networks, communities of interests, and communities of practices (e.g., specific career-related blogs, or a corporate organization blog). Furthermore, students participate in a wide range of learning contexts: formal, nonformal, and informal (Greenhow, 2009).

Bronfenbrenner’s theory rests on the premise that learning is “located in contexts and relationships . . . derive[d] from participation in joint activities” (Greenhow, 2009, p. 248). Human development is influenced by a connectedness to environmental settings and contexts. In
turn, these contexts have an impact on and influence behaviors and engagement with others (e.g., personal behaviors different from behavior in a professional setting). The contexts in which individuals develop are referred to as “nested environmental systems, with bidirectional influences within and among systems” (Johnson, 2010, p. 177). At the center of these nested systems is the individual, who is surrounded by the first system, the microsystem, which includes the immediate environment, family, school, and peer group. Second, the mesosystem, comprises interactions and experiences in relation to the microsystem (e.g., a student interacting with peers or experiencing conflicts between home, school, and work). Third, the exosystem, while not directly interacting with the individual, nevertheless exerts influence and impacts development.

These indirect connections operate as links between two or more various contexts (e.g., an academic institution making programmatic changes that negatively impact a student’s time to completion). Fourth, the macrosystem encompasses the broadest environment that exerts an influence over an individual, such as cultural norms, customs, attitudes, political and economic systems, and dominant beliefs (e.g., a student’s sense of belonging in a PhD program is influenced by the individual’s belief system and amount of cultural capital). The fifth context, a later addition by Bronfenbrenner, is the chronosystem, which takes into account the processes and impact of transitional changes that affect the person and environment (e.g., climate change, warfare, and the civil rights movement).

The conceptual framework for this study (Figure 1) looks at the practices associated with PhD-related work. These practices are represented using the work of Cumming’s (2010) integrative model of doctoral enterprise and Milligan, Littlejohn, and Margaryan’s (2014) workplace learning in informal networks and the associated four informal learning behaviors. Finally, it is important to note that the four activities involved in PhD-related work identified by
Cumming (2010) are used as mechanisms to operationalize the ecological theory framework. The four types of practices are not to be thought as discrete and disconnected. Rather, they are practices that are embedded and connected to wider contexts (Cumming, 2010). In this sense, these are activities that are “purposeful and can be viewed in relation to other activities” (Cumming, 2007, p. 83). The review of literature indicates that the practices of PhD-related work are influenced and impacted by all of these “nested contexts”—directly and indirectly (McAlpine & Norton, 2006). Furthermore, to a large degree students are expected to “perform” multiple roles in many contexts throughout their studies. Therefore, it is important that “research be conducted to explore the concept of contextualised performance in authentic settings” (Cumming, 2009, p. 15).

![Figure 1. Conceptual framework](image-url)
Significance

As higher education institutions are now offering different PhD programs, students are afforded opportunities to access teaching and learning through virtual environments, researchers in higher education can collaborate and share on a global scale, and blogs provide insight into the larger questions about engaging in informal learning while seeking a PhD. In exploring the literature, I found a possible link between the content shared on blogs related to PhD work and informal learning in the workplace. These points are significant and provide evidence for institutions as they move forward in designing future PhD program.

I hope that this study will facilitate further and future conversations regarding PhD students’ use of social media such as blogs. This study is a glimpse into the activities and practices, of PhD-related work. Ultimately, this study offers an opportunity for insight into informal learning practices and what in the content of student blogs shows up connected to PhD-related work practices. This has added value that informs future higher educational leadership decision-making and practitioner relationships with students. It provides recommendations and evidence for higher education leaders who are engaged in decision-making for graduate education. It affords an opportunity for formalized institutional structures to reshape ways of knowing PhD-related work practices. This study will also provide a guide to other PhD students wishing to undertake a qualitative content analysis.

Chapter Summary

Traditionally at the heart of developing the doctoral student was a process of initiation into the culture of an academic organization. PhD-related work revolved around preparing future scholars to work in the academy. The work of completing a PhD is very complex, requiring a student makes sense of many uncertain processes in multiple contexts as they move toward
independent scholarship. A setting that provides support in learning the tasks of PhD-related work is the informal learning environment of the Internet. Social media sites, such as blogs and wiki’s supply a vast amount of resources related to PhD work. Particularly interesting are blog sites maintained by students who are sharing practices related to PhD work. It is possible using a qualitative methodology to explore what blogs show us about PhD-related work in the informal learning context of the blogosphere. A research study of the content of these blogs adds value, informs future higher educational leadership, supports decision-making, and enhances practitioner partnerships with students.
CHAPTER II
REVIEW OF THE LITERATURE

The broad concepts drawn from the literature are discussed fully in this chapter. The themes identified are as follows. First, the key concepts and major theories used in research to explore PhD student development, identity, and PhD student’s experiences of PhD-related work. Second, informal learning theories, self-directed learning, and aspects relating to learning in an academic workplace. Third, Knowledge sharing, and knowledge sharing online. Fourth, Social media and PhD students, blogs, and blogging.

Each theme is discussed in-depth and were decided as appropriate based on the topic of this study, and the research questions that are designed to explore the context of the Blogosphere as an informal learning space, specifically looking at the content of PhD student’s blogs, and what the content of these blogs show us about PhD-related work practices. The fifth section addresses the methodology and methods of content analysis as it relates to this study.

In PhD programs of the twenty-first century, it is difficult to precisely extract any one set of competencies or objectives that explicitly capture the requirements and how-to’s for obtaining a PhD. Traditionally, the education of a PhD student centered on the processes for preparing future faculty members. In the last 60 years, a consistent and international effort across higher education has occurred to reimagine the purpose, process, and nature of PhD programs (Berelson, 1960; Boyer, 1990; Lovitts, 2001; Nerad, 2007; Nyquist, 2002). The PhD has undergone much scrutiny in attempting to determine ways to sustain quality, provide access, and remain relevant (Altbach, Reisberg, & Rumbley, 2009). Some profound changes have occurred, with many schools having different perspectives regarding the educational mission of doctoral education (Matas, 2012; Nerad, Trzyna, & Heggelund, 2014). McWilliam (2012) summarized
these profound changes by offering the following perspectives of doctoral education: “it is the best of times, it is the worst of times” (p. xvii).

Overall, the literature on strategies for best practices in PhD education has increased (Gardner & Mendoza, 2010). Moreover, theoretical models concerned with the stages of PhD student socialization and development have contributed valuable knowledge to our understanding of the PhD student (Golde, 1998; Lovitts, 2001; Weidman, Twale, & Stein, 2001). However, many of these models were taken from earlier research about student persistence, student engagement, and student development theory (Astin, 1984; Kuh, 2009; Tinto, 1975, 1993). This is somewhat problematic because theories developed to support retention practices for undergraduate student populations were co-opted, along with theories of socialization and development, and applied to PhD students’ success (Aitkinson & Parry, 2000; Gardner, 2008, 2010; Weidman et al., 2001).

**Key Theories and Concepts Regarding the PhD**

The following is a synthesis of theoretical constructs prominent in the literature regarding PhD students. To begin, all of these frameworks emanate from and are informed by sociocultural and socio-constructivist theories of learning and participation. Briefly, socio-constructivist theories explain learning as a process of cognitive development. The student is an active participant in the process, building individual knowledge through teacher-led constructed opportunities, and subsequently sharing that knowledge (Glasersfeld, 1992). Sociocultural theories examine learning and the potential for learning from a position of context - the place and environment where learning occurs. Learning does not begin at an individual level, but through participatory contexts that then lead to individual learning. In both theories, learning is active.
However, the primary site of learning is different, individual vs. social practice, cognitive vs. psychological.

**Socialization, Development and the PhD Student**

A substantial amount of research is focused on graduate education and graduate and professional students, socialization, and development (Gardner, 2008; Golde, 2010; Lovitts, 2001; Weidman et al., 2001). There is also a substantial amount of research on the reasons for attrition and departure (Lovitts, 2001; Tinto, 2012) and myriad reasons why students pursue a PhD (Antony, 2002; Golde, 1998). A common thread throughout these studies is the concept of socialization. While not directly referred to in the literature as a conventional frame, such as the dominance and persistence of socialization theories, there is an argument that this lens is such a cultural norm for an academic researcher that it is hard to move away from a conventional way of knowing.

All institutions, according to Ashforth (2001), have ways and means of ensuring that individuals assimilate to the conventional ways of knowing. The processes of socialization into the organizational norms operate in four distinct ways. First, individuals new to the organization are brought together for a communal activity, such as an orientation or collective socialization. Second, individuals move through steps toward comprehending a new role, which Ashforth called sequential socialization. Third, individuals are provided with guided instructions and completion dates for certain milestones for fixed socialization. Fourth, Ashforth described the process of divestiture socialization, which is best understood as the individual experiencing a rite of passage, and the organization “actively attempts to strip away” (p. 166) the newcomers’ sense of self and any thoughts that run contrary to the identity of the organization. In the literature on PhD students, four dominant frames are used to explore PhD-related work, and while it is
evident that they are slightly different, all conform to the dominant conventional premise as characterized by Ashforth.

Throughout the literature on student socialization and development, the work of Weidman et al. (2001) is often used as the dominant conceptual framework, considered extensively in the field of graduate student socialization (Austin & McDaniels, 2006). Weidman et al. (2001) defined socialization as a set of processes through which students adopt the attitudes, skills, values, norms, and social constructs of the academy as they progress. Accordingly, Weidman et al. (2001) categorized the PhD student’s socialization as four stages of development: anticipatory, formal, informal, and personal. These four stages involve seeking information, observing and learning role expectations, adopting and demonstrating roles, and internalizing the role successfully as one’s identity. There is, however, a caveat; socialization theory cannot adequately capture the nuances of the everyday relationships that students experience outside of the institution (Sweitzer, 2009). Moreover, many PhD students have commitments outside the academy, and often these will conflict with the demands of acquiring a PhD (Sweitzer, 2009).

In most socialization and development theories the predominant metaphor is that the PhD program is like an apprenticeship. As a model for how doctoral education would be experienced by the PhD student, “much of the important teaching and learning takes place in a one-to-one apprenticeship between student and faculty member” (Walker, Golde, Jones, Bueschel, & Hutchings, 2008, p. 89). This experience as an apprenticeship signifies a power relationship, rooted in medieval concepts of trades and guilds, between student and the advisor: “When students apprentice to the master they learn the formal and informal art of the trade” (Lovitts, 2001, p. 146).
As a classic model of socialization into the work of the academy, the apprenticeship model has been criticized. While describing apprenticeship as signature pedagogy conceptually at the core of how future scholars are prepared, Walker et al. (2008) were concerned that the model is fundamentally flawed. An overreliance on scholarship output dependent on some unequal relationships is neither sustainable nor productive (Walker et al., 2008). The traditional view of the PhD student, for example, is enduring an experience characterized as a “perilous passage” (Weidman et al., 2001); alternatively, students are seen as lonely scholars beavering away on their research (Thorlakson, 2005).

In broadening the scope of a discussion regarding PhD students so that it does not solely reflect socialization and development theory, we must recognize that contemporary PhD-related work is too diverse to fit neatly into linear frameworks (Cumming, 2010). We need to recognize that PhD-related work is part of a larger ecosystem, in which many of the pieces involved in PhD-related work “are interdependent as well as interrelated” (Cumming, 2010, p. 36).

**Professional Identity Development and the PhD Student**

In a study of PhD student relationships and ties to their social networks, Sweitzer (2009) demonstrated that an important component of understanding professional identity development among PhD students is to examine relationships outside the academy. These are relationships that students have with family, friends, and coworkers. Social network theory provides a valuable lens through which to examine how these relationships affect identity development (Sweitzer, 2009). The beginning of identity development in a new role relies on learning the language of that role (Sweitzer, 2009).

Theories of language and socialization provide another interesting lens, which Sweitzer (2009) does not include; however, language socialization theory suggests that as individuals
acquire language, by definition, they are the cultural context of that language (Longman, 2008). Therefore, perhaps language acquisition in the sociocultural context of higher education supports the professional development of a PhD student in the academy because the language of higher education “is the primary symbolic medium through which cultural knowledge is communicated, and, therefore, reproduced” (Longman, 2008, p. 489).

Fit theory provides an alternative means to understand the challenges facing PhD students and those responsible for providing doctoral education (Baker & Pifer, 2013). Each student entering the academy has networks with differing language and communication mechanisms embedded in their identities. At the point when they begin their PhD-related work, their individual differences will contribute to how they shape their student experiences concerning “socialization susceptibility and learning orientation” (Sweitzer, 2009, p. 12). Students orient themselves, developing network relationships that either support inclusion into the culture or lead to questioning about the “fit” of the cultural expectations of this new community.

Professional development theory enables a discussion on perceiving fit and assessing fit (Sweitzer, 2009), that is, how students see themselves. It appears that students who are “assessing fit” seem to “share common goals” (p. 7) and integrate themselves into all aspects of academic networking (Sweitzer, 2009). However, students who are “perceiving fit” (p. 7) seem to rely on tangible perceived role outcomes (e.g., publishing). These outcomes influence types of engagement, network relationships, and choices to prioritize certain professional aspects of the academy. Students perceive the professional identity of a faculty role not necessarily reliant on developing diverse network relationships (Sweitzer, 2009). How students perceive fit with their PhD-related work is crucial; whether a student thrives and persists has consequences for how an organization is perceived. Students’ sense of professional identity is influenced by multiple
networked relationships in and outside the academy. The tasks and challenges of PhD-related work are overwhelming, and personal and professional relationships, interactions, and the community culture determine and support students’ learning experiences (Sweitzer, 2009).

In a model of professional identity development, we can connect Illeris’s (2003) ideas to students experiencing PhD-related work. Illeris’s learning theory considers distinct areas of learning happening simultaneously. First, during the individual acquisition process involving the cognitive dimension of knowledge and skills, students are not only learning discipline-specific content, but also are engaged on an emotional level with the learning process. Second, students’ motivation and feelings regarding their professional identity development depend on the “social dimension of communication and cooperation—all of which are embedded in a societally situated context” (Illeris, 2003, p. 396). Taking a developmental network approach to professional identity development acknowledges the “how and why relationships matter” (Sweitzer, 2009, p. 31). It also acknowledges that success at the PhD level of work requires not only significant learning, but also that the student is a “specific individual with a personal life history, situation and future perspective” (Illeris, 2003, p. 169).

Illeris (2003) clearly indicated that individuals in any learning environment or experience of learning must be understood from a holistic viewpoint. Learning cannot be understood as merely a cognitive process or an emotional process; both require each other and both are affected by the external forces of cultural and societal contexts (Illeris, 2003). The holistic conception of how learning works was employed by Cumming (2010) using a lens of practice theory. Cumming suggested that a broader and more holistic conception of doctoral education must accommodate the changing nature of PhD-related work. Cumming uses the concept of “Enterprise” to describe where education, training, research, work, and career development
intersect. The notion of enterprise represents the complexities of relationships and experiences involved in the PhD, in that students must navigate and negotiate two interrelated systems. First, the interrelated “doctoral arrangements” that are associated with the academy “reflect a complex web of interactions involving various structures, cultures, discourses, networks” (Cumming, 2010, p. 34). The second part of this interrelated system includes the doctoral practices, which are diverse and include “analyzing, writing, publishing, teaching and so on” (p. 31).

The concept of doctoral practices highlights the importance of “additional factors such as historical developments, cultural understandings and professional protocols that [have an] impact on all those engaged in doctoral work” (Cumming, 2010, p. 31). To comprehend the nature of PhD-related work, “doctoral practices” are “context specific. Essentially, they represent the integration of a range of individual, social and cultural behaviors that are applied or implemented in relation to a given situation” (Cumming, 2010, p. 31).

**Academic Identity Construction**

McAlpine and Amundsen (2011) introduced academic identity construction as influential in the academy. Academic identity construction operates as a continuum that starts when an individual begins the PhD process and continues until the individual is an established member of the professoriate. Through exploring the experiences along this continuum, valuable insights are gained in understanding academic identity formation and learning to become an academic (McAlpine & Amundsen, 2011). In a similar vein to Sweitzer (2009), McAlpine and Amundsen used identity theory to understand the complexities of the relationships and emotions experienced by students in PhD-related work. However, in a different vein, McAlpine and Amundsen recognized that the situation or the place where PhD-related work occurs is a powerful contributor to identity formation. Essentially, by locating PhD-related work in a
workplace context, “we are interested in how experiences of workplace learning engender pleasures and pain which contribute to feelings of allegiance or alternately, alienation” (McAlpine & Amundsen, 2011, p. 8).

Central to concepts associated with identity-trajectory is integrating individuals “past-present-future in the experience of academic work, and the individual’s desire to enact intentions and hopes over time” (McAlpine & Amundsen, 2011, p. 178). By recognizing that PhD students’ past experiences of learning contribute to and influence their current experiences, we can understand the extent to which these experiences determine future goals and expectations (McAlpine & Amundsen, 2011). In taking an integrated approach which acknowledges the past, present, and future, we can view the PhD students’ learning processes as a set of complex interactions and relationships. Critical here is the potential to engage in dialog, ensuring that learning that is informal and influenced by the unseen, and therefore immeasurable, concerns a student’s successfully attaining the desired institutional objectives.

McAlpine and Amundsen (2011) pointed out that “this form of learning emerges not just through doing work but also importantly from reflecting on work” (p. 178). The key is to ensure that those responsible for doctoral education embrace the voices of their students to ensure an equitable division of academic labor, so the PhD students are not merely enduring, completing tasks that are irrelevant to their future goals and aspirations. McDaniels (2010) contributed to the dialog for change in doctoral education provision by articulating the responsibility that academia has for ensuring that PhD students are integral to shaping not only their future, but also the purpose and future iterations of the doctorate.

In an exploration of the narratives of six international students and their scholarly identities, Cotterall (2013) found that PhD students’ identity is truly at the center of their PhD
experience. The experiences of students examined using identity theories suggested that students who have more “cultural capital” can better navigate the complexity of PhD-related work. The study drew on previous work by McAlpine and Amundsen (2011), and it specifically addressed the impact of different learning experiences, as well as the help and guidance these students received. Cotterall demonstrated that some students were more adept at exploiting the learning environment, and they were emotionally resilient and grounded in the practicalities of everyday PhD-related work; therefore, they were more likely to develop confidence in new roles and identities in the academy. However, some students’ senses of self and identity were limited due to disparities of experiences within different departments and programs. Those students with limited opportunities did not begin their studies with high levels of cultural capital, and therefore were more susceptible to isolation and restricted to a role required by a supervisor (Cotterall, 2013). Cotterall’s findings echoed the earlier work of McAlpine and Amundsen (2011) and McAlpine, Jarvac-Martek, and Hopwood (2009). When considering all of these studies, we can see that PhD students’ academic identities are affected not just by formal activities of PhD-related work, but also by the informal activities; tensions may arise to cause conflicts in “many activities central to their learning” (McAlpine, Jarvac-Martek & Hopwood, 2009, p. 363).

Jarvac-Martek (2009) asserted that the emerging and changing identity that takes place through PhD-related work experiences for students is not a prominent theme in the literature on graduate education. Consequently, “our knowledge of the everyday events and experiences of doctoral students is limited (Jarvac-Martek, 2009, p. 253). Jarvac-Martek commented that in the socialization frame the dominant theme is one of power imbalance. It is the role and responsibility of the faculty and the institution to collectively approach relationships with students from a perspective of apprenticeship. McAlpine (2012) called for a shift toward locating
the PhD experience as part of a student’s broader life choices. Identity trajectory, McAlpine argued, refocuses attention to “individual agency, interweaving the academic within the personal, and incorporating students’ pasts and imagined futures” (p. 38).

Theories of Adult Learning

Learning is not easily defined. Whereas learning was once defined as a change in behavior (Skinner, 1953), the simplicity does not capture the true essence of learning. Moving away from a product orientation, more recent definitions are inclusive of cognitive and environmental influences, which are expanding to include emotional, social, and societal dimensions (Illeris, 2009). The update acknowledges that learning is a process (Illeris, 2000; Merriam et al., 2007; Ormrod, 1995; Smith, 2003).

In their 2007 book, Learning in Adulthood, Merriam, Caffarella, and Baumgartner highlighted five orientations to learning that represent a spectrum of the thinking on how learning occurs and provided valuable insight into adult learning. The first of these orientations is behaviorism, which holds three basic assumptions: (a) learning is evidenced through a change in behavior, (b) the environment controls behavior, and (c) the proximity between a behavior and its reinforcement is essential to the understanding the learning process. In learning, behaviorism is practiced through positive reinforcement for behavior modification. Cognitivism learning theory places control back on the learner, calling on individuals’ prior knowledge and experience. Learning occurs because of transforming cognitive structures resulting from the need to make sense or solve the problem of a change in the environment. Social cognitivism, or social learning, posits that we learn through interaction, by observing and imitating others. Bruner (1966) advanced this theory through finding that attention, retention, rehearsal, and motivation impact learning through observation (Merriam et al., 2007). Humanist orientations shift to include the
affective as well as the cognitive dimensions, and hold the perspective that all learning is for the potential for human growth. Under humanism, self-directedness and freedom are valued, as is responsibility to become what one is capable to be. The motivation for learning is intrinsic and its goal is self-actualization (Merriam et al., 2007). Constructivism is the fifth orientation, and a natural framework for adult learning. Constructivist learning is the process of constructing meaning; it involves how the learner makes sense of their experiences. “The constructivist view of learning is particularly compatible with the notion of self-direction, since it emphasizes the combined characteristics of active inquiry, independence, and individuality in a learning task” (Candy, 1991, p. 278). As noted by Merriam et al., there is no singular theory by which to explain adult learning. There are, however, theories of adult learning that have emerged as consistent key concepts central to any discussion on learning.

A central theme in the literature surrounding adult learning theories is how adult learners differ from child learners. Specifically, adult learning focuses on the process rather than the content (Knowles, 1990). Therefore, any discussion on adult learning must include an exploration of the concept known as andragogy (Knowles, 1990). Andragogy is the premise that adults are different from those of children, and their learning approaches can be distinguished from the learning approaches taken by child-oriented pedagogy. The purpose of making these distinctions is significant to an exploration of PhD-related work for two reasons. PhD students are expected to demonstrate self-direction in their learning, and students’ prior learning experiences affect experiences of PhD-related work (Golde, 1998). Both of these reasons form the primary assumptions of an andragogical orientation to learning: students are self-directed and past experiences inform the processes of learning.
These processes of learning are influenced by the social contexts in which learning takes place, making it impossible to learn without learners’ being aware of themselves; learned experiences can thus influence future experiences, and learning becomes reactive or proactive (Jarvis, 2009). Applying Jarvis’s concept to students experiencing PhD-related work is interesting for two reasons. First, as social beings learning in a new situation—even though education is familiar—there are different challenges. Through learning opportunities, students are presented with new ways of experiencing the world. Second, new ways of feeling, experiencing, and seeing the world often lead to questioning and a state of “disjuncture” (Jarvis, 2009). This state of disjuncture is evident in research on PhD students’ experiences. In the transitional events of moving from the novice to expert (Golde, 1998) the relationships that students form with other members of the organization become essential. A good relationship with faculty advisors provides the support and mentorship that is critical throughout the PhD process. However, in reality, many relationships are unequal (Barnes & Austin, 2008). This leads to many students’ experiencing a “state of disjuncture,” which negatively affects “a student’s socialization to their disciplines” (Barnes & Austin, 2008, p. 301).

In a review of adult learning theories, Kiely, Sandmann, and Truluck (2004) acknowledged that the theories and perspectives on adult learning are too numerous and many are complex. This causes confusion regarding applying theory into practice. In reframing these complexities, Kiely et al. (2004) described a “four-lens model” that categorizes all theories on adult education on the premise that “the four-lens model . . . offers a useful device to navigate the vast territory of adult learning, including theoretical perspectives and their practical applications” (p. 19).
The four-lens model is designed around the earlier work of Merriam and Caffarella’s (1999) typology of adult learning. The typology contains three lenses to capture the diverse and complex nature of adult learning theory. The first lens looks at the adult learner, the second lens encompasses the contexts in which adult learning occurs, and the third differentiates adult learning processes from those of child learning (Merriam & Caffarella, 1999). The fourth lens, added by Kiely et al. (2004), “incorporates the perspective of the educator as an important additional lens to understand and apply adult learning theory in practice” (p. 18). This is an important and vital component in exploring PhD-related work because it enables a closer look at the dynamic interplay between faculty perception of PhD-related work and the actuality of experiencing this work. The academic workplace affords a PhD student an experience of the working life of an academic. Moreover, it is an opportunity to preview the complexities of social and organizational relationships in a workplace.

Fenwick and Tennent’s (2004) exploration of adult learning began with what the authors described as “three assumptions” (p. 55). The first assumption is that no singular theoretical perspective on adult learning is better than another. Therefore, it is not possible to provide an ideal image of the adult learner that is comprehensive enough to encompass all adult learners and the diversity of experiences that they bring to the learning environment. The second assumption is that learning does not happen “in a vacuum” (Fenwick & Tennant, 2004, p. 55); it is not to be viewed as an abstract “mental process” (p. 55). Rather, the context of the learner’s life experiences has a necessary role to play, influencing how learners perceive learning. The third assumption speaks to the educators and how educators’ opinions of adult learner’s influence learner experiences in learning situations (Fenwick & Tennant, 2004).
Informal Learning Theory

Discussions on informal learning often attempt to delineate informal from formal learning. However, learning is too nuanced to provide a nice clear line (Eraut, 2007). Because of these nuances, informal learning and adult learning theories provide appropriate lenses through which to explore how and where learning occurs. We can describe three sites where learning occurs. A formal site is organized by educational institutions and bureaucracies, usually curriculum driven, and typically leads to credentials. A nonformal site is often sponsored by organizations and institutions. They may have a curriculum and a secondary mission of education, such as a library or a museum. An informal learning site is a place where learning is so pervasive that we may not even know that we are learning. Informal learning is unstructured, has no curriculum or credentials, and often includes other types of learning, such as self-directed learning (Coombs, Prosser, & Ahmed, 1973; Merriam & Bierema, 2013).

Another problem in discussing sites for and types of learning centers on issues of developing definitions. Many texts use the words formal, informal, and nonformal learning interchangeably, resulting in confusion. In some literature, there are disagreements as to how these terms for learning should be applied and described (Colley, Hodkinson, & Malcolm, 2000). The resulting conclusion suggests that there is no real difference between sites for learning. However, Hager and Halliday (2006) disagreed, claiming that it is easy to define differences and arguing that, aside from formal learning, all other contexts are opportunities for informal learning. Therefore, while it is part of a continuum, informal learning is broadly defined as learning in which knowledge and skills are actively sought outside and away from curricula already in place in the formal setting (Livingstone, 2001).
Up until the 1970s, informal learning among adults was not considered an important area of research (Schugurensky, 2001). This changed when Tough (1971) focused on the motivations and goals that adults set for themselves as self-directed learners, through what Tough called “learning projects” (p. 7). These learning projects are defined as deliberate attempts to learn through sustained effort. Accordingly, the learner engages with an episode of learning where knowledge and skills can be acquired. Recognizing that informal learning is often related to an adult’s workplace, Tough saw these episodes as important contributors to how social change can occur. His research showed that adult participation in informal learning projects for the employed was over 50% and 90% of adults surveyed had engaged in at least one self-motivated learning project in the previous 12 months. This type of learning is deliberate and goal oriented, which presents a slight problem in a discussion of informal learning because not all informal learning is deliberative or a conscious act. For much of the time, informal learning is both externally invisible and therefore immeasurable, and it is hidden in the subconscious. It is only through reflective practice that the learning reveals itself to the learner (Dewey, 1938; Marsick & Watkins, 1990). Informal learning is then unintentional and deliberate because it is incidental and accidental, as it is deliberative. The key component of informal learning is an ability to reflect on the process of learning (Dewey, 1938).

In a classification of informal learning types, Schugurensky (2002) identified two categories in which informal learning is either intentional or conscious. Schugurensky articulation of socialization as a format for informal learning is tacit learning, occurring when people internalize new skills, behaviors, and values. Schugurensky aligned with Golde’s (2010) commentary on the processes of socialization for PhD students in different disciplinary areas,
where new skills, behaviors, and values occur through being immersed in the work of producing knowledge as it takes place in the sites of academic work.

The classification of informal learning types provides potential to examine informal learning and the doctoral student experience as it occurs away from the site of formalized learning. Viewed alongside Knowles (1990) and Livingstone’s (2001) definitions, the concepts of self-directed learning provide a point of crossover between informal and hidden learning moments. Golde (2010), speaking on the salient features of doctoral education, hinted at the importance of self-directed and self-regulated learning, commenting that “doctoral programs take place in activities that do not resemble formal schooling” (p. 84). Kasworm and Bowles (2010) noted that a crucially important aspect of a doctoral student’s success is skill as a self-directed learner: “Current learning theory suggests that the key skills and attitudes of self-directed learning are pivotal for the success of adults in doctoral studies” (p. 226). The student must be willing and able to carry on with PhD-related work away from supervisors in order to begin the process of becoming and being a peer (Kasworm & Bowles, 2010).

**Self-Direction in Learning**

What are the key components for self-direction in learning? Do they operate on different levels and operate differently depending on the learning environment? In many respects, definitive answers to these questions are problematic, as noted by Brockett (1994), because the elements of what constitute self-directed learning are mostly invisible. Self-directed learning is concerned with how learners take control of their own learning, how systems of schooling can provide greater choices to learners over their learning, and how self-directed learning can be separate from the formal. It is highly personal, motivated by a person’s desire to live out an
intrinsic sense of purpose in their lives or determined by extrinsic motivators and behaviors linked to others’ needs for individual success.

Our ability to learn as humans is central to our continued existence and survival. Learning, as noted by Kolb (1984, 2015), is how we adjust to continual change. In actuality, whatever we undertake in our lives contains an element of learning. Therefore, learning is inescapable; we never stop learning (Foley, 2004). It is, however, only since the last half of the twentieth century that researchers have considered the phenomenon of how adults learn independently (Merriam et al., 2007). In his seminal work on adult learning, Tough (1971) estimated that nearly 90% of adults had experienced a form of self-directed learning. However, as referenced by Merriam et al. (2007), the concept of self-directed learning has traditionally been part of the remit of formalized education systems. Therefore, away from the formalized setting, self-directedness in learning is “so embedded in people’s everyday lives as to be invisible” (p. 105).

Numerous perspectives have been given on adult self-directed learning. In Brockett and Hiemstra (1991) personal responsibility orientation model, self-directed learning is both a process and a goal. The learner is primarily responsible for the planning, the implementation, and evaluation of learning. The goal sees the learner primarily focused on personal desire and motivation for learning. In this model, the process and goal, the personal and responsible attributes of the learner, are then understood by looking at the context in which the learning occurs. Candy’s (1991) four dimensional model described self-directed learning as personal autonomy, self-management, learner control, and “autodidaxy” (p. 23). In this model, Candy acknowledged that learning is different depending on the content area and that motivation for learning is contextual with the learner in control.
Garrison (1997) proposed a three-dimensional model, where three dimensions are interacting with one another for self-directed learning to happen: self-monitoring, self-management, and motivation. Garrison’s model relies on the concept of the learners’ taking control of the resources available to them within a learning context. Important too in this model is the learners’ working in collaboration within the context. Spear (1988) identified three components that work together to create opportunities for self-directed learning whereby the context of the environment influences learning (Merriam et al., 2007). Cavaliere & Sgroi (1992) viewed learning as the following stages in a project: questioning, forming, experiencing, theorizing, and achieving (Merriam et al., 2007). All three models share an understanding that self-directed learning is context based and relies on learner motivation.

Grow’s (1991) staged self-directed learning model, provides a learning framework that guides students toward self-direction in their learning. At stage 1, the student is said to be dependent, the instructor leads the student through the material, and hopefully the student feels less resistant. In stage 2, the student is interested, and the instructor becomes a guide in the learning process as a student engages in setting learning goals and strategies. In stage 3, the instructor is the facilitator; the student is involved while working with others, although on the same content. In stage 4, the instructor is considered more of a consultant, and the student is self-directed, completing independent and individual work. The four-stage model “proposes a way teachers can be vigorously influential while empowering students toward greater autonomy” (Grow, 1991, 1996, p. 128). The important component in Grow’s work is the premise of situated learning, with an alignment of instructional methods with a student’s stage of self-direction. However, some criticisms are evident because the model is inherently instructor led and somewhat fixed. The situational context appears to preclude informal learning environments, and
instructor delivery style is often at odds with a student’s way of learning. Therefore, it becomes hard to gauge a student’s stage in self-direction.

Ultimately, research into self-directed informal learning has tended toward an individualist bias (Livingstone, 1999, 2006). This has contributed to an overreliance on an individual’s experience with self-directed projects for learning. The effect of this research bias ignores the potential that informal learning can occur collectively and in relationships with others (Livingstone, 2001). Giroux (2007) and Sandlin, Schultz & Burdick (2010) argued that theories of informal learning align with critical and political theoretical paradigms of learning and social activism, particularly regarding social media and the re-imaging of personal, national, educational, and cultural boundaries.

The concept of public pedagogy plays out as a powerful expression of informal learning that can occur in the digital spaces of social media. In “The Crisis of Public Values,” Giroux (2007) argued that it is foolish to ignore the pedagogical implications of these new informal learning spaces. Lucas and Moreira (2009) contributed further to the discussion by stating that, “The network structure is dynamic, distributed and decentralized with no need for a central entity to control it; each individual controls his/her network connections and learning happens when we connect” (Lucas & Moreira, 2009, p. 238).

Gleason (2013) added a voice to the dialog of collective informal learning and used the power of social media to mobilize people into social action. The question is, how do people learn about social and societal events on social media such as Twitter, and how much information “contains hyperlinks to sites that support learning and education?” (Gleason, 2013, p. 968). By using a content analysis and case study approach with Twitter, Gleason demonstrated that people learned informally, sharing content, following, and reading. Informal learning theory requires
participation, motivation, and engagement, and Gleason’s results demonstrated that people were participating with the Twitter interface in multiple ways. The diversity of shared materials, videos, news media, and commentaries showed that Twitter is becoming an important and popular means of obtaining news, which is part of constructing new knowledge through informal learning. As Gleason stated, “Knowledge building in this informal learning space involves knowing, literally, where to go and how to behave to be able to take advantage of the affordances of the technological platform” (p. 978).

Kerka (1994), concerned with some untruths regarding self-directed learning, warned that there are assumptions about how adults are self-directed in their learning. It is assumed that adults as learners are “naturally” self-directed. However, this is a myth (Kerka, 1994). In actuality, adults are not all the same with the same capacities and capabilities to engage in self-direction. Self-directed learning occurs on a continuum, with some learners’ being more motivated and willing than others. What is important to remember is that motivation for self-directedness in learning is based on choice, needs, and requirements. These are elements determined by the context in which learning takes place. Integral to successful learning is how the learner perceives change because of self-directed learning. In this respect, it is a myth that engagement in self-directed learning must occur in isolation, whereby the learner is acquiring knowledge, skills, and building capacity to contribute. Self-directed learning can take place in a group, in a formal education setting or an informal setting, but the learning is only successfully self-directed if the learner can critically reflect on learning (Kerka, 1994). Ultimately, self-directed learning is the key component in lifelong learning. It can replace formal learning or enhance formal learning, and it is both a process and a product (Kerka, 1994). But researchers,
educators, and those others responsible for providing learning opportunities must know of the complexities and nuances of self-directed learning.

**Self-Direction in Learning and Academic Workplaces**

In the last 15 years, there has been more interest and research in self-directed learning than at any other time. Much of the explosion in research regarding self-directed learning in current literature is predominantly concerned with learning in the workplace. Drawing on the earlier research of education regarding student’s self-directedness, global industries are looking to theories on learning to change work-based learning. This is a direct response to the growing importance of working in a knowledge economy.

Because workers must be skilled in identifying problems and resolutions independently, self-directed learning conjures up the theoretical notion that this learning is synonymous with autonomy and freedom (Chene, 1983); however, freedom and autonomy are constrained by the explicit and tacit demands of the environment. For the PhD student, then, self-directed learning is a necessarily demonstrable skill used as a standard to measure success in the academic work environment. Autonomy and freedom concerning self-directed learning are limited. Because we can view PhD-related work and the student’s relationship to this work and connect to ideas of “profession.” The student is engaged in the profession of PhD-related work. Therefore, the conditions of the institution (when this factors applies), the content requirements related to a profession, and the personal characteristics will determine the power that learners may have over their learning activity” (Chene, 1983, p. 42).

**Self-Directed Learning and PhD-Related work**

Self-direction in learning is an integral part of PhD-related work (Kasworm & Bowles, 2010). The concept of PhD-related work and the necessity to be self-directed in processes of this
work are paralleled in the literature on self-directed learning in the workplace. The language in the literature on PhD-related work and students’ experiences provides a dichotomous conundrum: how should student work be separated from work for paid employment? In the world of paid work, employees are most often answerable to a supervisor. While they might be engaged in autonomous tasks, there are still organizational structures that constrict autonomous decision-making. Similarly, in PhD-related work, students are the responsibility of a faculty advisor, their supervisor. In the literature the supervisor is often referred to as the “occupational socializer” (Barnes & Austin, 2009, p. 299), this borrows from the language of paid work. An advisor, the occupational socializer, is the most important person in a supervisory role of PhD-related work and how it is experienced (Baird, 1995).

Those students who experience difficulties in the tasks and responsibilities of PhD-related work are more likely to experience disconnect with how the supervisor prefers the work to be done (Golde, 1998, 2000). PhD-related competencies are an indicator that PhD-related work is judged using the language of employment. The conventional PhD student’s socialization and development models point to four intrinsically important competencies that must be acquired for success, (a) “conceptual understandings” (Austin & McDaniels, 2006, p. 417), (b) understanding the working concepts of being a member of faculty, (c) having personal academic workplace skills, and (d) having appropriate professional workplace skills (Austin & McDaniels, 2006). The changes in how “work” is experienced throughout the world affects all organizations that pay a wage for labor. Academia is no different.

**Academic Work and Academic Workplaces**

Emerging research in the realm of academic work in academic workplaces discusses faculty and the diversification of job roles. Gappa, Austin, and Trice (2010) argued that changes
and pressures in higher education are placing the greatest strain on institutions’ “intellectual capital,” which is the work of the faculty. Therefore, “ensuring that faculty members are satisfied and motivated by their work and work environment is critically important to every institution’s quality and well-being” (Gappa, Austin & Trice, 2010, p. 3). In the literature exploring the relationships between industries, labor, and academia, the role of the PhD student is one of knowledge producer, collaborator, client, and broker (Enders, 2002, 2005). Mostly these days we take the concept of work to represent paid employment. However, our lives are organized by and identified with other working roles such as housework and volunteer work (Livingstone, 2001). To consider learning in the broadest sense, it involves acquiring knowledge and skills “anytime and anywhere through individual and group processes” (Livingstone, 2001, p. 308).

Therefore, it is reasonable to think of learning as taking place on a continuum from the place of paid employment to grocery shopping, to volunteering, and to school. Learning, then, occurs in different ways in different sites, and these sites for learning are not always those that we “deem” where only “legitimate” learning can occur (Livingstone, 2001). Sites for learning based on the types of learning—formal, nonformal, incidental, informal—are not to be viewed as distinct categories, but rather as “relational processes” (p. 308). The problems occur when defining work and learning because our dominant ideas “on relations between paid employment and organized education ignore significant interactions between these and other forms of work and learning” (p. 308). It is probable that research into the informal learning habits of individuals would demonstrate it would be highly unlikely that PhD students would not be engaged in some informal learning activities centered on their PhD-related work. Further, it is probable that the Internet provides a place where those informal PhD-related work activities take place.
McAlpine and Mitra (2015) addressed the changing nature of the PhD workplace and its relationship to the traditional language associated with PhD students and PhD-related work. In their study, “Becoming a Scientist: PhD Workplaces and Other Sites of Learning,” through using qualitative interviews, they reported that PhD work is a form of workplace learning. In addition, to coursework, learning happens through observation, experiential opportunities, and team-based and problem-solving learning opportunities. The academic workplace sometimes provides opportunities for success, such as expensive and specialized resources. Also, “affordances and constraints” create in “unintended ways a tacit learning environment with learning outcomes less predictable and more variable than when learning is formally structured, e.g., in a course” (McAlpine & Mitra, 2015, p. 113). Students in the study reported regularly carrying out PhD-related work in many non-institutional places. They shifted places where they engaged in work, depending on what the work required. Shifting workplaces was not necessarily based on research needs and was more about fitting research into their lives. These non-institutional places were often talked about as institutional places when students reported engagement in PhD-related work at conferences, at home, in bed, and in hotel lobbies (McAlpine & Mitra, 2015, p. 119).

All students in McAlpine and Mitra’s (2015) report used technology for PhD-related work, so much so that this afforded an explanation of why the place of the institution was no longer necessary to carry out work. Students reported a connection to the institutional place, but this connection was only virtual. On one hand, virtual resources broaden a student’s access to learning, but on the other hand a student misses out on opportunities to learn and observe that are afforded by being in the institutional workplace. These points have important implications concerning what students learn and do not learn, as well as how they address gaps in their learning. McAlpine and Mitra (2015) concluded that workplace learning that is PhD-related
work is no longer “situated in institutional spaces–new technologies are disrupting earlier forms of learning” (p. 123), creating new places for PhD-related workplace learning. White and Le Cornu (2011) suggested that new technologies, particularly Web 2.0 and social media, are so enmeshed into our culture, that it is now part of our everyday way of knowing the world and subsequently this includes the world of work.

**PhD-Related Work and the PhD-Related Workplace**

Harteis, Billett, and Eteläpelto (2008) identified the workplace as one of the key areas in which informal learning takes place. Accordingly, the workplace operates as a network of information sharing and expert knowledge production necessary for workers to perform their responsibilities (Harteis et al., 2008). The success of these learning networks, according to Harteis et al. (2008), relies on individuals equipped with skills related to self-regulating behaviors. Learners must know how to plan their learning, communication, and interaction, as well as recognize opportunities for informal learning (Harteis et al., 2008). For the PhD student engaged in PhD-related work in the workplace of a higher education institution, academic work is its core focus and workplace activities must be self-directed and self-regulated (Kasworm & Bowles, 2010).

McAlpine, Jarvac-Martek, and Hopwood (2009) noted the changing environment of the academic workplace, PhD students are having fears related to securing future employment in the academic workplace. In a study examining the “issues of the future academic workforce” (p. 97) and academic identity development, McAlpine et al. (2009) identified PhD-related work experiences as being on a continuum of formality: “formal (e.g., required elements of a PhD such as coursework), semi-formal (e.g., meeting with a supervisor), and informal (e.g., discussion with a colleague)” (p. 98).
Aside from the formal and semi-formal activities, informal activities were those “taken-for-granted rather than explicitly named” (p. 98). Interestingly, while not viewed as part of the explicit formal activities, students clearly described these activities as important components of their academic work (McAlpine et al., 2009). The research conclusions led to the construction of a useful typology of PhD activity, categorized into two areas: “doctoral specific” and “general academic” (p. 101). The typology contains six “activity clusters” (p. 101) that provide a visual tool for exploring PhD-related work in the informal environment of the Internet. This is particularly useful in focusing on whether students are sharing knowledge related to these clusters. The limitations of this typology must be acknowledged, however, as it is only concerned with those PhD students who were explicitly identified as pursuing future careers in academic workplaces. Still, many of the activities in these clusters are still generally applicable to PhD-related work.

For definition purposes then, PhD-related work refers to all those activities included in the process of obtaining a PhD. For this study, the definition of PhD-related work practices is shaped using the work of Cumming (2010). Therefore, PhD-related work practices are composed of a set of interrelated and interdependent processes that move beyond models that revolve around the acquisition of skills. In PhD-related work the student is engaged in simultaneous processes of becoming and being, as well as knowing and doing. This PhD-related work comprises practices embedded into arrangements, argues Cumming (2010). This process happens at a deeper, more nuanced level than just taking place in the environment.

The environment of higher education is best described as a workplace; it is a place, a space, and a context, which includes the informal place of the Internet. It is individual and cognitive, as well as social and psychological. The nuances of how PhD practices and
arrangements are experienced, as explained by Cumming (2010), are highly complex and comprise multiple explicit and tacit types of knowledge that students must navigate formally and informally.

PhD-related work practices are summarized as follows (Cumming, 2010):

1. **Curricular**
   - Negotiating, (re)framing, organizing, engaging, evaluating, envisioning

2. **Pedagogical**
   - Meeting, interacting, training, networking, collaborating, mentoring, presenting

3. **Research**
   - Reviewing, designing, generating, analyzing, writing, theorizing, securing

4. **Work**
   - Publishing, teaching, producing, volunteering, contributing

The informal and incidental learning that takes place in PhD-related work practices are difficult to explore given the invisibility of informal learning embedded in everyday activities (Merriam, Caffarella & Baumgartner, 2007).

**The Internet as a Student Site for Work**

In considering the new places that PhD students carry out PhD-related work (McAlpine & Mitra, 2015), the Internet affords opportunities for informal learning by providing a site, while not physical, that is used for work. The physical sites and the environments where teaching and learning take place can either enhance or hinder a student’s progress, and there are many debates in the literature on designing educational spaces (e.g., light, air quality, color, and comfort). Recently, designers have been actively seeking opinions from teachers, administrators, students, and other stakeholders on moving away from the traditional industrial-looking school complexes
(Blackmore, Bateman, O’Mara, & Loughlin, 2011). Moreover, mobile and other interactive technologies are greatly shaping new ideas on how to best design learning environments (Blackmore et al., 2011). As a result, many hours are spent creating graphical user interfaces for instruction and instructional tools (e.g., Youtube EDU, iTunes U, and Khan Academy) in the hope that these will provide an environment conducive to learning, although the best these sites can offer is an innovative form of their more traditional physical counterparts (Selwyn, 2012).

In reviewing learning spaces, Blackmore et al. (2011) took the perspective that space “shapes social relations and practices” (p. 3), and these spaces are considered to be the built, natural, and virtual spaces, with a “blurring of [the] real and virtual” (p. 3). Oldenburg (1999) characterized the places in which people get together in distinct groups with shared outlooks as primarily occurring in three arenas: the first arena is home; the second arena is work; and the third arena includes bookstores, cafés, and group meetings. There is much evidence to suggest that the Internet is a third place (Horrigan, 2001). The workplace is no longer confined to a physical space, and the growth of virtual workers and workplaces creates a further “blurring of [the] real” (Blackmore et al., 2011).

In research on telepresence, there is real concern that some individuals fail to acknowledge technology’s role in online participation, choosing to believe that virtual experiences are no different than physical encounters with a virtual experience (e.g., cyber-realities, flight simulators, and IMAX movies). Moreover, telepresence sees individuals engaged in an online environment while ignoring the physical one around them (Baymn, 2010). This echoes one of the major concerns regarding social media use among students. In that students are more concerned with their social media presence than their studies, creating a rift between the student and the instructor (Lichy & Kachour, 2016)
However, there appears to be little research using the lens of telepresence to provide greater insight into our understanding of student uses of technology for college-related work. It is here that institutions of higher education are well placed “to assume a greater role in shaping the development of social media on the ground in higher education settings” (Selwyn, 2012, p. 7), rather than being at odds with the “digital natives” (Prensky, 2001).

In a study surveying 1658 undergraduate students, Henderson, Selwyn, and Aston (2015) concluded that “digital technologies are now embedded into the working practices of students” and are “central to the ways in which students experience their studies” (Henderson et al., 2015, p. 11). While this study did not specifically include graduate students, the results demonstrate that the use of technologies for schoolwork is aligned with less-than-innovative teaching and learning practices. Furthermore, institutions are reluctant to increase student work being produced using technologies not legitimized by the institution (Henderson et al., 2015).

Specifically addressing this point related to PhD students sense of connectedness, Rockinson-Szapkiw, Heuvelman-Hutchinson, & Spaulding (2014) reported that students were less likely to engage with one another in an institution maintained Facebook site. Moreover, Rockinson-Szapkiw et al. (2014) reported that students using digital technologies outside an institution to interact with other students were more likely to persist, and maintain an investment in PhD-related work.

**Informal Learning and the Internet**

Perhaps it is not too bold to begin by stating that the revolutionary effect of new technologies is affecting formalized instruction and shifting how educational institutions approach pedagogy (Cevetello, 2009). The ubiquitous Internet and social media “have made it easy to place materials online” (Brabazon, 2007, p. 78). The formal learning dimension has
become flexible, offering learning opportunities modified to meet the student’s needs (Brabazon, 2007). However, the environment that defines the formal learning dimension should be carefully examined as these are the spaces where teaching and learning become operationalized.

Examination reveals a “centered activity with large numbers of students routinely focused on the teacher as well as a limited selection of carefully selected repositories of knowledge such as textbooks” (Raschke, 2003, p. 4). Raschke also suggested that this movement of Internet, social media, and digital tool use has emerged into a formal learning paradigm that is no longer adequate. Knowledge, knowledge sharing, and ways of creating knowledge reside in the “knowledge spaces of the postmodern university . . . what we shall call . . . the hyper-university . . . an extension, and extensive ‘knowledge space of the culture at large” (Raschke, 2003, p. 5). Therefore, in 2016, the importance of the Internet for both formal and informal learning domains must not be underestimated.

A little over 17 years ago, the Internet was described by Gray (1999) as being one of the most powerful and important tools for self-directed learning. Throughout the early 2000s, as Internet usage increased, studies appeared that explored the Internet as a site for informal learning. Boshier and Pisutova (2002) showed that adults could control their learning pace, use information independently, and talk with one another. Wilson and Lowry (2000) demonstrated how the Internet was essentially a constructivist informal learning environment that brought individuals together. Other studies articulated the possibilities for the Internet in the workplace as a site for informal learning (Berg, 1999). The Internet, Hiemstra (2009) suggested, has blurred the line between formal and informal learning and should be viewed as an equalizer of learning. This blurring has had and will continue to profoundly alter how people “think about, seek, and use information for their own learning” (Hiemstra, 2009, p. 2).
Our engagement with the never-ending opportunities for informal learning online plays an enormous role in everyday academic life. Whether we are watching a lecture via YouTube, Googling a new author, or reading a journal article, we are learning (Bonk, 2009). As social beings who are constantly learning, “we are just hyperlinking to the next learning experience, one after another” (Bonk, 2009, p. 417). Internet sites that provide social networking services, such as Facebook, Pinterest, and Tumblr, along with social bookmarking sites like del.ici.us, Evernote, and Google extensions are the very essence of informal learning. These sites, with the software and hardware infrastructure of the Internet, are empowering learners in new ways and challenging the exclusivity of educational affordances by redefining learning. As Hall (2009) said, “The interface between traditional and nontraditional contexts or spaces has come more sharply into focus through the use of emergent read/write web and mobile technologies, which emphasize learning linked to ownership, context, personalization and differentiated tasks” (p. 31). Therefore, the traditionally understood rules of how and where learning occurs are operationalized differently on the Internet. The chances of personal validation for one’s learning requirements is highly likely in the world of the Internet (Hall, 2009). There is an overall informality of learning experienced online that differs from the informality intentionally created in a face-to-face learning environment.

The Internet can also act as a bridge to more formalized learning environments (Hall, 2009). Social networks provide direct and indirect support for learning, helping with coursework and providing emotional downtime through online friendships. Research on how informal learning operates in online environments and the tools used by students, has suggested that the Internet, once thought of as distracting to learning processes, is now being used to provide academic support (Greenhow, 2011). While educational credentials, such as gaining a PhD, are
the “products” of “formal education and are viewed as a rite of passage” (Tarantino, 2012, p. 60), research has demonstrated that during the time spent engaged in formal learning activities online, “many pre-service professionals turn to the web for additional professional development and informal learning to supplement their in-class experiences” (Tarantino, 2012, p. 60).

When generally discussing informal learning via the Internet, Wilmott (2011) suggested that the place and role of higher education has shifted significantly in today’s world. Sharing knowledge “is no longer a unique function of a learning institution . . . as the ability to seek and construct knowledge is removed from the educational institutions and incorporated into informal learning experiences” (Wilmott, 2011, p. 1). Traditional-aged students are entering higher education with experiences, knowledge, and skills formed outside of traditional and formalized linear models for acquiring knowledge.

Park, Heo, and Lee (2011) studied blogging for informal learning and adult learners and found there was potential to begin a dialogue on the connections between PhD students’ use of blogs and blogs geared toward self-directed, informal learning. Bloggers reported that blogging provided them with knowledge that felt immediate and practical, although they noted that knowledge generated from their experiences and opinions was not “information . . . yet authorized as approved fact or knowledge” (p. 157). The bloggers who participated in this study could articulate the different characteristics between informal learning and formal learning. There was an agreement that a blog could provide an ideal informal learning environment, although, interestingly, the findings of this study demonstrate that those blogging did not see themselves as part of a “community orientated learning practice” (p. 159). Overall, Park et al. (2011) concluded that the uses of blogging need to be incorporated within a wider conversation about the role of social networking for teaching and learning. Also, when mainly discussing
informal learning, there must also be an acknowledgement of participation and motivation for engaging with social media. What is important is the possibility that informal learning via social media has the potential to dismantle barriers that get in the way of individuals’ participation (Selwyn & Gorard, 2004)

Selwyn (2007), while acknowledging the growing relevance of social media and social networks to support informal learning opportunities, argued that simply using Web 2.0 technologies for teaching and learning is not an implication that learning will increase. However, these technologies are, Selwyn agreed, contributing greatly to and expanding opportunities for informal learning in the wider community and in people’s homes. Regarding informal workplace learning, Attwell (2007) suggested that social media, particularly personal learning environments, provide possibilities for individuals to supplement formal learning through personalized informal learning online. Song and Lee (2014) drew attention to the idea that the Internet has brought with it a renewed energy and legitimacy to informal learning; “the development of a myriad of new technologies for learning has enabled people to learn anywhere and anytime” (p. 1). They argued that while many studies exist on the use of the Internet in an educational setting, there is still little known about how it is a tool for informal learning. The research looked specifically at Web 2.0 technologies. These are defined as second-generation Internet technologies able to facilitate two-way communication and collaboration via web sharing applications, such as blogs, wikis, and Facebook (O’Reilly, 2007).

**Informal Behaviors and Informal Learning in the Workplace**

In some places, academic work, particularly PhD-level work, has shifted away from the formal physical learning environment (Cumming, 2010; McAlpine & Mitra, 2016). This change in work practice is not limited to academic work, but brings a new dimension to the enterprise.
Another change in academic work is an increase in the distribution of work; in modern academic environments, work for one project is sometimes carried out by people who might be separated by geographical and disciplinary differences. In this situation, a team of workers might be connected via technological networks, making the working environment flexible and responsive in ways that go against traditional ideas of work practices (Littlejohn & Margaryan, 2014).

It is now common for PhD students to experience team and group work that makes use of social media and other networked technologies. These opportunities allow students to participate in collaborative problem-based learning. In this work-practice model, students are expected to be self-organized, which reflects the requirements of paid employment where individuals are expected “to take responsibility for planning and directing their own work and learning” (Littlejohn & Margaryan, 2014, p. 5). At times, however, a student who is participating in a work network might be expected to work individually and independently on an element of the group project. As in any work project, participation in work activities involves experiences of “informal, on-the-job learning” (Margaryan, Littlejohn, & Milligan, 2013, p. 246). Authors Margaryan, Littlejohn, and Milligan (2013) argued that students engage in “work learning” in a way that is different than a paid employee does. The fundamental purpose of work in the academy is learning, whereas the fundamental purpose for professionals is the fulfillment of their professional duties. However, in considering the diverse roles and responsibilities of PhD students (Cumming, 2010) along with the fact that PhD practices involve conducting research work as part of the process of learning, there is an argument to be made that the lines become blurred without clear delineation. In these new distributed networked workplaces, as well as in new distributed models for providing education, the learner-teacher and learner-trainer roles have become far more fluid than they have been in the past (Littlejohn & Margaryan, 2014). Just like
employees in a workplace, PhD students must be self-directed, resilient, responsible, and able to manage their professional learning needs (Engestrom, 2009; Kasworm & Bowles, 2010).

In their writing on workplace learning in informal networks, Milligan, Littlejohn, and Margaryan (2014) directed their research toward the range of behaviors that they found to be “essential to learning in informal networks” (p. 1). They identified four informal behaviors “that knowledge workers use when learning in informal networks” (p. 4). These behaviors are not necessarily explicit to the learner but contribute to how an individual “interacts with other members of their network to achieve their learning goals” (p. 4). The four informal behaviors are, consume, create, connect, and contribute, and while the authors linked these to self-regulated learning in the workplace, it is also possible to align these with stages of self-directed learning in informal academic learning environments and to the processes of PhD-level work. In the “4C behaviors” (p. 5) model, behaviors are aligned based on how an individual learner “plans, implements and reflects on their and their development at work” (p.5).

This reflective learning process allows learners to self-regulate their own learning needs with members of their network. For PhD students, their networks change as they engage in academic work, becoming increasingly self-directed. The processes of self-directedness in learning are dependent on reflection (Garrison, 1997). These students are learning to consume knowledge that supports their learning, create learning goals, connect to others when seeking advice, and contribute new knowledge. In many respects, these informal behaviors increasingly take place and are mediated through the use of digital tools (Margaryan, Littlejohn, & Milligan, 2013). Social media tools support consuming with search-engine use and tools for taking notes (e.g., Evernote), and they support creating in that they help with article annotation and the sharing of articles and notes. Digital tools for connecting include Twitter and social
bookmarking, and digital tools for contributing include blogs, wikis, and shared cloud storage (Margaryan, Littlejohn, & Milligan, 2013).

All these social network tools support the four learning behaviors, which in turn support the development of personal learning networks. For PhD students, using, developing, and contributing to these networks are important aspects of self-directedness in their academic work and learning. “Over time, the knowledge held by the network is enriched by the contributions of its members. Individual members learn from each other’s reflective practice, benefitting from seeing how others solved problems, the resources they used and the routes they took to learn” (Margaryan, Littlejohn, & Milligan, 2013, p. 9).

Knowledge

The topic of this study would suggest that there are many kinds of knowledge, and this is true; there is tacit knowledge, explicit knowledge, factual knowledge, conceptual knowledge, procedural knowledge, and metacognitive knowledge. All these types are referenced in the literature regarding knowledge sharing online. However, studies of PhD-related online knowledge sharing are scarce. Further, many studies have referenced knowledge without saying what knowledge is or is not (Hew & Hara, 2007). The following section is an attempt to represent the complexities of knowledge, and knowledge sharing. It is primarily focused on educational research in the last 15 years.

The problem with knowledge is that knowledge is a complicated, puzzling, and debatable concept (Tan, 2009). It means “different things to different people” (Kluge et al., 2001, p. 64), and it is like a “Rubik’s Cube” of the philosophical world. For this study, we are not concerned with ending an argument that began in ancient Greece, yet a workable definition is necessary.
We think of knowledge in several ways, which at a surface level is understandable. Knowledge is common sense; it is a collection of facts. It can be trivial, truthful, believable, and plausible. And, while knowledge might exist because of known rational and scientific epistemologies, it can also exist in the ways we perceive the world, receive the world, and translate the world. Knowledge derived from scientific inquiry, everyday knowledge, common knowledge, trivial knowledge, explicit knowledge, and tacit knowledge create a problem, in part because any articulation of knowing about knowledge leads to questions: What is knowledge? How do we get knowledge? Are there different types of knowledge? These questions are complex, especially considering different ways of viewing the world and the contexts in which people live out their lives (Adolf & Stehr, 2014). Ultimately in any discussion of knowledge, it becomes much easier if there is a context by which to conceptualize forms of knowledge.

Some scholars may argue that scientific knowledge, knowledge derived from logically followed steps of inquiry, is more plausible than, say, common or everyday knowledge. For this study we are concerned with knowledge in the context of the Internet and PhD students and knowledge sharing. For example, a PhD student who writes an academic paper uses a particular style appropriate for the disciplinary area. The student must have this knowledge to complete the task. This knowledge is factual knowledge: “the basic elements that students must know to be acquainted with a discipline or solve problems in it” (Anderson & Krathwohl, 2001, p. 46).

**Types of Knowledge**

In general, it is not easy to determine types or kinds of knowledge. In education, however, the most widely used framework is the knowledge dimension of Bloom’s taxonomy of educational objectives (1956) and the subsequently revised taxonomy by Anderson and Krathwohl (2001). These frameworks provide a standardized system to classify levels of
intellectual behavior. The taxonomy of educational objectives, as originally envisioned by Bloom, provided educators across disciplines, grade levels, and institutions a common language within which to communicate the intended outcomes as a result of instruction. The structure of Bloom’s taxonomy very carefully and articulately developed a set of definitions for six of the major categories in the cognitive domain. These categories—knowledge, comprehension, application, analysis, synthesis, and evaluation—were further subdivided with the exception of application. The expected outcomes of learning were laid out in a hierarchy, which built on successful completion as a student moved along in a learning task.

“Bloom’s Taxonomy” (Marzano, 2007), then supports evaluation of students’ thinking based on an objective evaluation. Bloom articulated the premise as “an attempt to build a taxonomy of educational objectives . . . intended to provide for classification of the goals of our educational system” (Marzano, 2007). In many studies, research using Bloom’s taxonomy has tended to focus on learning, learners, and cognition (Hou, Chang & Sung, 2010), not on learners’ knowledge in the context of the process and product. The knowledge dimension of the revised taxonomy separates knowledge from cognitive skills; the definition of knowledge is the acquisition of information that is new and contextualized (Anderson & Krathwohl, 2001). The knowledge dimension is made up of four levels: factual, conceptual, procedural, and metacognitive knowledge. Each level is further subdivided, making the acquisition of knowledge dimension specific, in that the student, the content, and the context are closely related. According to Richardson (2010), blogging provides students with opportunities for intellectual development. Therefore, Bloom’s taxonomy serves as an aid to expand and examine the interplay between the student, the content, and the context by contextualizing the PhD students’ knowledge sharing through the lens of informal learning.
Table 1

*Bloom’s taxonomy of educational objectives, the knowledge dimension*

<table>
<thead>
<tr>
<th>Types of Knowledge</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factual Knowledge</td>
<td>The basic elements that students must know to be acquainted with a discipline or solve problems in it</td>
<td>Knowledge of terminology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge of specific details and elements</td>
</tr>
<tr>
<td>Conceptual Knowledge</td>
<td>The interrelationships among the basic elements within a larger structure that enable them to function together</td>
<td>Knowledge of classifications and categories</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge of principles and generalizations</td>
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<tr>
<td></td>
<td></td>
<td>Knowledge of theories, models, and structures</td>
</tr>
<tr>
<td>Procedural Knowledge</td>
<td>How to do something; methods of inquiry, and criteria for using skills, algorithms, techniques, and methods</td>
<td>Knowledge of subject-specific skills and algorithms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge of subject-specific techniques and methods</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge of criteria for determining when to use appropriate procedures</td>
</tr>
<tr>
<td>Metacognitive Knowledge</td>
<td>Knowledge of cognition in general as well as awareness and knowledge of one's own cognition</td>
<td>Strategic knowledge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge about cognitive tasks, including appropriate contextual and conditional knowledge</td>
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<tr>
<td></td>
<td></td>
<td>Self-knowledge</td>
</tr>
</tbody>
</table>

**Knowledge and PhD Students**

Among academics, the PhD is considered royalty (Shulman, 2010), although with the status of royalty come responsibilities. A PhD is designed so that a student has the necessary knowledge and skills to contribute new and complex ideas across a diverse range of settings (Walker et al., 2008). However, in many studies knowledge and PhD students is reduced to a
dialog on PhD competencies: What skills do employers value? What skills and abilities does higher education value? and so on. None of these questions requires a substantive dialog on knowledge and students. This would require a much broader philosophical debate. Therefore, much of the dialog remains rooted in classifying academic discipline knowledge, debating competency measurement, and generic skill transfer. And yet in preparing PhD students for the complexities of completing their degrees, there are several struggles regarding knowledge that must be overcome (Pallas, 2001).

The first struggle involves ways of knowing knowledge, the epistemological beliefs of what counts as knowledge in research. PhD students are expected to work with complex theories to the point where they can comprehend where knowledge comes from and how it is then used (Gardner & Mendoza, 2010). This requires a step above demonstrating competency; it requires skill in higher-order thinking, the foundational knowledge required for successfully carrying out independent research (Gardner & Mendoza, 2010). Second, in their self-directedness toward independent research students should be able to apply the technical aspects of producing knowledge and be self-reflective and critical of their assumptions regarding knowledge. Third, and arguably most important to this dialog, is the concept of generic doctoral knowledge skills. Eisenhart and DeHaan (2005) proposed a socialization model that trained PhD students to acquire a broad set of generic scientific research skills, which would socialize students into a “culture of science” (Eisenhart & DeHaan, 2005, p. 3). Borthwich and Wissler (2003) reported to the Australian government that the language of PhD-related work skills and abilities was confusing to students. Consequently, students were unable to judge the applicability of generic skills and transferability to the workplace, even though the skills of successfully completing a PhD are the same as the skills required in a workplace environment.
As students move toward independent research and developing multifaceted skills, they must not only become self-directed, but should also be able to implement the technical aspects of creating knowledge, being self-reflective and critical of assumptions regarding knowledge (Pallas, 2001). According to Marra (2005), a student’s epistemological development requires a period of change from not just knowing the facts, but to knowing “knowledge as contextual and evolving” (p. 137). However, one of the biggest problems is the faculty (Walker et al., 2008). The authors stated that while faculty members are often acutely aware of the importance of a student’s epistemological development, at the same time the faculty recognizes that epistemological development is often wished for, rather than plainly built into PhD curricula (Walker et al., 2008). In the study, Teacher Belief: The Impact of the Design of Constructivist Learning Environments, Marra (2005) noted that a teacher’s own views regarding knowledge influences a student’s intellectual development.

**Knowledge Sharing**

The broad definition of knowledge sharing is “a justified belief that increases an entity’s capacity for effective action” (Alavi & Leidner, 2001, p. 109). According to Bock, Zmud, Kim, and Lee (2005), people must be willing to share knowledge because it is impossible to force someone to do so on their own. In the discussion of knowledge sharing online, two areas of research are lacking. First, it would appear that while knowledge-sharing online is a growing area of research, particularly when looking at knowledge sharing as a component of knowledge management, there is little addressing the specific kinds or types of knowledge that individuals share online (Hew & Hara, 2007). Second, many studies are concerned with the necessary preconditions for effective knowledge sharing, and they tend to be process driven and focused on both knowledge exchange and how organizations effectively process and manage information as

data. Therefore, the dominant theories on knowledge sharing and behaviors associated with knowledge sharing primarily are based on the co-opting of theory from other disciplines, such as social psychology, communication theory, and business and organizational theory (Alajmi, 2008).

At an organizational level, two types of knowledge sharing exist: formal knowledge and informal knowledge (Taminiau, Smit, & De Lange, 2009). Formal knowledge is maintained and shared at an institutional level and is concerned with explicit organizational knowledge (e.g., a human resources department employee manual; Nonaka, 1994). Whereas informal knowledge sharing is specific to the organization but not mandated as required knowledge, it leads to explicit knowledge and influences formal knowledge (e.g., creative thinking and discussion at lunch leading to a change in working practices). In a study specific to academia, Forcier (2012) explored the use of blogs among librarians for formal internal knowledge sharing. The participants reported using the blog each day for updates on specific library procedures, but overall, e-mail was still a preferred method for sharing formal knowledge. Forcier concluded blogs were useful tools for sharing internal organizational knowledge but only to supplement traditional forms of knowledge sharing. Traditional formats for sharing organizational knowledge are more trustworthy, and trust is an important factor in how knowledge is shared (Nonaka, 1994).

In an investigation of trust and what makes bloggers share knowledge, Chai and Kim (2010) discovered that four areas of trust existed: economy-based trust, bloggers’ ability to trust in one another, trust in the technology, and trust in blog service providers. Trust and levels of trustworthiness affect the amount of knowledge that bloggers share (Chai & Kim, 2010). In a similar study, Chai, Das, and Rao (2011) explored whether gender affected a bloggers’
knowledge sharing, concluding that women bloggers reacted negatively to sharing via a blog, citing issues of trust, credibility, and privacy as concerns.

Blogs

The blogs examined for this study are specifically PhD student blogs; however, by way of an introduction preface, this section will generally overview the concept of a blog. The accepted definition of a blog is as a website refreshed with new content regularly. We can view a blog site and the act of blogging as an extension of keeping a diary or a journal, but is it not the same thing. Blogs are perhaps the digital cousins to the age-old practice of chronicling one’s lived experiences, sharing commentary, and co-creating knowledge. Sharing knowledge via blogs influences our cultural interpretation of how societies operate, and they do so in real time, whereas newsprint, books, and magazines are no longer a primary resource for commentary, opinions, and facts. Blogs unleash the power of the written word into a public arena with no, or little, scrutiny or editing (Barlow, 2008; Boyd, 2006).

Blogs can take on different meanings and purposes depending on the audience (Winer, 2001). There are commercial blogs, which companies use to roll out new products or engage in product dialog. There are community blogs to which people subscribe; these blogs are usually thematic and popular to wide audiences. Thesiswhisperer.com is a site specifically for PhD students. It will have regular followers and contributors, and in this aspect it resembles the public spaces where discussion is encouraged, such as coffee shops, book clubs, and political meetings. The blog represents politics of the people, whereas newsprint is politics cleaned up and mediated, becoming a one-way discourse for the people (Barlow, 2008). Blogs and the act of blogging are intentional. However, bloggers will often share information with the potential of global readership, only to find they are the lone voice out in the blogosphere (Hookway, 2008;
Rettberg, 2014). Ultimately, what makes blogs so interesting is that unlike other forms of computer-mediated communication such as online newspapers, e-books, and corporate websites, the relationships between bloggers and readers have the potential to alter traditional communication power dynamics (Boyd, 2006).

**Blogs and Higher Education**

There are two sides to every story, and this is also true for the story of blogs in higher education. On the one hand, there is the technology for teaching and learning: how to use something and what it can do for you. This is the pedagogy story. On the other hand, there is the story of radical change, a seismic shift in our culture, and implications to the system of education in a post-industrial society; perhaps this is the interesting side of the story. Undoubtedly, emerging technologies, social media, the Internet, and cyberspace have revolutionized how teaching and learning are delivered. But this is not a new revolutionary tale; neither is it the 1950s, with its worries about the impact of TV (Miller, 2011). Still, this is a story for which we are all too familiar. As Miller stated, “New technologies always breed anxiety about the consequences, and certainly the Internet and mobile phones have bred both anxiety and optimism in that potential to shape the future” (p. 3).

The connective tissue of the theoretical positions in the literature on technology, social media, and blogs also provides the theoretical “gap,” or rather the researchable problem (Creswell, 2007) in the literature. Blogs and theories of blogging demonstrate Miller’s (2011) optimism, and the potential to shape our futures. Lin et al. (2006) noted that “Bloggers are not only noting down their experiences and thoughts, but also trying to reach out to broader audiences, share opinions and to manage their personal knowledge base” (p. 15). The connective tissue is reciprocity: a society and a world with the potential for knowledge sharing and
knowledge creation via social media, a world that works and lives collaboratively (Zuckerberg, 2016). Instead of hoarding knowledge, current literature shows increasingly that sharing is a main concern of organizations that recognize the underlying importance of knowledge management. In the mid-2000s, several researchers published articles that linked blogs to knowledge sharing. Ojala (2005) showed how blogs were a potential tool for organizations in that they could share product knowledge and in doing so create workplaces that are more conducive to collaborative practices.

Brooks-Young (2005) suggested that blogs were like a bridge in the cyber world. Blogs can be used by instructors and incorporated into course content, classroom instruction, and collaborative student activities. Blogging can be a positive teaching and learning activity. It “provides students with a venue to publish online for an audience and to engage actively in collaborative activities” (Clyde, 2005, p. 44). Blogs are an excellent teaching and learning resource for developing students’ critical thinking skills and engaging in problem-based learning. Using blogs in this way may provide a richer and more in-depth experience for students (Wang et al., 2008, p. 1). In the past few years, the academic community has turned its attention to how instructors can gain a richer and more in-depth experience in their scholarship through social media and blogs (Powell, Jacob, & Chapman, 2011). As noted by Thomson and Mewburn (2013), blogging is considered by some academics as a method to reach a broader range of colleagues in the same field, sharing ideas in a less competitive and more social environment.

Kirkup (2010) suggested that the web has become a place where academics are participating in a fundamental paradigm shift by posting research and articles on online forums such as blogs. Internet communities such as Researchgate.com, Mendeley.com, and Academia.com are just a few of the web spaces where academics can share research, resources,
knowledge, and “friend” one another to further scholarship. Some studies have addressed the specific use of blogs and the blogging practices of higher education faculty (Bar-llan & Thelwell, 2012; Nardi, Schiano, & Gumbrecht, 2004; Powell, Jacob, & Chapman, 2011; Thomson & Mewburn, 2013). Maitzen (2012), commenting on the value of blogging in academia, suggested that blogging takes away the constraints of the traditional article to publication hierarchy and support free flowing ideas and dialog. Minocha and Petre (2012) produced a handbook for academics looking to use social media (Table 3, p. 42) to communicate with one another. The result was a far reaching length report demonstrating the breadth of tools available to in the academic workplace.

Regarding seeking and sharing research information via social media, a 2013 survey of scholarly communication by Zhu and Yimei (2014) reported findings from 1,829 researchers from across 12 UK universities. The general conclusions suggested that the adoption of social media tools such as blogs, Twitter, and wikis for academic use had not been embraced by the majority of respondents. The survey asked to what extent academics sought and shared research information on social media, and 84% had never used blogs, Twitter, or social networking sites. Seventeen respondents always posted research updates on a blog, while 204 respondents sometimes posted research updates on a blog. Moreover, “Only 20% of respondents reported having gathered research information on Social Networking Sites (SNS) such as Facebook and ResearchGate and 15% said to have collected information on Twitter in research work” (p. 6).

Interestingly, Hank (2011) studied 644 academic blogs to understand the motivation and the benefits of blogging. Most academics in this study reported that their blogging positively influenced their lives. The participants felt that blogging increased their creativity, the overall quality of their research improved, they became more competent writers, the experience of
blogging improved their teaching, and sharing materials with their colleagues contributed to their enjoyment of their work as an academic (Hank, 2011). In an extensive review of Web 2.0 use by higher education in the UK, Conole and Alevizou (2010) were able to place social media tools into ten types. However, while it is useful to see the depth and breadth of social media use this research into social media use in the academy is probably dated.

Blogs and blogging as an academic practice, according to Powell, Jacob, and Chapman (2011), provide an important outlet to disseminate information into the public domain. Blogs are viewed as reliable tools when responding to evolving issues because they provide a space for informal debate and seek experimental advice. Veletsianos (2013) suggested that social media technologies such as blogs are not designed for academic purposes, and yet they have been co-opted by academics. The very nature of online social networks is built on the premise of informal social dialogue. Often, academics who use these spaces for professional and nonprofessional dialog reveal aspects of their lives and self that would have otherwise remained hidden. Consistent throughout Veletsianos’ (2013) findings is that “sharing” is a “persistent concept . . . the core value of this subculture is that sharing should be treated as a scholarly and educational practice” (p. 648).

In Feeling Ordinary: Blogging as Conversational Scholarship, Gregg (2006) pointed out that blogs are widening access to scholarship and opening up the academy to discussions on accountability. Gregg (2006) posited that the structure of the academy presents a challenge to knowledge sharing outside the institution, primarily because academic writing may never leave the confines of the academy. Blogging, Gregg (2006) admitted, is not the solution, but blogs provide opportunities for “conversational scholarship . . . They encourage collaboration as much
as competition. The participatory nature of writing, response, and counter-argument on blogs allows for ongoing debate, critical refinement, and thinking-in-process” (p. 155).

In Banal Bohemia: Blogging from the Ivory Tower, Gregg (2009) suggested that any discussion of blogs in academia must consider two wider trends that influence “information work in the global economy” (p. 471). First, stable jobs in higher education are under constant threat, and traditional faculty and researcher positions are dwindling, creating “a sense of employee insecurity” (p. 471), particularly for those faculty beginning their academic careers. Gregg’s second trend regards a “sense of information overload” (p. 471) being perpetuated by the amazing variety of technologies, software solutions, and platforms available. Gregg (2009) was concerned that we are as a society unable to decide which platform best suits our needs, and this has trickled down to the disciplines in higher education. Accordingly, blogs and blogging “have served an important mediating role for the state of (sometimes enforced, sometimes compulsive) over-stimulation they encourage” (p. 471).

Blogging provides academics space in which there is an unspoken legitimate understanding that it is okay to come together and share or to mourn the loss of the traditional academic forum (Gregg, 2009). Gregg stated, “At a time when traditional versions of labour-related union led activity appear to be in decline, blogs are an interesting instance of emergent co-worker solidarity and massed in virtual space” (p. 472). Ultimately, Gregg’s interpretation of blogs in academia is two-fold. On the one hand, blogs provide support for those wishing to work in higher education, but “the positive aspects of collegiality and solace taking place online for a new generation of scholar’s risk remaining disconnected from an effective labor politics—one that could change the very nature of the grievances blogs appear so well designed to express” (para.1).
In Social scholarship: Reconsidering Scholarly Practices in the Age of Social Media, Greenhow and Gleason (2014) examined the impact of social media using a reconsideration of Boyer's' (1990) scholarship, which had proposed that scholarship takes place in four interrelated areas: basic research, integration and interdisciplinary work, the scholarship of teaching, and applied research. As Greenhow and Gleason asserted, there must be a means by which we can build theories on social scholarship that relate to faculty in a higher education system that has shifted scholarship practices. How do the dimensions of scholarship, as reconsidered by Boyer (1999), successfully encompass social media use for scholarship? Greenhow and Gleeson suggested it is imperative that “institutions must consider how to prepare future faculty for the impact social media advancements may be having on contemporary scholarship practices” (p. 392)

So far, however, there has been little empirical research on how PhD students specifically use blogs for knowledge sharing. In a newspaper article titled, “Lonely PhD student? Just Log In” (Cervini, 2011), some students and leading researchers in Australia were asked to comment on the phenomena of students’ using blogs to support their studies. It would seem from those interviewed that blogging and using social media by PhD students in Australia is helping students to feel less isolated throughout completing their degree (Cervini, 2011). What we know regarding students’ use of blogs stems from investigations on the importance of blogs as pedagogy. Many researchers have commented on the importance of blogs and blogging, as “they have numerous pedagogical benefits” (Ali, Byard, Julich, & Kommunuri, 2013). Richardson (2009), in describing how blogs are useful for teaching and learning, commented on the power of blogs to promote student reflection and collaboration.
Minocha and Kerawala (2011) demonstrated that blogs can help the processes of learning through opportunities for assessment and evaluation, providing additional assignment materials, reviewing class discussion, and extending students’ learning outside of the classroom. However, the authors indicated that using blogs can sometimes be problematic because compliance and buy-in from students are crucial when using blogs as pedagogical tools. In addressing this issue, Churchill (2009) comments that students are encouraged to blog when reading feedback via other student blog posts. The blog assignment must form part of the students’ assessment, and the instructor must be seen to take an active role in posting to the students’ blog. In conclusion, blogging as part of coursework is a means of measuring student participation (Churchill, 2009).

**Content Analysis**

This section presents a detailed overview of the research methodology chosen for this study. First, it provides a broad introduction to what content analysis is, followed by a history of significant developments in content analysis. Next, we discuss approaches to undertaking a content analysis, and then we look at qualitative methods for conducting a content analysis.

As a methodology for research, content analysis has been in use since humans used symbols to convey meanings in messages regarding cataloging the experiences of humanity (Krippendorf, 1990). However, the methods employed and approaches to content analysis described in the literature are numerous, ranging from conceptual and relational analysis (Colorado) to basic, interpretive, and qualitative analysis (Drisko & Maschi, 2016). Basic content analysis bears all the hallmarks of a traditional, or classic, content analysis that is quantitative (Mayring, 2001). As a qualitative approach, Hsieh and Shannon (2005) identified conventional, directed, and summative analysis. Also as a qualitative approach, Schreier (2014) distinguished
two “basic versions of the method: structured qualitative content analysis and qualitative content analysis by extraction” (para.1)

Content analysis occupies an interesting position on a continuum of research paradigms, which in turn accounts for studies often labeled as content analysis when they are not (Schreier, 2012). However, this is no surprise given the approaches described in the literature. To highlight this further, Schreier’s (2014) two basic types of content analysis are in fact pulled together from six interrelated versions. Today, content analysis is neither a qualitative nor quantitative methodology. As Creswell (2011) concluded, content analysis is not so much an either/or methodological approach, neither should it be considered a mixed-methods approach. It is a hybrid methodology that borrows from several research paradigms.

These hybrid roots of content analysis came about through four different historical phases. Mayring (2001) explained these as, firstly, the antecedent approaches to analyzing and comparing texts in the context of hermeneutics, such as interpreting religious texts. Second, in the 1950s there was the emergence of communication analysis using a quantitative content analysis methodology, and a textbook by Berelson (1952) was the first to lay out systematic quantitative procedures. Third, and in part as a response to critics (Kracauer, 1952) of a purely quantitative approach, the 1960s saw content analysis moving into disciplines other than communication research, which inevitably sees a refining and defining of approaches. The last significant phase, and taking into early account objections to a method that appeared to be only concerned with surface content and contexts, content analysts emerged. Proponents were focused on finding more integrative and qualitative approaches to explore the hidden and latent content and contexts of textual materials (Mayring, 2001).
Any definitions of content analysis by early proponents exemplified its roots in quantitative research. It is a technique that approaches the manifest content of communication objectively and systematically (Berelson, 1952). It is a technique to support the ability to make “replicable and valid inferences from data to their context” (Krippendorf, 1980, p. 21). It is “any technique for making inferences by objectively and systematically identifying specified characteristics of messages” (Holsti, 1969, p. 14), and it is a research design that helps to classify textual materials (Weber, 1990). The direct approach to analysis was counting frequencies and applying statistical formulas to solving the researchable problem (Franzosi, 2007). More recently, content analysis has been described as “an approach of empirical, methodological controlled analysis of texts within their context of communication, following content analytic rules and step by step models, without rash quantification” (Mayring, 2000, p. 2). Elo and Kyngäs (2008) described content analysis as a way systematically and objectively to describe phenomena found in documents, while Leedy and Ormrod (2001) described the purpose of content analysis as identifying patterns and themes in human communication.

Content analysis is employed across research disciplines, whether quantitative, qualitative, mixed-methods, or interdisciplinary. Whether we think of content analysis as a hybrid methodology (Creswell, 2010) or not, according to Krippendorf (2010), it has arrived at a research method crossroads. One reason is because physical printed matter, such as newspapers and books, are no longer subject to the whims of powerful publishing companies and individuals (Krippendorf, 2010). Also, web-generated content has created a mass volume of content and contextual materials unlike that at any other time in history (Krippendorf, 2010). Lastly, the mass communication potential of the Internet influences how researchers approach textual content and communicate with one another (Krippendorf, 2010).
Qualitative Content Analysis

Qualitative approaches to content analysis in the broadest sense allow for a “degree of interpretation to arrive at the meaning of your data” (Schreier, 2012, p. 1). Therefore, qualitative content analysis is a method for “systematically describing the meaning of qualitative materials. It is done by classifying the material as instances of the categories of a coding frame” (Schreier, 2012, p. 1). As a method of social inquiry, a qualitative content analysis is primarily inductive, which supports the exploration of meaning hidden in textual data. This inductive approach supports grounding “any topics and themes, as well as the inferences drawn from them, in the data” (Zhang & Wildermuth, 2005, p. 1). This provides opportunities to delve deeper into the nuanced ways and “complexities of communications in ways that may not be possible through a quantitative analysis” (Drisko & Maschi, 2015, p. 86).

What makes a study qualitative is the notion of interpretation. In a quantitative study, it is difficult to interpret numerical data because, put simplistically, a number represents what it says on the label: a 3 is a 3 (Schreier, 2012). A qualitative study is concerned with “symbolic materials—verbal data, visual data, artifacts—which leaves much room for interpretation” (Schreier, 2012, p. 20).

It is worth a note of caution that qualitative content analysis as interpretive research must not get confused with an interpretive content analysis. The latter is concerned with recapping or abbreviating along with “describing meanings in a narrative way” (Drisko & Maschi, 2015, p. 5). In an interpretive content analysis, language that is often more familiar with quantitative approaches is used, such as “reliability,” “validity,” “codebooks,” and “sampling frame.” The qualitative researcher speaks of trustworthiness, credibility, and naturalistic inquiry (Drisko & Maschi, 2015). So while a note of caution regards approaching things not clear-cut in the world
of qualitative approaches to content analysis, to a large degree, there is much overlapping, with the nuances of methodological approaches still needing to be worked out (Drisko & Maschi, 2016). The literature on content analysis lacks a clear dialog on issues of epistemology, which accounts in part for confusion between paradigmatic approaches (Drisko & Maschi, 2016).

Despite the lack of epistemological dialog, qualitative content analysis uses several general qualitative research techniques that are interpretive and naturalistic, not seeking to manipulate data. The context is as important as the content. Any interpretation must be transparent. The coding process, while inductive, is also deductive. It can also be a little of both, since data are in part driven by data (Schreier, 2012). Lastly, the researcher must establish credibility and trustworthiness in evaluation procedures (Schreier, 2012).

Most authors writing about qualitative content analysis have agreed in the broadest terms that the goal of qualitative content analysis is to apply a systematic approach to uncover meanings in data. As a tradition for qualitative exploration of possible meanings and interpretations, qualitative content analysis must not be confused with more holistic qualitative approaches to text materials. In qualitative content analysis, the research questions provide the point of view from which to approach data. If examination of data reveals interesting and surprising nuances unrelated to the research questions and coding, we can change the coding. However, the researcher must not spiral into the depths of deep meaning making as in methods of data interpretation more suitable to a critical study (Sandelowski, 2009; Schreier, 2012). Ultimately, qualitative content analysis provides a selected, focused view for rich qualitative data.
Chapter Summary

To explore PhD student blogs to find out what practices show up in the content, a review of literature is necessary. An introductory narrative on current perspectives relevant to PhD-related work sets the stage for further discussion and synthesize. Overall, the literature on strategies for best practices in PhD education has increased. Theoretical models of socialization and development have contributed valuable knowledge to the understanding of the PhD student. Shifting the conversation toward professional development has enabled discussion on how do students see themselves in the academy. Theories of identity formation and academic identity construction have explored the complexities of relationships and emotions experienced by students in PhD-related work. An overview of adult learning theory helps to frame a conversation about informal learning. This helps to contextualize the learning approaches that students take toward gaining knowledge of the tasks related to PhD work. An understanding of self-directedness in PhD work learning contributes to frame the changing nature of the PhD workplace. The Internet as a site for informal learning along with social media such as blogs and wikis are relevant to the conversation particularly in the context of the Internet as a student place for work. Integral too are conversations regarding knowledge, types of knowledge, and knowledge sharing via the Internet and social media. Exploring blogs provide rich qualitative data on the practices of PhD-related work.
CHAPTER III

METHODS

As outlined in chapters 1 and 2, emerging models for exploring PhD-related work contribute new means to understand the complexities of PhD-related work. More recently, research has been supporting further studies of PhD-related work and informal learning with connection to learning in the academic workplace. The objective of this study was to explore the context of the blogosphere as an informal learning space, specifically looking at the content of PhD student’s blogs, and what the content of these blogs show us about PhD-related work practices.

I designed the research questions for qualitative content analysis that combines a multi-method approach (Marshall & Rossman, 2011). Given that the research questions frame a study; these particular choices locate this study in a qualitative research tradition. In broad terms, qualitative research is an overarching term that refers to multiple research methodologies used to explain individuals’ experiences, perspectives, actions, and interactions and the contexts in which these occur (Corbin & Strauss, 2008).

It is a common perception that the differences between quantitative and qualitative methods of inquiry can be distinguished by whether the researcher is interested in objective measurement (i.e., using deductive-statistical reasoning) more than making sense out of observations, interviews, and textual materials (Denzin & Lincoln, 1994; Patton, 2015; Stake, 1995). This study will take the latter, qualitative approach. Essentially, then, qualitative research is “interpretive, experience-based, situational, and personalistic” (Stake, 2010, p. 31).

Quantitative research, however, relies on predetermined hypotheses and research designs devised to approach data while looking for evidence to accept or reject predetermined
hypotheses (Creswell, 2003). Without undergoing a lengthy discussion of research paradigms, we must understand the benefit and value of taking a qualitative approach as opposed to a more rigid quantitative methodology (Bloomberg & Volpe, 2016). Researchers allow the topic of interest, the researchable problem, and the research questions to drive the methodology, rather than sticking rigidly to a methodology that feels the most suitable and comfortable.

To address the above issues for this study, I began with an acknowledgment that my worldview, assumptions, values, and ways of knowing truth and knowledge are not separate from how I approach scientific inquiry. In turn, this presented a conundrum regarding how to locate myself within a particular research paradigm. Creswell (2003) advocated making choices about one’s research paradigm, from which all other researchable decisions would follow. Therefore, knowing one’s self and how we approach critical inquiry will provide the necessary clues as to the philosophical assumptions that determine our worldview.

**Research Design**

The research design for my study takes an interpretive approach to a qualitative content analysis methodology. An interpretive approach accepts that many interpretations and meanings may exist to help us understand the world (Collins, 2010).

In chapter 2, I discussed the differing paradigms from which content analysis operates, including a historical overview of content analysis as a research methodology. In this instance, the use of a qualitative content analysis methodology is suited to my study because the data are sampled from another source, blogs. Given the potential for such data to become voluminous, qualitative content analysis offers three distinct features: It “is a systematic method, it is flexible, and it reduces data” (Schreier, 2012, p. 4). For the purpose of explaining my decisions regarding the research design, I used Crotty’s (1998) research design model as a guide for the overall
qualitative structure. Alongside Crotty, I used Schreier (2012) as a guiding structure for undertaking qualitative content analysis.

**Setting, Population, and Sample**

The setting of the study is the Internet. The population of interest is PhD students who maintain blogs. The sample data are pulled from blogs that meet the study’s inclusion criteria. All data was retrieved from the Internet between June 30th and July 10th 2016.

**Sampling**

The units of analysis in this study were blogs sites maintained by PhD students. These sites offer windows into PhD-related work practices, arrangements, and informal learning networks. In this study I was not interested with the primary blog authors and capturing their inner souls. Given that I was concerned with contexts for blogging and not blogging behaviors, the best approach was to use multiple sampling techniques McMillan (2000). Therefore, I used a nonprobability purposive sampling approach. Purposive sampling starts with a determination of the selection criteria and then moves to finding a unit for analysis that matches the criteria (Merriam, 2009). This method for sampling ensures a sample that reflects the purpose of the study (Merriam, 2009).

During the literature review and the process of designing the methodology, I became aware of some problems that could negatively affect sampling. For example, there are general global differences between PhD programs, and the Internet does not make blogs easily identifiable. Many bloggers use titles for their blogs that do not correspond to the topic of interest to the researcher (Thelwall, 2007). Many blogs are not limited to just content of interest to the researcher. It is often difficult to search for blogs “by social variables such as location, age, ethnicity or gender” (Hookway, 2008, p. 13). Furthermore, although sites dedicated to
extrapolating blogs and blog content do exist, their reliability is transient, just like the reliability of the websites themselves (Halic, Lee, Paulus, & Spence, 2010; Hookway, 2008; Snee, 2010; Thelwall, 2007). To resolve these issues, I collected an initial sample of sites from which I selected those that were the match to the criteria for final inclusion in the study.

I collected an initial sample of 31 blog sites. To locate these sites, I used a simple search query formula—“WordPress.com: phd,” “Tumblr.com: phd,” and “Blogger.com: phd”—via three widely used blog content management systems (BCMs): WordPress.com, Tumblr.com, and Blogger.com. I divided my search as equally as possible among the BCMs to ensure fairness and account for differences in site styles and structures. This initial search phase included phrases such as “my PhD,” “my thesis,” “writing my dissertation,” and “working on my doctorate.” It is worth noting that having collected the initial sample, I decided not to use three highly influential blog sites (to protect authors’ identities), because my investigation found that many had broken links, were housed on institutional servers, were no longer active, or had some commercial element (e.g., self-authored materials for sale).

The next stage of sampling involved my reading through each blog site to determine which ones met the inclusion criteria:

- The site is publicly available and does not require a member log-in.
- The site is in English.
- The site’s “About” or “About me” tab or page identifies the content writer as a PhD student.
- There is evidence that content is primarily concerned with PhD-related work.
- Content is posted over a 15-week period.
- The author’s discipline, geographic location, and gender are not factors.
The differences among terms used for PhD-related work are not factors.

**Data Analysis Process and Procedures**

Within qualitative research, there are many approaches to and perspectives on coding and the generation of codes—so much so that no single method is considered the best way to approach the task of coding (Saldana, 2011). Marshall and Rossman (2011) offered researchers a clear catchall explanation of coding centering on the importance of labels, notes, and color-coded index cards. Miles and Huberman (1994) suggested the possibility of completing a starting code list with the intention of refining it later. Bogdan and Biklen (1992) provided similar coding advice, a reading of data numerous times with the intention of completing a starting list. Confusion reigns further, as qualitative methods often use codes to imply categories and vice versa.

Moreover, codes and coding are seen by some as the necessary precursors to arrival at categories. Essentially, the process, not the label that describes the code in an assigned category, is the key to extracting meaningful insight from data. It is more important to maintain consistency, and consistency requires that researchers be “organized . . . exercise perseverance, deal with ambiguity, exercise flexibility, be creative, be rigorously ethical, and the most important skill for coding an extensive vocabulary” (Saldana, 2011, p. 29).

Taking into account the variations in coding methods, I chose to approach coding and categorizing data in two phases. Both have roots in open coding ascribed to grounded theory (Corbin & Strauss, 1990) and a theoretical coding framework similar to that of thematic analysis (Boyatzis, 1998: Crabtree & Miller, 1999). The justification for this adapted method follows the advice of Miles and Huberman (1994) to “create a ‘start list’ of codes before fieldwork” (p. 58). This start list is built “from the conceptual framework, list of research questions, hypotheses,
problem areas” (p. 58). Overall, there are numerous methods and schemes that researchers use to develop coding protocols. But the basic premise is that “you should develop your own strategy against the background of the aims and research questions as well as the sorts of data and resources in the project” (Miles and Huberman, 1994, p. 368).

Methods for Data Analysis

Qualitative content analysis was undertaken in two phases. Phase one is descriptive and deductive, and phase two is inductive and interpretive. As noted by Creswell (2007), using this approach for data analysis in a content analysis is not to suggest that this is a mixed-methods study; rather it is a hybrid version of research that makes use of both qualitative and quantitative methods. Therefore, each phase of data analysis made use of three different approaches to coding in a qualitative content analysis: conventional, directed, and summative (Hsieh & Shannon, 2005). Throughout each phase I noted data that appeared to be extraneous to the research questions, and coded data as “other”; this includes references to hobbies, sport activities, and vacations. At the end of data analysis relating to the research questions, I conducted an additional emergent phase and coded data for emerging patterns and themes.

Section One-- The Practices Related to PhD Work

The first phase followed the advice of Mayring (2000) by developing categories for coding data from the literature. Overall, phase 1 was descriptive and deductive, supporting the use of quantitative analysis within a qualitative study. Data in the study are sorted into clear and obvious categories; this approach enabled codes to be assigned, and, in turn, this naturally allowed for counting to take place (Schreier, 2012).

The purpose of phase 1 was to concentrate on describing the categories and not the narrative content of the data. Frequency counts will describe results using charts and graphs,
which is a more “vivid and descriptive way” (Schreier, 2010, p. 233) to present abstract numbers. Phase 1 used an *a priori* coding frame that I adapted from Cumming’s (2010) typology of doctoral practices. It was necessary to adapt the language of the original typology of practices (Cumming, 2010) to make coding the categories more explicit. This adaptation then made it easier to describe and accurately reflect manifest content in the data. Section 1 addressed the research questions:

- What practices related to PhD work show up PhD student blogs?
- What subcategories related to PhD work show up in the blogs?

Table 2 provides examples of analyzed data taken from the pilot study along with the assigned codes. Each category in the coding framework was assigned a unique code. These codes were used to highlight short phrases that contained the “salient essence or evocative attribute” (Saldana, 2013, p. 3) attached to the categories of practices. For both of these research questions I made use of descriptive statistics for further analysis, aided by the software capabilities of MaxQDA and Linguistic Inquiry and Word Counts (LWIC). For example, addressing the research question, what practices related to PhD work show up in blog content? The *pedagogical* and *research* categories were most prevalent.

**Section Two--Personal Contexts and Informal learning Behaviors**

Section 2 was inductive and interpretive, data analysis used the study’s conceptual framework and *in vivo* coding to explore further emergent patterns and themes. This section addressed the research questions:

- In what ways are external personal contexts impacted by the structures of the PhD-related work place?
- What informal learning behaviors show up in PhD student blogs?
Approaching data with a minimal code structure enabled new themes to emerge. The two new themes are discussed in detail in chapter IV of the study.

**Pilot Study**

Following the suggestions of Schreier (2012) and using the frameworks of Boyatzis (1998) for coding in a thematic analysis, I undertook a pilot study to ensure that my research methodology could be considered trustworthy and reliable. The pilot study afforded an opportunity to make revisions to labels, codes, and categories (Flick, 2014). I used four PhD student blogs from archived Internet blog sites. To locate the blogs, I used the URL google.com/search?tbm=blg and went manually through the returned results, visually scanning and applying the inclusion criteria to each blog. The search method used for the pilot study resulted in four blog posts. I copied and pasted the text into a .txt file and labeled it accordingly. I uploaded the files into separately labeled folders in the DEVONThink database software.

Overall, the pilot demonstrated that it was possible to find blogs of PhD students, although a number of questions were highlighted in the process. First were issues of translation. Some students who referred to their thesis were working on master’s degrees, and some students, in referring to their dissertations, were referencing their capstone undergraduate project. Previous to this, I had considered setting up a means to automate the collection of blogs using application program interface (API) software. While this method has the potential to write certain rules and protocols to collect large amounts of data in a short space of time, I realized that the return of 3,000+ results was too large a potential sample. Furthermore, this method still necessitated a manual scan of each entry to ensure that it met the inclusion criteria. Second, I became aware
<table>
<thead>
<tr>
<th>Practices</th>
<th>Sub category</th>
<th>Key Phrases</th>
<th>Example: Pilot blogs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curricular</td>
<td>(re)framing</td>
<td>Changing ideas, rethink skills, abilities</td>
<td>“There’s a lot to learn”</td>
</tr>
<tr>
<td></td>
<td>Evaluating</td>
<td>Personal goals, direction, program outcomes</td>
<td>&quot;I found out how determined I am&quot;</td>
</tr>
<tr>
<td></td>
<td>Visualizing</td>
<td>Future trajectories, career, work, outcomes</td>
<td>&quot;Finding jobs in the current economic climate&quot;</td>
</tr>
<tr>
<td>Pedagogical</td>
<td>Interacting</td>
<td>Opportunities for critical discourse outside academy</td>
<td>&quot;came back from conference inspired&quot;</td>
</tr>
<tr>
<td></td>
<td>Training</td>
<td>Skill building, knowledge, procedures, requirements</td>
<td>&quot;I’m learning how to share research&quot;</td>
</tr>
<tr>
<td></td>
<td>Presenting</td>
<td>Conference presentations using own research</td>
<td>&quot;Invited to present thesis ideas&quot;</td>
</tr>
<tr>
<td>Research</td>
<td>Reviewing</td>
<td>Reviewing literature, other studies, types of research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Designing</td>
<td>Deciding on research approach, methods</td>
<td>&quot;This is sometimes too hard&quot;</td>
</tr>
<tr>
<td></td>
<td>Writing</td>
<td>Writing research, writing dissertation/thesis</td>
<td>“I have the first draft”</td>
</tr>
<tr>
<td></td>
<td>Theorizing</td>
<td>Theorizing, critical inquiry, questioning</td>
<td>&quot;way too complex a theory&quot;</td>
</tr>
<tr>
<td>Work</td>
<td>Publishing</td>
<td>Articles peer-reviewed journal, online journals</td>
<td>&quot;Exposure to nameless grammar geeks&quot;</td>
</tr>
<tr>
<td></td>
<td>Producing</td>
<td>Thesis, Dissertation success</td>
<td>“I’m DONE!”</td>
</tr>
<tr>
<td></td>
<td>Volunteering</td>
<td>Others research, Interviews, community service, tutoring</td>
<td>&quot;Organizing a workshop&quot;</td>
</tr>
</tbody>
</table>
that blog entries of unequal lengths by different bloggers would have to be taken into consideration. Third, I had to spend more time familiarizing myself with using MaxQDA.

**Qualitative Analysis of Data Using Computer-Assisted Software (QADCAS)**

In recent years, the world of qualitative research methods has been dominated by discussion of the uses of qualitative software programs to assist in analyzing data. Many programs available to researchers do not fit the needs of qualitative content analysis, and programs currently offering opportunities for content analysis are predominantly quantitative (Schreier, 2014). There are software solutions available that cross the divide between quantitative and qualitative requirements, but there is more work to do in developing software specifically for qualitative content analysis (Schreier, 2014). More important, software must not come with a steep learning curve and high price tag. Furthermore, while many researchers are using software for qualitative analysis, it would appear that too few write up how they made use of the software (Paulus & Lester, 2013). This leads to criticisms that are often not issues related to the software per se, but rather commentaries on inconsistencies between a particular program and a researcher’s methodology (Paulus & Lester, 2013).

Given the concerns, the decision to use software for this study was made by addressing four questions: “(a) What kind of computer user am I? (b) Am I choosing for one project or for the next few years? (c) What kind of project(s) and database(s) will I be working on? (d) What kind of analysis am I planning to do?” (Sage Research Methods, 2008, p. 5). By anchoring my decision to use a QADCAS program based on these questions, I am confident that my method for analysis was reliable and credible. I chose to use MAXQDA 12 with MAXDicto because the current version provides content and text analysis features. While this study is qualitative, MAXQDA provides good functionality for statistical analysis and data visualizations. Because
this study is not concerned with complex web data such as images, audio, and graphics, MAXQDA provided enough functionality to assist in data analysis.

**Issues of Trustworthiness**

Because of the nature of qualitative research design and the diverse array of available methods (Merriam, 2009), researchers must be aware of questions about quality and trustworthiness in their research (e.g., Do the conclusions of the study make sense? Is it possible to follow or retrace the researcher’s steps?). Following the advice of Bloomberg & Volpe, (2015), Lincoln and Guba (1985), and Merriam (2009), I took the following steps to address issues of trustworthiness in this study.

**Credibility, Dependability, and Transferability**

There are a number of techniques available to ensure research credibility. Throughout the study, I used a peer review process to establish credibility. At the study’s conception, I had identified a professional in my field who agreed to act as a peer reviewer. Throughout the study I along with my peer reviewer checked the initial codes and subsequently continued to compare results as the study moved forward. The codes and coding book (appendix, 1) were examined for trustworthiness using the criteria and associated memos provided by the conceptual framework. A Percentage Agreement formula was applied to this study. Results were as follows:

\[
\frac{\text{# of ratings that agree}}{\text{total # of ratings}} \times 100 = \% \text{ agreement} \quad 236/271 \times 100 = 87\%
\]

At 87% the coding rules and codebook were deemed within an acceptable range for trustworthiness. In addition, I maintained direct dialogue with other PhD students in relation to the study’s processes to aid in establishing credibility about my emerging findings and conclusions (Merriam, 2009). Although I collected data over the course of a few days, I spent a large amount of time engaged in revisiting the data.
As I reviewed the data, I was careful to take notes. I took note of those elements that required decision making and sought out opinion for clarification to aid my understanding and to ensure that I was continually cognizant of potential bias in my interpretations. For example, in one of my research notes, I wrote the following:

Some bloggers included in the study used metaphorical images to supplement text. I noted the need to decide whether the images would remain in the data set. I consulted with my peer reviewer, who helped me decide whether to include the images: If the metaphor in each image was clear and obvious and lent depth to the text I included it, whereas if the image was not obviously connected to the text, I removed it from the data.

Ten days after I had initially coded the data, I revisited the coding to check and amend it where necessary. This method ensured that my coding was credible and dependable. This credibility was important given that when a researcher initially uses a predetermined coding structure, one of the biggest problems is ensuring that the codes do not take precedence over the data. I was aware of the possibility that the codes could drive my interpretation of the data—that is, I was at risk of coding what I expected or wanted to find (Bloomberg & Volpe, 2015). Therefore, along with “prolonged involvement” (Bloomberg & Volpe, 2015, p. 163) with the data, I made sure to take adequate notes and memos. These act as an audit trail to increase the dependability of my data analysis approach, eventual findings, and conclusions.

To address further issues of dependability regarding the data set, it is important to note that given the volume of textual data; it is not possible to include a complete copy of the final data set as an appendix in this study. However, I can make the data “available for review by other researchers” (Bloomberg & Volpe, 2015, p. 163). In doing so, I am addressing the question
of confirmability; that is the depth to which my data and the characteristics I associated to the data can be confirmed by others in reviewing my work (Zhang & Wildermuth, 2005). Although, mostly, the nature of this qualitative study means it is not possible to expect that findings are transferable or generalizable to all blog spaces; by following the research steps described, it is possible to apply this method to other researchable phenomenon.

**Ethical Considerations**

In all qualitative studies, irrespective of approach, consideration of the researcher’s ethical obligation to the participants is of paramount importance (Creswell, 2009). In this study, the same fundamental ethical principles are applied to the context of the PhD student blogs. Thanks to the explosion in web-based communication, the technological infrastructure of the Internet, and overall proliferation of Internet use for daily life, the ethical considerations for using online data for research are not clear. However, Hookway (2008) noted some very clear ethical issues related to using the Internet as a site for data gathering. First, there is the question of whether blogs are public or private. Second is the question of how to maintain anonymity when it is possible to find data sampled from the Internet with a simple query. Both issues pose some real difficulties for the researcher sampling data from the Internet. Therefore, for this study and to protect the anonymity of the bloggers, no personally identifying information will be collected. The names of institutions and organizations will be omitted, along with names of faculty, staff, and others.

To limit the possibility of search terms’ exposing a blogger’s identity, I have made every effort to anonymize the text. The study contains some limited in-text verbatim quotations and examples directly extracted from the sample text, however many of the in-text quotes are not verbatim, and I altered some wording making use of paraphrasing (American Psychological
Association (APA); Markham & Buchanan, 2012; Wilkinson & Thelwall, 2010). The system for referring to the blogs uses a simple numerical convention, in-text citations identify the blog number along with a paragraph and or line number. Ultimately, as noted by Hookway (2008) and Snee (2010), blog data are in the public domain and freely available.

Therefore, taking into account the nuances and potential of Internet research to blur more traditional ethical issues, I had sought guidance from the Institutional Review Board and received confirmation that the topic of the study, data collection, and subsequent analysis and reporting would not harm any human subjects. I was careful to follow the ethical guidelines set out by the Association of Internet Researchers (AoIR), of which I am a member. For this study, then, the fundamental ethical obligations required by any qualitative study will be applied to the context of PhD student blogs. Furthermore, the Internet as a site for research is not exempt from ethical obligations. However, blogs sampled for this study will be treated as “public acts of writing for an implicit audience” (Hookway, 2008, p. 105).

Delimitations and Limitations

A qualitative researcher should minimize the extent of a study by offering delimitations and recognizing any obvious weaknesses by determining the study’s limitations (Creswell, 2009). The initial topic for this research suggested too broad a scope, so I first set about making some decisions regarding the boundaries of the study. Conceptually, I am aware that knowledge sharing has different implications and understandings across disciplines, and although knowledge sharing is broadly defined as actions or behaviors that involve the passing of knowledge from one individual to another (Jahal, Toulson, & Tweed, 2011). I made the decision to include blogs in the sample that did not necessarily demonstrate reciprocity (i.e., postings did not have to have replies). I made this decision based on the understanding that by blogging in the
public domain people are intentionally offering their knowledge, ultimately for sharing purposes and the potential that others will comment.

As a methodology, qualitative content analysis has numerous variants in approach, and it is not clear how these connect to one another (Schreier, 2014). Therefore, I made the decision to use a toolbox qualitative approach supporting both deductive and inductive methods of data analysis to draw out themes reflected in the literature. I did not draw out of the data any themes that emerged unrelated to PhD-related work.

Data collection took place in one snapshot, the study did not follow or establish an ongoing relationship with the blogger, and no bloggers’ identities are revealed in the study. The study is limited to the content analyzed in the sample. Therefore, the findings are not generalizable to all PhD students who blog. My position as a PhD student has the potential to influence the choice of blogs to include in the sample. I spent much time reflecting on this issue and my experiences as a PhD student, and concluded that while bias is inherent in any research, understanding the necessary sequential steps in the research process provided support in my effort to remain objective (Moustakas, 1994). I chose not to limit the study to any particular country, which further limits the generalizability of findings. In different countries PhD students complete either a thesis or dissertation with different styles and formats, and this factor was also a limiter.

**Chapter Summary**

The richness of the qualitative data available from the blog sites required an ethically sound research design. The sampling technique was a nonprobability purposive sampling approach. The data was retrieved from the Internet. Analysis of data was carried out using MaxQDA, a computer-aided qualitative software. The identities of bloggers were not revealed in
the study. The study is limited to the content analyzed in the sample. The findings are not
generalizable to all PhD student blogs. The study used data not confined to a particular country,
which further limited the generalizability of conclusions. In different countries, PhD students
complete either a thesis or dissertation with different styles and formats, and this was a factor
taken into consideration.
CHAPTER IV
THE BLOG NARRATIVES

The purpose of this qualitative content analysis was to explore the context of the Blogosphere as an informal learning space, specifically looking at the content of PhD student’s blogs, what the content of these blogs show us about PhD-related work practices. Before the proliferation of the Internet and social media, we did not have the access to listen in whenever and wherever PhD students gathered outside of the formal classroom and the laboratory to share their ways of knowing the practices related to PhD work practices. By exploring blogs, we eavesdrop unobtrusively and expand our knowledge of the contexts of PhD-related work (e.g., what are the students writing about? what PhD-related work practices are shared? What challenges are presented associated with PhD-related work.).

The chapter organization is as follows. First is an introductory statement on the sampling process with an explanation for how the final data was reached, including a demographic overview of the data, and coding procedure. Next are the blog narratives, followed by a summary of the chapter.

The Sample

The blogs were obtained using a nonprobabilistic purposive approach. This method initially returned a sample of 31 PhD student blogs from which 15 were randomly chosen as they met the inclusion criteria for the study. The decision to choose 15 met the importance of reaching a saturation point, but also, the decision to limit the number of blogs and blog postings was taken for pragmatic reasons; in part governed by the researcher’s time frame and in consultation with similar research studies. The final data comprised 14 blog, as one blog, on closer examination did not fit the inclusion criteria.
Demographic Data

This study was not limited to a geographic location neither was gender or discipline considered an important factor when scanning blogs to include the final sample. In fact, given the peculiarities of how bloggers choose to present themselves, it was sometimes difficult to attribute certain demographic identifiers to the blogs. However, where possible demographic details were captured. In turn this data provides clarity and helps to develop rich, thick (Denzin, 2001), and detailed narratives for each blog. The demographic data is summarized in table.3.

The data was entered into Computer Aided Qualitative Data Analysis Software (CAQAS) and using the conceptual framework as a framing lens for the coding process and data reduction, a coding beginning coding structure was input into the software. For each code and associated sub-code, a descriptor was provided to aid consistency, credibility, and validity. To further establish credibility and dependability for the coding structure and coding progress I along with another researcher checked the initial codes and subsequently continued to compare results as the study moved forward. The codes and coding book (appendix, A) were examined for trustworthiness by both coders using the criteria and associated memos provided by the conceptual framework. A Percentage Agreement formula was applied to this study. Results were as follows:

\[
\frac{\text{# of ratings that agree}}{\text{total # of ratings}} \times 100 = \% \text{ agreement} \]

\[
\frac{236}{271} \times 100 = 87\%
\]

At 87% the coding rules and codebook were deemed within an acceptable range for trustworthiness.
Table 3

Demographic data from the 14 blogs analyzed

<table>
<thead>
<tr>
<th>Blog</th>
<th>Gender</th>
<th>Country</th>
<th>Program status</th>
<th>Discipline</th>
<th># Blog words</th>
<th># Posts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blog_01</td>
<td>Female</td>
<td>USA</td>
<td>part-time</td>
<td>Education</td>
<td>6,801</td>
<td>12</td>
</tr>
<tr>
<td>Blog_02</td>
<td>Female</td>
<td>UK</td>
<td>full-time</td>
<td>Humanities</td>
<td>5,896</td>
<td>18</td>
</tr>
<tr>
<td>Blog_03</td>
<td>Male</td>
<td>UK</td>
<td>full-time</td>
<td>Music</td>
<td>4,767</td>
<td>17</td>
</tr>
<tr>
<td>Blog_04</td>
<td>Female</td>
<td>UK</td>
<td>full-time</td>
<td>Humanities</td>
<td>14,260</td>
<td>22</td>
</tr>
<tr>
<td>Blog_05</td>
<td>Male</td>
<td>UK</td>
<td>full-time</td>
<td>??</td>
<td>20,187</td>
<td>28</td>
</tr>
<tr>
<td>Blog_06</td>
<td>Female</td>
<td>USA</td>
<td>full-time</td>
<td>STEM</td>
<td>7,200</td>
<td>25</td>
</tr>
<tr>
<td>Blog_07</td>
<td>Female</td>
<td>UK</td>
<td>part-time</td>
<td>Social sciences</td>
<td>12,341</td>
<td>45</td>
</tr>
<tr>
<td>Blog_08</td>
<td>Male</td>
<td>USA</td>
<td>part-time</td>
<td>Education</td>
<td>8,704</td>
<td>14</td>
</tr>
<tr>
<td>Blog_09</td>
<td>Female</td>
<td>Sweden</td>
<td>full-time</td>
<td>Humanities</td>
<td>15,768</td>
<td>21</td>
</tr>
<tr>
<td>Blog_10</td>
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<td>UK</td>
<td>part-time</td>
<td>Health Sciences</td>
<td>12,725</td>
<td>16</td>
</tr>
<tr>
<td>Blog_11</td>
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<td>UK</td>
<td>full-time</td>
<td>Health Sciences</td>
<td>4,208</td>
<td>11</td>
</tr>
<tr>
<td>Blog_12</td>
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<td>AUS</td>
<td>full-time</td>
<td>Library Science</td>
<td>4,473</td>
<td>17</td>
</tr>
<tr>
<td>Blog_13</td>
<td>Male</td>
<td>USA</td>
<td>full-time</td>
<td>Urban Planning</td>
<td>4,762</td>
<td>11*</td>
</tr>
<tr>
<td>Blog_14</td>
<td>Male</td>
<td>USA</td>
<td>unclear</td>
<td>Counselor Education &amp; Supervision</td>
<td>12,737</td>
<td>17</td>
</tr>
</tbody>
</table>

*Post contained a notebook image file as a blog entry

The Blog Narratives

At the heart of qualitative research is storytelling, but not just storytelling for the sake of it—the goal is to convey the story from data in such a way that it is “vivid and interesting while also accurate and credible” (Bloomberg & Volpe, 2015, p. 207). The following narratives in this
chapter draw on the art of storytelling in these PhD-related work blogs—to ultimately tell the story of the blog content. The content of each blog is recorded as a separate narrative, and even though the descriptions contain in-text citations, I have made every effort to anonymize the text. In line with the advice of the American Psychological Association (APA), and numerous researchers working with Internet data (Snee, 2013, Wilkinson & Thelwall, 2010), many of the in-text quotes are not verbatim. I have altered some wording and made use of paraphrasing in the hope that these narratives of PhD-related work practices from the blogosphere illuminate, illustrate, and deepen our exploration and further our knowledge of the world of the PhD in the 21st century.

**Blog_01**

A female PhD student living in the United States wrote Blog_01. She was a full time employee with an additional part-time research position, a parent and a volunteer. By her admission, she acknowledged that the jobs all encroach on her dissertation work, which at times seemed as if pursuing a PhD were just a romantic and academic exercise (Blog_01, para. 110).

The content of the blog opened with a statement that the blogger intended to blog “from here to the end of my PhD” (para. 2). She then centered on juggling many roles and responsibilities, and inevitably PhD-related work having to take a back seat to other areas of her life. The blogger wrote at length about living a digital life and how to maintain a digital identity as a means to collect thoughts and ideas. One key concern was the time required to complete a PhD—she freely admitted to being “tired,” yet at the same time the tone was hopeful, as the blogger had found some coping strategies. She commented that these strategies would make it possible to “compartmentalize” all the tasks required “to do the work” (para. 110); after all, writing a dissertation is just work.
One reflective post illuminated the blogger’s thoughts on attending a conference for the first time. This experience of sharing ideas with others was noted as being very valuable, and she commented on being offered suggestions that helped to “think about some readings and approaches” (para. 60). The blogger acknowledged having engaged in “great conversations” around topics of interest, and her desire to present at next year’s conference. The only direct and explicit comment related to PhD work was a reference to the creativity involved when coding data.

The next time that the blogger wrote, she had completed the required PhD coursework, successfully defended her research project, and was busy collecting data. The last few entries provided a glimpse of the PhD-related work with which the blogger was struggling. She referred to the process of writing a dissertation as bringing up “painful emotions” and having “been at this long enough” to realize that academic work was no more special than any other work. Striking was the air of despondency that the blogger transmitted when discussing the implications for successfully completing a dissertation, as if they had little or no impact (para. 106). The blogger offered this thought: “I’m in one of those lulls where the work seems overwhelming, and the point of it is not too clear” (para. 107). Also indicated were data collection concerns. She was not sure if she was asking the right questions when interviewing her participants, although the post did note that collecting the data was fun (para. 108). The blogger wrote about the difficulties in fulfilling separate roles (e.g., how to switch identities from researcher back to teacher). This was particularly challenging given that the blogger was interviewing and surveying her own students. Last, the blog highlighted a question about the blogger’s ongoing concern about having something to say in her research while contributing to a wider academic audience.
Blog_02

A full-time female PhD student living in the United Kingdom (UK) wrote Blog_02. The blog began with a discussion on the importance of blogging academic research along with the benefits and possible drawbacks. To find out what an academic blog should contain, the blogger attended a 2-day research blogging workshop, arranged by a consortium of local colleges. One of the issues was concern about how much to blog, or “putting too much of myself out there” (Blog_02, para. 8). The blogger further emphasized worry of sharing research ideas before they made sense, and perhaps giving away “too much of my personal life” (Blog_02, para. 9).

Nevertheless, she determined that blogging about PhD-related work was an important aspect of academic life, even with concern “about what a potential employer [would] find” (para. 13).

In a reflection regarding research methodologies she was still concerned about “saying too much too soon” (para. 10). Relatedly, she later explained that it was important for a PhD student to “take control of [your] online presence” (para.17) and that contributing to academic conversations via the Internet was an important part of her life and her research. She commented, “I . . . enjoy these activities . . . I am a better student [and] more connected with a wider” academic audience (para. 19).

Also discussed on the blog was attending and presenting at numerous discipline specific conferences, and that different research and ideas might not initially appear connected, but connections can be made through reflection (para 38). She hinted that she was beginning to feel confident in presenting her research, and that she felt “educated, inspired, and enlightened” (para. 40). The nature of these posts indicated that the blogger was becoming immersed in PhD-related work (e.g., attending other conferences, writing an abstract for an article, actively tweeting research ideas).
After being silent for 3.5 months, the blogger apologized, and the next several posts dealt with the challenges of PhD-related work. She had been, by her admission, busy working on her PhD, doing “lots [of] PhDing” (para. 92), collecting data, and completing an internship. The blogger discussed the issues of maintaining an online presence, conceding that trying to maintain an online presence was exhausting, particularly for PhD students, who need to keep up on everything from conferences to publishing opportunities. The blogger had attended three college-sponsored workshops aimed at doctoral researchers and having a professional online presence. However, with the number of social media tools and networks, her question was whether it was necessary to maintain an online presence. In surveying her peers’ on their use of social media technologies, some actively engaged while others wanted nothing to do with maintaining an online presence (para. 108). In the end, she had decided to take a step back from social media to focus on producing “high-quality work” (para. 118) for her PhD.

Additionally, the blogger had enrolled in a Massive Open Online Course (MOOC), “How to Survive your PhD,” organized by ThesisWhisperer.com. The discussion centered on the emotional life of pursuing a PhD, and the blogger was relieved to find out that other PhD students also experienced the ups and downs of the “emotional journey” of the PhD (para. 126). Indeed, she admitted that, at times, she had suffered from a feeling of inadequacy and a fear of being revealed as a fake (para. 130), known as imposter syndrome, and she discussed the importance of having a good support system to keep her grounded through the process (para. 137).

The final entry of Blog 02 focused on the blogger’s relationship with her PhD supervisor. This was in direct response to the MOOC module for the week, which asked participants to examine their relationships with supervisors. The blogger freely admitted to never having had a
bad experience with a supervisor (para. 137), which seemed to run contrary to other MOOC enrollees’ experiences. The blogger’s supervisor made her feel “supported and secure in [the] research environment” (para. 137).

**Blog_03**

Blog 03 was written by a student who had just finished an undergraduate degree and was now in the UK as an international student to begin working on a PhD. The initial post hinted that the student’s PhD topic involved music and electronic devices. The blogger began with “so many aspirations and hopes, and dreams, and everything” (Blog_03, para. 8), and then referred readers to a Web page explaining the initials for PhD, listing 35 examples of PhD, from “patiently hoping for a degree” to “proudly half dead” (para. 8, line 41). Following, in what appeared to be stream of consciousness, the blogger wrote on disconnected topics such as paying into a pension plan, taking out a loan for a computer, and insuring a new cell phone. The blogger then discussed the importance of mobile technologies, indicating that Skype, along with owning a cell phone, was of crucial importance “to a PhD student [who] has no life” (para. 64), and then referenced being impressed with the library’s music collection (para. 65).

An undertone of isolation and loneliness permeated the beginning of the blog, with the blogger claiming exhaustion from the first week’s orientation activities. Expressing relief that the first week was nearly done, the blogger wrote “I really cannot take any more of this” (para. 68). Having to socialize was one of the problems highlighted, “all I do is talk about myself and my research project” (para. 68). Understanding that this was a necessary part of PhD-related work, the blogger shared a realization that “what [PhD students] have to do in order to succeed . . . study harder, research harder . . . and socialise” (para. 69). The blogger discussed organizing study time, the coursework, voluntary work at the library in the music collection, and an
upcoming meeting with two advisors. The immediate focus was an upcoming poster presentation to other graduate students where they would all present their research topics to each other.

Additionally, the blogger referenced working on a research proposal essay, but did not want to share further information in a blog post (para. 76).

Although there was a reflection on the blogger’s progress during week 2 in the program, the blog was silent for a few months. When it became active again, blogger expressed feeling exhausted and worn out, even “talked out” (para. 91) which was leading to feeling “disgusted about [the chosen] topic” (para. 91). The post hinted at the blogger feeling depressed, but also beginning to settle into PhD life.

**Blog_04**

A female full-time PhD student who lived in the UK and whose research related to digital media performance wrote Blog_4. Although beginning with the intention to blog the whole PhD process, this was unrealized. The blogger shared that she was surprised that she did not make a fool of herself when meeting with her supervisor (Blog_04, para. 7). She admitted to earlier having felt that the work had thrown her off a horse, but after the meeting, she felt back in the saddle, exclaiming, “I think I just might survive my first year” (para. 9).

Sharing an experience of attending a workshop aimed at presentation skills, she noted that the workshop also gave advice on how to speak to people “you don’t know terribly well” (para. 11). However, when reflecting on a “tiring week” that included three days in London attending a conference, she admits to being new “to the whole academic conference experience.” There were interesting and intelligent people, and although the conference was engaging, its purpose was unclear. Her prevailing sentiment was that in pursuing PhD work one can expect to feel at times like one does not fit in (para. 20). She does proceed with completing a project for a
conference submission, which provided opportunities to work with other professionals. When she next attended a conference, she described it as an incredibly valuable experience, so much so that it “knocked my socks off” (para. 61), even hinting at “a brilliant new take on my thesis” (para. 64).

After the blogger next met with her supervisor, she reflected on the range of emotions she experienced as a result of that meeting. Initially she writes that “everything is positive and promising and clear . . . the next day I dive in to tackle what now seems so thrilling, so doable” (para. 34), she then realized that her work would take a long time to complete. Her response is to make an action plan —“and stay on top of it” (para. 34). She talked about actively tweeting ideas and opinions on her research, but did not further elaborate.

After nearly 6 months of blogging, the blogger reflected on attending theater performances where one “was practically a case study for my ideas” (para. 69); this was the first time that the blogger appeared to be making connections that related to her research. She then shared her struggle to write chapter one of her thesis while preparing to teach a course on digital media use for research.

The next few blog entries shared the same title: “Becoming and Being” (para. 76) and were clearly aimed at piecing together the experiences of attending conferences, completing coursework projects, writing and researching, and her thesis. The blogger reported that the first piece of the literature review was completed, and work had started on a research proposal. She shared anxieties based on a concern that no one except her supervisor had read anything regarding her research ideas, and that “it’s going to be read by someone who is part of a large institution” (para. 94). This provided a glimpse of the blogger making connections and seeing how her PhD-related work fit as part of the wider institutional academic community. She
admitted that she was worried about writing at a PhD level and not coming off as a “jerk” (para. 96). She had mentioned being a member of an informal reading group and that she had chosen a chapter on ethnography as one of the assigned group readings. Although there were no additional insights into her thoughts on the reading or the group’s discussion, she continued writing about other experiences, such as a cycling vacation, working as a student volunteer, and, most relatedly, presenting research ideas to other PhD students “who gave me some excellent feedback” (para. 57).

In preparation for conducting a pilot test for her research, the blogger grappled with learning computer programming. It appeared that this learning was self-directed, as there was no mention of a formal class. However, she noted that after much thought, she had a breakthrough in her research and thesis and recognized that with some refinements, her study was possible. After finally submitting her proposal, attending additional workshops and conferences, she was starting to acknowledge “enjoying the sensation of actually knowing a tiny, tiny bit about something” (para. 172). However, the blogger hinted at feeling depressed by deadlines, too many readings, and waiting more than seven weeks for feedback regarding her research proposal.

Following lengthy posts on travel, attending conferences, touring and performing at art festivals, and being exhausted—and somewhere amongst these activities, the blogger completed her thesis. She ended by sharing that she was finishing some edits to her completed thesis before her final oral exam, and that her supervisor offered her a part-time research position.

Blog_05

A full-time, male PhD student in the UK wrote Blog_05. He began his blog with lengthy advice on using social media and Web 2.0 technologies to keep “up with academic topics, [and] new research” (Blog_05, para. 1). The blogger meticulously laid out the pros and cons for six
software tools that he claimed would empower any student (para. 1). He also referenced the importance of reading and keeping up with the advice that is available through academic blogs. Commenting on the use of technology, the blogger expressed bewilderment at “how researchers not so long ago coped without the Internet” (para. 20).

The blogger explained that one of his reasons for pursuing a PhD was prior academic success throughout school and as an undergraduate, and that he intended to enter academia to become a future faculty member. At one point he attended a career advice workshop designed to support those seeking careers in higher education as faculty members, and shared that the useful part of the event was “the opportunity to talk informally in small groups” (para. 50).

He had set high academic standards for himself, but he recognized that this was not the case for everyone; in fact, according to the blog, part of becoming an academic was dealing with failure and rejection (para. 30). He highlighted stories found on the Internet where PhD students experienced academic failure, particularly with trying to publish articles. However, the blogger indicated that he had a “supportive supervisor”, who was willing to mentor and help students publish. He iterated that this was of crucial importance “at the beginning of your [academic] career” (para. 30). However, he disclosed having received a rejection for a journal article that was a collaboration with his supervisor. The blogger commented that he hoped for better success when trying to publish his own “PhD-related work” (para. 36). Overall, he acknowledged that success required “the support of good role models and mentors” (para. 36).

Through one entry there is an indication of the blogger’s experience of imposter syndrome (para. 38). He explained that being new to academia as a PhD student can be “terrifying,” and that there was “pressure to excel in my new chosen career” (para. 39). The content of the post spoke to watching faculty go about their work, and that it seemed that one had
to be constantly contributing something of value to others. The blogger worried about being part of a research team and “messing up” in some way, and that it was “horrifying” to think if he got the statistics wrong there was the possibility of publishing wrong data. The blogger indicated that what helped to deal with feelings of impostership was having a supportive group around who also made mistakes.

The blogger was dedicated to working on presentation skills and had an opportunity to present a workshop on presentation skills to his department. He shared the compilation of the notes and handouts for the workshop and covered every aspect from engaging one’s audience to the style of bullet points one should use.

After attending an international conference, the blogger shared that before leaving he felt “terrified” of traveling alone (para.70). The conference experience was “amazing,” and even though some of the content was not relevant to the blogger’s topic, it was “still interesting” (para. 70). In other conference sessions, the blogger took copious notes on the “new, unpublished research being discussed,” which was incredibly relevant and useful. The blogger felt that listening to the latest research in his field was “awesome and inspiring” (para. 70). He concluded by reflecting on how the conference sessions had planted ideas and questions in his mind. At the same time, however, the blogger reflected on having to network, which he described as nerve-racking, while still acknowledging how crucial it is for an academic career.

At the conference he had given a small presentation that led to meeting people and subsequently having enough courage to ask questions in another session. The hardest part for the blogger was talking about his research; people asked additional questions that he was not ready to answer, and he believed that once he had published an article on the topic, it would be easier
to discuss. In a summation of the experience, he expressed that the conference was exciting, but it was also “an intense physically and mentally draining experience” (para. 74).

Should a PhD student spend leisure time with his or her supervisor? This was a question the blogger put forward and, similar to his approach on learning how to network at a conference, he sought answers through immersion in the online world of PhD blogs. The blogger was interested in “the PhD rite of passage” and consequently admitted to being fascinated with talking to others about their PhD experiences (para. 44). He turned to an academic blog for advice on spending time with his supervisor. One recommendation he read online was to never do anything too embarrassing in front of a supervisor, but the blogger admitted to having already been drunk in front of his supervisor and other faculty. He did offer a caveat to his indiscretion, stating that having a beer or two after work is just being friendly, but one must find a balance.

Regarding attendance at a workshop in the first year of his PhD program on writing a thesis, the blogger stated that the information was somewhat useful, but probably more so for those who were further along in the writing process. The blogger acknowledged the “looming” writing process and commented that the end goal was achievable by taking small steps (para. 93). Again the blogger acknowledged receiving much advice regarding thesis writing from other PhD students who had shared information online and he forwarded two writing suggestions: (a) keep a blog in order to “practice your writing, work on your style and communicate about research” (para. 95), and (b) practice writing shorter informal pieces and show them to your supervisor— “Who knows? They might think your writing is worth publishing” (para. 152).

In another blog entry the blogger addressed data collection issues, and particularly missing data. He wondered whether to handle it by either by making it up or filling in the blanks in a dataset. The blogger readily admitted that he needed to do more reading on this topic. For
this, he will undoubtedly reach out to other PhD bloggers. He continued to talk about the importance of gaining information from other academic blogs and thanked these bloggers for being “inspiring” (para. 106). At the same time, the blogger hinted at not being very productive and trying to understand why. Although making to-do lists were helpful, it takes time to make a list. He admitted to being a procrastinator who spent too much time on non-PhD related online activities. One of the problems he highlighted was that reading about PhD-related work on the Internet could fool one into believing that one was, in fact, doing PhD-related work (para 109). As well, the blogger reported that he struggled with e-mails related to his research position in the department. He fretted over reading and rereading them to make sure he understood the content.

**Blog_06**

A female PhD who lived in the United States wrote Blog_06. She described herself as a single parent of child in the first grade, and herself having supportive parents who lived 2 hours away. Her research work was in marine biology. She had been a science instructor at a community college for a few years but had always wanted to pursue a PhD. The blogger was at the beginning of her PhD-related work and noted the intent to blog about the whole process. The blog content was a mix of posts on research practices, balancing lab work as a parent, teaching assistant responsibilities, attending classes, and coursework obligations.

The blogger discussed balancing the roles of PhD student and parent and how often it seemed that even with planning schedules, parenting threw her “a curveball” (Blog_06, para. 70). She described an unforeseen school closing that created “chaos” (para. 70). The school closing clashed with her schedule to teach an undergraduate class and the blogger did “not know the policy for substitutes” (para. 70). Having made calls to the supervising professor without success, she drove two hours to meet her parents to drop her child off and had to repeat the drive
the following day. On reflection, she realized that she needed to develop a support network that could help her with child care. She also wrote of the difficulties of trying to accomplish PhD work late at night after her child had fallen asleep. Often the blogger stayed up late, commenting, “[I] was up til two, which makes the 7 am alarm hard to achieve” (para. 111). In blogging about her weekly schedule that included such routines as making packed lunch for school, arranging after-school care, and cleaning the house, she commented, “There are not enough hours in my day” (para. 58).

In the content directly related to PhD work, the blogger wrote about studying for classes, needing to be in a lab to fulfill some of her research obligations, grading exam papers, and taking an exam. A large concern for the blogger was finances, and particularly certain graduate school fees. After receiving one invoice, she commented, “I seriously considered throwing this experiment away” (para. 148). A weekly lab meeting was an opportunity for students to present to one another their research, but the blogger described this as “grad school hazing” (para. 160); she noted that her own chance to be hazed was coming up in a few weeks. In other posts, the blogger indicated that she was frequently tired, felt like she was behind with coursework deadlines, organizing her group coursework project, dealing with her sick child, and was becoming unwell herself. At the end of the blog, she reflected on the challenges of the first semester of graduate school and decided to develop a new and improved schedule for the start of the new year, which would include taking comprehensive exams and writing her research proposal.

**Blog 07**

A part-time PhD student living in the UK and employed full-time at her college as a research assistant wrote Blog 07. Her topic was on the social impact of research. Most of the
blog content focused on the practices of research. Given the length of the content, it was conceivable that the blog served as an informal space for academic writing, although this was never explicitly stated.

Initially the blogger acknowledged feelings of anxiety and excitement at starting a PhD, conceding several concerns, such as not “being clever enough to do a PhD,” “I will have to do public speaking, and will be awful at it,” and “I will find it too hard to do while working full time and will get overly stressed. I will fail” (Blog_07, para. 49–50). These do not appear to be too consuming, as later in the post the blogger managed to reflect and strategize, recognizing and voicing positive thoughts about herself and recent accomplishments (e.g., having already gained professional experiences publishing and opportunities to attend academic conferences).

The blogger reported feeling nervous preparing for her first official meeting with her supervisor, concerned she would not present her research topic clearly enough: “I had nightmares of turning up and my supervisor saying ‘well, that all sounds very broad’” (para. 86). After discussing her concerns with her “mentor,” the blogger tried to contextualize her ideas and had already mapped out her research approach and methodology, commenting “hopefully, she will not think it is complete nonsense” (para. 90).

The blogger wrote that the institution at which she worked and studied offered developmental courses for PhD students and one of these sessions dealt with referencing and capturing information. She wrote at length about the importance of software solutions for capturing PhD-related work. The post was a long description of the features of a referencing software useful to a PhD student, and she referred to the software as “amazing” and a “godsend” (para. 110). Related to software, the blogger noted she was a regular visitor to the Internet site and Twitter feed for #PhDchat; she referred to this resource as a “real lifeline,” a place where she
could talk online with other PhD students, get advice, share, and “learn from experiences” (para. 144). Similarly, she noted sharing and successfully discussing academic work online. Having written an article on publishing research online, she commented, “this week I had my first peer-reviewed article published since starting my PhD” (para. 126).

Much of the content of Blog_07 related to research methodologies. The blogger wrote at length on the topic of “pinning down [a] methodology” (para. 193). The discussion stemmed from her attendance at a couple of conferences; the blogger wrote, “I needed to spend . . . time [wondering] how the discussions . . . could improve . . . my research” (para. 194). She freely admitted that methodology was not her favorite topic of debate, so it made sense to blog about it because it could be of benefit to another and “maybe connect [her] with some people who have been exploring their own methodology issues” (para. 196). She continued with a detailed exploration of how to do research, how this impacts one’s choice of methodology, and subsequently which research method she had chosen. The blogger constructed her potential research questions, articulated her choice for a qualitative study using semi-structured interviews, discussed using literature from the field, and planned her pilot study.

Some months later, following an “intense” (para. 293) meeting with her supervisor, the blogger shared that she had been encouraged to return to the more basic and fundamental aspects of research. She admitted that she had been struggling with most aspects of undertaking research, acknowledging having made the “mistake of trying to . . . [understand] methodology theories through reading . . . articles” (para.287). On the advice of her supervisor, the blogger also attended some basic research classes to ground herself in the right material. Aside from formal classes and coursework, the blogger believed that the use of social media and the Internet were important learning tools “for finding information and learning these core concepts” (para. 290).
In a later blog entry, the blogger mentioned that she was pregnant and trying to “reconcile it with my current PhD and career plans” (para. 299). She used her blog to reach out to others for advice on parenting and pursuing a PhD. She followed this brief outreach with a lengthy discussion about her attendance at an innovative workshop on research design using Legos. Legos were used as visual aids and metaphorical tools with the idea to give “people a new way to express and explore complex subjects and ideas through a creative method” (para. 382). In reflecting on this experience, the blogger gained some insight into her experiences of PhD-related work and had decided to represent her PhD journey as “a river in Legos” (para. 390). The post revealed another side of the blogger, one in which she had developed a sense of herself as a researcher and was willing to recognize her obstacles and challenges. Blog_07 ended with the blogger deciding how to incorporate Legos into her data collection method.

**Blog_08**

A male full time student pursuing a PhD in education in the United States wrote Blog_08. Family difficulties and health issues prompted his late return to school, first completing a bachelor’s degree and then a master’s degree. He also indicated that he and his wife were teachers.

Blog_08 opened with the blogger in the middle of his PhD. He stated that his blog was for his family. He intended to provide blog posts about articles that interested him and hoped people would follow his Rich Site Summary (RSS) feed. The first post engaged in a lengthy discussion on his political views, an upcoming presidential election, and the results of online tests that gauged his political views. Through an analysis of the text it is probable to observe that his PhD topic is political science education.
Providing a “week in review,” the blogger explained the importance of his blog to journal his PhD journey, to have something “nice to look back at my reflections, say, in 5, 10, 50 years” (para. 24). He queried whether anyone was reading his blog, but did acknowledge that he had only been blogging for 10 days and that he did “enjoy writing and keeping a journal for the public to see and comment on” (Blog_08, para. 27). He used his blog to create a study plan, and shared concern about whether his advisor and committee members would accept his plan.

The blogger admitted to not getting much sleep, as he found it difficult to focus on research ideas and fulfill his obligations to his family. He appeared to be the primary caregiver for his children, and trying to balance responsibilities resulted in high stress. One problem he discussed was not able to turn his brain off; it was “always thinking about some article or project” (para. 31). He recognized that this was not necessarily a bad thing, but indicated he did not have the time to focus adequately on his research ideas. He was working on a possible dissertation topic, but on the advice of others he did not want to give too much away on his blog. Therefore, at this point, there was no clear understanding from the blog content as to what the blogger is pursuing.

Also important to the blogger was reading other PhD students’ blogs; he praised them as “very inspiring” (para. 10). These sites were of immense importance to the blogger, particularly when he was unable to sleep: “When I am awake at 3 a.m. and have to be up at 6 a.m., I realize that I’m not alone” (para. 34). Consequently, he was looking forward to joining the wider PhD blogging community. Regarding social media, he was seriously concerned about how much of a social presence he must maintain as a PhD student: “I keep asking myself if I should join Facebook, Twitter, and Instagram?” (para. 9). He was hopeful that other current or future PhD students would find his social media presence useful. Blogging was, he acknowledged, an aid to
writing out and trying out his ideas, a way to clear his head. However, when he began
referencing coursework that was due, the question arose as to whether social media was an aid or
a distraction. The blogger was quick to recognize that engaging with social media was, in fact,
just targeted procrastination (para #).

The blogger was prolific when discussing his love of “organization” and in particular
“apps” (para. 37). He readily admitted to having tried numerous software programs for reference
management. In fact, from a list he provided, it seemed that he had tried most of those currently
marketed to students. He provided a list 23 different software solutions along with a short
paragraph on the usefulness of each one. The blogger then described the pros and cons of popular
Web-based reference management software. The blogger repeated that he was “constantly
looking for the ‘best’ software or solution to a problem” (para. 69).

It is possible that these lists served dual purposes, including for his work as a teacher.
One line in the blog post offered a video of his workflow software solutions for his “visual
learners” (para. 79). He was specific in making suggestions for productivity strategies for PhD
students. These strategies involved a mix of software and hardware, such as file folders and
Microsoft Word. The blogger listed 12 solutions and provided a short introductory paragraph on
the uses of each one. The short paragraphs offered insight into how the blogger approached his
PhD-related work: “I create [pictures] and mind maps to help . . . my thoughts” (para. 96).

Blog_09

Blog_09 provided some explicit demographic information about the blogger: She is
Swedish, attended a Swedish university, and was studying full-time in Rome for approximately 6
months. The blogger was in Italy with her family, two children, and a cat. She referenced
returning to academia after many years out of school and having worked in the conservation of
rare books and other historical artifacts. The topic of the blogger’s dissertation dealt with “theories of heritage and heritagisation” (Blog_09, para. 162).

The blogger wrote and maintained her blog as part of a coursework assignment to start a research blog. She had previously considered blogging the PhD process, although some people had warned against it. She also wondered, “[Do] I risk getting my results stolen if I publish them in a blog?” (para. 2.) The coursework assignment relieved the blogger of this problem. She used her blog to provide detailed accounts of historical sites and artifacts around Europe and smatterings of commentary that revealed the blogger engaged in PhD-related work.

The blogger appeared already accomplished in academic work, having had opportunities to present at numerous conferences across Europe. She provided detailed descriptions and reflections on these conferences, likely connected to her research topic as explicitly stated once in the blog. The blogger asserted that attending a “conference has many . . . values, trying your research ideas/results/questions . . . getting feedback, learning from others, giving feedback, and . . . networking” (para. 9). Following this statement, the blogger spoke to the importance of social media in the world of academia, offering the comment that social media made “sharing so very much easier (and more fun!)—given that people want to share, of course” (para. 10).

The blogger offered some background as to how she became interested in her topic, commenting that people in higher education often question someone’s choice of research with questions, such as “[What is] worth spending at least 4 years of hard work on?” (para. 42). The blogger’s research topic began on a visit to a medieval historical site. An artifact caught her attention, which led to reflective questioning as to why the artifact was important. She then provided a mix of a detailed description of the artifact and its historical importance. She frequently offered detailed and in-depth descriptions of various European, predominantly
medieval historically important sites and artifacts. She also spoke about finding research gaps in the literature, and commented that she “must be aware of the risk of speculating and getting lost in assumptions” (para. 35).

In a rare personal entry, the blogger disclosed her struggles of working on a PhD and preparing a family to move across Europe for 6 months; she appeared to be the primary family member responsible for organizing the move. The blogger offered us “glimpses of the daily ordeals of life in academia” (para. 33), and commented on being pulled in some directions while trying to prepare for the move and continue with her PhD-related work while teaching classes at the university.

It was difficult in this blog to pull the content related specifically to PhD work out of the dense historical information and reflective writing on historical artifacts. In comparison with other PhD-related blogs, this blog gave very few insights; for instance, the blogger referenced working on her PhD project for a few years, but without specifics. Related to her PhD work, the blog overall only noted that the student had been preparing to present a paper at a prestigious international conference, that she joined a departmental discussion group suggested by her supervisor, and she was highly engaged in her PhD topic.

**Blog_10**

A female full-time college lecturer completing a PhD part-time, and studying health sciences in the UK authored Blog_10. I analyzed 16 blog posts, starting approximately at the point where the blogger was actively working on producing a final thesis: “I am looking at analyzing and interpreting for the next 10 months” (Blog_10, para. 20). The general tone of the individual blog entries was reflective and offered advice on various aspects of completing the research stages of a thesis. There was evidence of a period of stepping away from PhD-related
work, as “some of these chapters have not been touched in months, years even” (para. 96). The blogger did not provide many personal life insights, except for dog walking and yoga classes. However, she did offer insight into managing full-time work with PhD-related work, noting “I am extremely fortunate to be given 12 weeks protected study time to ‘write up’” (para. 97).

The blogger began her writing centered on research design, theory, and methodologies. She was struggling to understand and write up a chapter that represented the study’s theoretical framework and methodology. After meeting with her supervisor she admitted that if her struggles had not been realized through revisiting basic research theory and design, then “I dread to think where I would have been now” (para. 5). Having already collected data, the blogger was keen to return to data analysis, although the post noted, again with support from the supervisor, “I know I still need to do some important work before I can go back to my data” (para. 6).

Another issue disclosed was that the blogger had attempted data analysis without “a clear, robust analytic plan” (para. 6). After a blogging absence of nine months, she revealed meeting with her supervisor and that she finally had a “data analysis plan in hand” (para. 10); the blogger could return to data analysis. The blogger used this entry to reflect on her process, sharing that a significant amount of time had been spent looking for examples of data analysis plans and how to write one (para. 12). However, despite much literature available on data analysis, the biggest concern voiced was the lack of actual examples “about how to develop one or even what one looks like” (para. 7). Although the supervisor had clearly offered support and advice in getting the student on the right track, the blogger allowed that the advice “started me off, but this will take a little bit of time to get right” (para. 7). However, in the end, the blogger acknowledged that the “exercise [was] extremely beneficial [helping] to vocalize and rationalize . . . thoughts and ideas with . . . supervisors (para. 21). She later referenced searching the Internet and turning to
Twitter to talk with people, and using the opportunity to note that she was able to understand and construct an analytical plan (para 33).

Another Twitter opportunity arose when considering the use of pseudonyms in qualitative research; the blogger was unsure how to approach naming participants in a research study. She noted that the obvious place to find a consensus on the opinion of whether to use pseudonyms was to pose “this question on Twitter to explore further” (para. 28). The results were unanimous: yes, use them. She then laid out the reasons to use pseudonyms from the responses shared on Twitter. The post ended with a “special thank you” to specific Twitter users for their “insightful . . . feedback” (para. 35).

Returning to her discussion on data analysis by providing a lengthy description of how she approached it, the blogger acknowledged that the purpose of the “post is to share with you my first step of data analysis” (para. 40). It appeared to have dual purposes: (a) to informally write-up research methods and (b) to reflect on certain aspects, such as “memoing: to help me through the process of coding” (para. 46). She provided a lengthy explanation of the qualitative software NVivo v. 10 and a description of how she prepared data for analysis.

Continuing her framing, the blogger referred to decisions about how to present data findings. She exhibited confidence and comfort moving through the different stages of data analysis, even though she considered the process “extremely time consuming” (para. 64). On the whole, the blogger commented on having “gained a much deeper understanding” (para. 64), and her hope others would find use in what she’d written (para. 69).

The discussion on data analysis and issues of credibility and validity concluded with the disclosure of conflict between the blogger and her supervisor. In a meeting to discuss provisional findings, the supervisor questioned the exclusion of member checking in the data analysis
approach, and the blogger acknowledged having not thought enough about the subject (para. 73). However, to the blogger, the suggestion was not “welcome” because it would present too many “challenges” (para. 73). She proceeded with a lengthy justification and reflection as to why member checking would not be feasible for the study. She turned to Twitter for further exploration of the issue and to seek clarifications.

The blogger did provide insights on her experience with the supervision of her PhD-related work: “I have changed my main supervisor three times” (para. 107), although one committee member had remained throughout. These changes were not by the blogger’s choice—each supervisor had left the institution, causing the blogger to feel “abandoned” and then pushed in a different research direction each time a change occurred (para. 108). The blog content recorded the following: supervisor number one took the blogger down the wrong path, making it seem that the PhD-related work was moving in the wrong direction (para. 109), whereas supervisor number two was challenging, but identified as in a good way (para. 109). The blogger provided some general advice regarding agreeing and disagreeing with a supervisor including setting and maintaining ground rules, accepting having to redo work, and remembering them in thesis acknowledgments (para. 118). She also pointed the reader to a Twitter account with advice for changing a supervisor and a link to an Internet article hosted by @thesiswhisperer titled “How to Tell Your Supervisor You Want a Divorce” (para. 121).

The remainder of the blog content was dedicated to strategies for writing the thesis. Interspersed throughout were glimpses of how the process affected the blogger’s emotional health and well-being. Too many hours in front of a computer were creating health problems, so the blogger joined a gym, took a day off from writing, and committed to a healthier diet. She also referred to full-time work as a distraction. The activities of PhD-related work led to feelings of
self-doubt and to questioning her ability to succeed while working (para. 137). She did, however, share that she had found some useful blog sites on the Internet to help with writing the discussion chapter, in particular, @thesiswhisperer provided some useful resources from @ThomsonPat. Blog 10 wrapped up with a lengthy description of the blogger completing her thesis and successfully defending her research.

**Blog_11**

A full-time, female PhD student in the UK wrote Blog_11. Her discipline was health sciences, and the content began two months into the start of her PhD program. The first post explained her rationale for blogging: to maintain a journal of the PhD journey, offer peer support, and “talk through my ideas & interests” (Blog_11, para. 3). The entire blog was relatively short—4,462 words and 11 posts—however, the blogger provided some useful insight into the experiences of PhD-related work at the start of a program. The blog was informational, absent of detailed personal information regarding family, partnerships, children, and so on, but with glimpses of emotional difficulties such as the discovery of “how lonely and isolating studying can be at this level” (para. 5).

The blogger began with an account of her prior learning, knowledge, and experiences that led to the pursuit of a PhD. She reported that a key moment in realizing the potential of working in academia came with an opportunity to become involved in a research project in her third year as an undergraduate: “I loved every job I did . . . getting involved in the research . . . became a key interest” (para. 11). Working for some months after graduation, the blogger secured a research position with a mental health nonprofit organization. It was this position that became the impetus: “I had to start considering the option of a PhD” (para. 15). However, the graduate school “interview was the most terrifying experience of my life,” mostly because “[I] honestly
never wanted something so much in my life” (para. 16). She then found herself dealing with explaining to people outside of higher education the meaning of obtaining a doctoral degree, but not becoming a “real” doctor (para. 20). In the post, which reflected a conflict between what is considered a real doctor and others’ assumptions, the blogger offered advice and pointed out readings to help clarify.

The blogger shared concerns of networking and attending conferences (“networking is [really] hard”; para. 24), while balancing family and PhD-related work (“I love my family . . . and miss them so much”; para. 38). However, she also shared helpful advice for dealing with both of these concerns. She first gave suggestions on how to strategically remember names of other conference attendees. She then noted that when traveling (e.g., driving) to visit family, it is possible to carry out PhD-related work through listening to audio books, podcasts, and journal articles using a Kindle, to practice an elevator speech on the PhD topic, and spend time in reflective thought. These suggestions, the blogger affirmed, are especially useful for “people who are using qualitative research methods” (para. 45),

In becoming a full-time student, the blogger hinted at wanting to be actively involved in college life—just as when she was an undergraduate. However, she realized that the experiences demanded different skills. In the context of graduate study, academic skill building opportunities, such as a writing group, needed to take precedence over a “Pokémon” club (para. 49). Research forum groups offered opportunities to learn from other PhD students who were further along in the process, but more importantly, recognizing a fear of public speaking, the blogger “sent off [an] application to [a] teaching group thing” (para. 55), with the hope of conquering a fear of presenting and public speaking through teaching (para. 54). A few weeks later, the blogger
acknowledged that her confidence level had improved through an opportunity to present at a research forum (para. 62).

Approaching New Year, the blogger discussed possible resolutions, sharing concerns with remaining healthy physically as well as psychologically. She wrote about losing weight, drinking less alcohol, eliminating one unhealthy meal per week, and exercising for an hour longer each week. To care for her psychological health throughout the PhD process, the blogger intended to journal each week, having enjoyed that as a hobby activity. Along with this, the blogger indicated the desire to write in a reflective journal each week with an entry that chronicled her “improvements academically”, hoping that this activity would build her academic confidence (para. 78).

The remaining content of the blog dealt with the organization of PhD-related work, ethics of online research, and discipline-specific PhD-related work. She commented on the realization that although her PhD-related work was discipline-specific, it involved reading from other disciplines. She then dedicated a blog entry to the organization of PhD work. She was concerned with multiple “ways of organizing references and maintaining notes” (para. 83), so she detailed the various functions of online referencing software and the merits of each one. Along with these details was information on using other database tracking software so that the blogger “can go to [a] spreadsheet, find [a] paper . . . look it up in [the software] where it [has] all [the] notes and discussion points surrounding [a] paper” (para. 87). In reflecting on a course on the subject of online research and ethics, the blogger commented that the course was “absolutely fantastic, thought-provoking and entirely relevant . . . I hope to use online . . . data” (para. 89).

Particularly relevant and pertinent was the blogger reflected on data-scraping Web content. She posed a question as to whether other online researchers would be comfortable with
having their materials scraped from the Internet and used in a research study (para. 100). The concluding thought affirmed the hope that “there is some form of ‘greater good’ argument, where the data I use will help others in the future” (para. 102).

**Blog_12**

A female full-time student at the beginning of her PhD-related work authored Blog_12. The intent of the blog was to capture her progress throughout the PhD process, to “record what I have done, what I need to do next” (Blog_12, para. 2), and to journal meetings with supervisors. The blogger wished to remain connected to other PhD students through actively blogging.

She began with a “starting your PhD” list, which included, “Check that no one else is working on, or has researched my topic” (para. 8), finding out about what referencing software would be of most benefit, and arranging for office space. The list was concise, and the blogger had obviously spent time thinking about how to get organized, but also acknowledged that “The kids go back to school tomorrow, so I can get stuck” into my studies (para. 14).

The blogger then shared how she had set about researching and thinking about a topic for study. She opened with a commentary on the usefulness of reading broadly in an interesting area to get a sense of how to “narrow down” interest (para. 18), demonstrating the blogger’s critical thinking and reflection as she began to lay out some researchable areas and research questions.

Other entries in the blog were discussions of more pragmatic needs. These included making a referencing software choice, downloading the software, reading articles, doing some “database searching to see if anyone is working on my topic” (para. 41), and, along with family responsibilities, checking in with the @thesiswhisperer blog. The blogger moved on to describe finding a dissertation that was close to her topic, from which she could check out some of the references in the bibliography. She commented, “I feel excited when I follow resource trails and
find something good” (para. 48). At one point, discussing the value of the Internet for working and networking, the blogger read some studies that she wished to explore further. Through Internet searching, she was able to obtain the author’s e-mail address and send some of her questions, sharing her surprise at receiving a reply.

In reading others’ research in the topic area, the blogger also acknowledged questions that she wished to ask her supervisor (para. 53). The subject moved on to how the blogger stumbled across a book on “How to write a thesis” (para. 55), which took a day to read, but it was helpful in clarifying a focus for her research topic. Underlying her lists and descriptions was a hint of the blogger under pressure to succeed. She noted an upcoming meeting with the supervisor, saying, “I feel anxious that I will not have done enough” (para. 57).

Later, the blogger shared that the supervisor had suggested attending a qualitative interest group, and included the comment, “I did what I was told and went along” (para. 62). The blogger recorded that the group was helpful and she “enjoyed being surrounded by really clever and experienced people” (para. 62). She reported that another group member provided some research design advice and followed-up by asking if the blogger would present at the next meeting (para. 63). She shared feeling conflicted and stated that while it was great to get feedback so early in her PhD work, it felt like “going behind the backs of my supervisors” (para. 63). She decided not to go forward without gaining her supervisors’ permission, adding, “They have to be happy with everything I am doing” (para. 63).

After a productive meeting with two supervisors, she reported that a conversation regarding her choice of research methodology led to the supervisors suggesting a change, as “the head of school hates ‘grounded theory’” (para. 72). She went on to state that in the meeting, it
was decided that phenomenology would be a better fit. From this point through getting ethical approval for a study, the blogger indicated that the process had taken 5 months.

Just as it had started, Blog 12 ended with a list of activities to do, such as learning to use NVivo, teaching classes, managing the house and two kids, and maintaining sanity (para. 165). She concluded with an acknowledgement that the “School holidays are about to start at the end of this week, so everything will grind to a halt for two weeks again” (para. 171).

**Blog_13**

A male PhD student originally from Singapore and studying in the United States authored Blog_13. The blog was described as a place to share reflections on the PhD journey and did not explicitly provide any other personal data. The blogger began with a comment on his completing the first year of a PhD program in the United States, admitting the need to connect with others “in the same boat” (Blog_13, para. 4). He acknowledged that connecting with “like-minded academics and professionals” would be extremely useful (para. 4).

A recurring topic throughout this blog was that blogger was an active user of Quora, a social media site where members post and answer questions. The blogger had himself posted 11 questions (para. 4). The blogger also used Scribd, another social media site that hosts e-books, digitized print media, and subscriber-uploaded documents. Additionally, he indicated that he had uploaded coursework papers to a Scribd account. As an active user, he suggested that both social media tools are of benefit, as they connect researchers across a global network.

The blogger worked as an intern in a highly structured, science-based environment. He commented that the environment suited his personal approach to work and “the mode of getting stuff done” (para. 6), such as making lists of tasks, and applying a linear and sequential approach to all aspects of task completion. However, he noted that graduate school could be challenging at
times because of the lack of structure: that too many deadlines shift; information is missing; and a “reliance on colleagues, professors, and sometimes fellow students” just makes things too messy (para. 6). The blogger outlined his system for remaining on task and organized, detailing all aspects of managing PhD-related work, including financial aspects of being in school full time and keeping detailed post-it notes—“each task is broken down into sizable chunks” (para. 29).

Another glimpse of the importance of structure for the blogger comes through in a discussion on loving and viewing the world through a lens of continuum theory. He mentioned an upcoming paper that he was going to post explaining the importance of continuum theory. He detailed the theory and explained how it related to his dissertation topic. He had, however, engaged in a reflective discussion of readings that were outside of his theoretical lens, and he demonstrated the willingness as a researcher to consider different theories as being potentially applicable. He also talked about “Man’s” relationship with technology and interactions with nature, advising humans to stop being self-centered.

While musing about several topics, as unrelated to his Ph.D work as having shared his distaste with people who commit to changes only to fail a few months later, commenting, “I will be honest. New Year’s resolutions do not thrill me” (para. 38), the blogger acknowledged his procrastination. He was meant to be writing “the preproposal proposal” (para. 65), and preparing with some other senior PhD students for an informal colloquium designed to strengthen students’ relationships with faculty (para. 65). He concluded, “It was a pretty anti-academic week, weather-wise and personally!” (para. 65). He wrapped up with a list of academic tasks that needed to be completed before the impending spring break, although he noted, “I do not think it will be much of a break for me. God Help Me!” (para. 73).
The last few blog postings indicated that things were “moving in the right direction” (para. 75). Additionally, the blogger reported that some PhD students were preparing to graduate, which consequently implied a competition for teaching assistant positions. But from him, these current PhD students could not “assume enthusiastic support at this point” (para. 75). He did go on to share that his preproposal was accepted, however, he acknowledged feeling “overwhelmed” by the amount of work required for a proposal (para. 77). The blogger made a task list and was hopeful that examining why research matters would renew interest in the topic that would get him to the end of the journey—having a PhD. However, in the following entry, the blogger questioned the point of making a “valuable contribution to the existing body of knowledge in [a] field of interest” (para. 79). After all, he commented, the physical copy will only ever be read “by my mother and my committee members” (para. 79).

Changing direction, the blogger touched on the subject of “self-marketing” (para. 83). He shared concern about how to market his academic work and ensure that he remained true to the purposes of his studies. PhD-related work, according to the blogger, had to be understood for what was ultimately gained—the “Doctor of ‘Philosophy’ degree” (para. 83); therefore, one must be able to represent oneself at an interview as being willing and able to engage in philosophical and intellectual dialogue around one’s topic.

Blog 13 wrapped up with the blogger sharing further insight related to PhD work. First, after attending and presenting at an international conference for the first time, he reported that “the quality of conversations” was excellent and provided students an opportunity to talk with academics and gauge for themselves whether they wanted a career in academia. He ended with a page from his notebook that demonstrated that he was grappling with theories and drawing together a conceptual framework for his research.
Blog_14

A male full-time PhD student who lives in the United States wrote Blog_14. He is an adjunct instructor and manages a private client group. The author likened the decision to pursue a PhD to turning a page in a good book where one inevitably thinks of new questions (Blog_14, para. 6).

The blogger began by offering the lesson learned from completing the first year of a PhD program along with some of his accomplishments and highlights. Reported from year one were responsibilities for teaching, supervision meetings, learning “academic writing” (para. 6), and coursework. Other “scholarly accomplishments” (para. 16) were presented as a list, including publishing multiple articles, writing a book review, attending and presenting at two conferences, submitting two articles to peer-reviewed journals, and undertaking a graduate assistantship (para. 24). This first post ended with some advice for other PhD students, such as “write everyday” (para. 25), and he acknowledged that the source of this tip was from a PhD student’s online blog.

Moving into the second year, the blogger was reflective and at the same time forward looking—he had set goals with a career aim in sight. His entry for how to successfully plan goals was from content retrieved from another online blog post, and for the most part, reproduced in its entirety. He admitted, however, to fitting the posts to meet his needs, suggesting that others reading this blog could do the same (para. 31). He also asserted that he maintained the practice of writing every day. He listed ideas for conquering procrastination as a writer, such as setting “aside this time as sacred to the practice of writing” and choosing a writing goal that is “realistic and attainable” (para. 59).

The blogger spent some time discussing the importance of attending academic conferences, as “these are vital” to every PhD student (para. 38). In some detail he explained
why it was important to make room in one’s studies and budget to attend at least one conference per academic year (para. 39). He lists three reasons, with examples from his experience including (a) the benefits of connecting with other PhD students and sharing ideas, (b) the ability to boost one’s knowledge and skills, and (c) opportunities to network and meet other faculty who might later become colleagues. He iterated, “they could be [your] next department chair or the head of [your] faculty search committee” (para. 40). He continued with a discussion on how to network at conferences. He offered advice and many proactive tips, such as preparing a list of contacts ahead of time, trying to meet people in person, and making sure to follow up “after the conference to collaborate further” (para. 86). He reinforced this with, “do everything with a career in mind” (para. 116).

In preparation for taking comprehensive exams, the blogger intended to provide advice. He commented, “having never participated in comps, I knew that in order to write a blog about this experience I must rely on others’ strategies” (para. 127). The post was part reflection and part advice, along with providing a small glimpse of how the blogger was feeling about these exams: “comprehensive exams are a daunting challenge” (para. 126). The blogger, having turned to the Internet and other graduate students, painted a picture of taking comprehensive exams as one that harmed students’ relationships, but also represented “a rite of passage” (para. 126). He then detailed the advice gleaned from the various sources. Later, after completing his comprehensive exams, he was able to give advice from his own experience, including “practicing self-care . . . adequately plan . . . to make edits” (para. 212), and “don’t forget to celebrate” (para. 216).

His next theme for advice was on the importance of mentorship and making sure that PhD students seek out opportunities for mentorship (para. 144). The blogger was hopeful that the
post could be considered as an “example of a possible road map to your destination” (para. 161). He concluded his blog with further advice on completing a dissertation while applying for faculty positions and sticking to a daily writing plan.

**Chapter Summary**

A presentation of the blog content from a sample of 14 blogs showed that the blogs were not confined to any particular country, discipline, or gender. Data revealed that bloggers represented full time and part time PhD students, and did not fall into a particular category based on age. At the heart of qualitative research is storytelling, but not just storytelling for the sake of it—the goal is to convey the story from data in such a way that it is interesting, drawing the reader in, but at the same time remaining accurate and credible. The blog narratives captured for the research are the stories of PhD-related work, as told by the blogger’s themselves. The content of each blog is recorded as a separate narrative, bringing to life these stories. However, in doing so, the narrative use the words expressed in the blogs as in-text citations. So, every effort was made to anonymize the text. These narratives of blog content from 14 PhD student blogs provided a detailed insight into PhD-related work practices. In reading through the narratives patterns, similarities and themes emerge, bubbling up to the surface, that provides a platform for thematic analysis, interpretation, and discussion.
CHAPTER V
ANALYSIS AND FINDINGS

In this chapter, the four research questions for the study are used to analyze the blog data in two sections. The first section is deductive, using an a priori coding frame to answer the questions, what practices related to PhD work showed up in blog content, and which subcategories related to PhD work showed up in the blogs. In the second section, an inductive and interpretive data analysis approach makes use of the conceptual framework and In Vivo coding to explore emergent themes. This section specifically addresses, in what ways are external personal contexts impacted by the structures of the PhD-related workplace? And how are the informal learning behaviors associated with the workplace revealed in a content analysis of PhD student blogs? The chapter then moves on to provide a summary of the study’s findings and related data interpretations. In conclusion, along with the chapter summary, I have included an analytical categories table with the purpose of aligning the research questions to the study’s finding statements, and the source of the research problem.

Section One -- Practices Related to PhD Work

The analysis and the findings regarding practices related to PhD work begins with the four practices referred to in Cumming’s (2010) model for integrative doctoral practices. These four practices—curricular, pedagogical, research, and work—make up PhD work practices and were used as a beginning coding structure to address the research questions:

- What practices related to PhD work show up in the blog content?
- What sub-categories related to PhD work show up in the blog content?

It is important to note that although the conceptual framework for this study makes use of the four practices, and data were coded using these as identifiers, in no way are the four types of
practices to considered discrete and disconnected. Rather they are practices that are embedded and connected to wider contexts (Cumming, 2010). In this sense, practices are “purposeful and can be viewed in relation to other activities” (Cumming, 2007, p. 83).

Furthermore, these practices (Table 4) provide a useful mechanism that takes into account the challenges of trying to describe findings in a qualitative content analysis (Patton, 2002). The following presentation of findings delivers an attempt to find a balance “between description and interpretation” (Zhang & Wildemuth, 2009, p. 5).

Table 4

*The practices related to PhD work*

<table>
<thead>
<tr>
<th>Curricular</th>
<th>Research</th>
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<tbody>
<tr>
<td>Negotiation (with institution)</td>
<td>Review</td>
</tr>
<tr>
<td>(re)frame</td>
<td>Design</td>
</tr>
<tr>
<td>Organize &amp; plan elements of</td>
<td>Generate</td>
</tr>
<tr>
<td>degree (student)</td>
<td>Analyze</td>
</tr>
<tr>
<td>Participate</td>
<td>Write</td>
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<tr>
<td>Evaluate</td>
<td>Theory</td>
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<tr>
<td>Visualize</td>
<td>Secure</td>
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<table>
<thead>
<tr>
<th>Pedagogical</th>
<th>Work</th>
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<tbody>
<tr>
<td>Meet</td>
<td>Publish</td>
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<tr>
<td>Interact</td>
<td>Teach</td>
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<tr>
<td>Train</td>
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<td>Network</td>
<td>Volunteer</td>
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<tr>
<td>Collaborate</td>
<td>Contribute</td>
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<td>Mentor</td>
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<td>Present</td>
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The data shows that all four practices are present in the blog content. It is apparent from the graph (Figure 2) that *research practices* are the most reported in this blog content analysis with a 151 coded segments. Although at this juncture, the data says nothing about an individual student’s research capabilities, becoming a researcher—moving from novice to independent scholar. These *research practices* are those which students actually do and elucidate how they operate (Cumming, 2007, p. 81). For example, “This week I have mostly been battling with my methodology . . . How many qualitative interviews is enough?” (Blog_07, para. 182). Another example includes, “My qualitative data analysis plan was that last little hurdle I needed to get over” (Blog_10, para. 10).

![Figure 2. PhD-related work practices in the blog content](image)

The findings demonstrate that curricular practices form the next set of practices, which are generally the practical and general components of a PhD program: course work requirements, discipline choice, and goal-setting. In this study, 105 coded segments of the blog content were devoted to matters of curricular activity; as an example, Blog_05 describes “identifying the various bits of paperwork and bureaucratic processes needed to do anything . . . a big challenge is not knowing where and how to go about learning them” (para. 118). Pedagogical and work
practices were 98 and 64 coded segments. An overarching theme in the literature on PhD work is “what are the agreed pedagogical outcomes of PhD work outside of learning, instruction, and assessment?” (Cumming, 2007). Similarly, work practices add a layer of complexity to the agreed roles and responsibilities in undertaking PhD-related work. Overall, in answer to the first research question, all the practices are present in the content analyzed.

**The Sub-Category Practices Related to PhD Work**

When PhD related practices are broken into sub-categories it is possible to view the complex arrangements of PhD-related work and the tensions which inhabit the differing contexts in which PhD-related work operates. The following section addresses the second part of the research question: “Which of the sub-categories related to PhD work show up in the blog content?”

**(Re)Framing.** The most prevalent practice in the sub-category for ‘Curricular’ is (re)framing. Reframing is defined as an ability rethink a problem or perhaps challenge a way of understanding, which causes one to rethink skills and abilities. Essentially, it means making purposeful and appropriate changes (Cumming, 2007). For example, in Blog_04, the content reveals a student having misjudged something, adding “hopefully just my time, and not the quality of what I'm coming up with” (para. 97). In Blog_13, the student talks about taking a different path from hard sciences, “towards social sciences” and making a number of different “professional choices” (para. 4).

It is interesting to note the little evidence in the blogs regarding other curricula practices. Only 8 coded segments of the content demonstrate students engaged in negotiation within their institutions. Negotiation is defined as aspects of programs, courses, credit hours, and coursework requirements. Perhaps these conversations are behind closed doors? Either way, the content does
not afford an opportunity for speculation. However, one plausible explanation suggests that for this sample data at least, these are discussions and negotiations that took place prior to the student’s admittance.

Curricular evaluating. The content does show 28 coded segments in which students are actively engaged in Evaluation Practices concerning PhD-related work, where there is a willingness to challenge personal goals, e.g., “I find this task exciting and challenging”. Evaluating the PhD journey as if it were a stream “with the tributaries indicating different paths of thought and possible directions” (para. 388). The practices associated with Participation and Organization, which are those aspects of PhD-related work such as practicums and internships, are in comparison to Curricular Reframing somewhat more evident, however these practices do not feature strongly in the blog content. There is some evidence to suggest that participation in dialog and discourse is taking place at students’ departmental levels. Examples include: (a) “A group of similar thinking co-workers has started to talk about and write on various themes in the research field” (Blog_09, para. 23). (b) The “institution takes great pride in its staff development . . . the courses . . . have been useful for . . . my work [and] research” (Blog_07, para. 96), and (c) participating in a workshop not directly related to the student’s research area, “but nonetheless I found some useful aspects to apply to my work” (Blog_07, para. 112). In respect to the context of the wider academic community and membership in professional organizations, there are a few mentions in the content, but these are not noteworthy.

However, it cannot be assumed that these are not an integral part of PhD-related work; the answer is partly dependent on how important the students see their roles and future trajectories as being within the academic world. Just over half, 8 out of 14 blogs, articulate a future career trajectory in academia. Examples of which are, attempting to “get on the first
precarious step of the academic career ladder” (Blog_02, para. 13), and “I know I will need to do many more conference papers in my future academic career” (Blog_07, para. 132), or “this is purposeful networking, doing intentional things with a career in mind” (Blog_14, para. 86).

**Pedagogical meeting.** In the sub-category for ‘Pedagogical’, the highest activity is *meeting*. This sub-category includes all those practices that meet the expectations of the supervisory relationship between the student and his or her supervisor. The literature on PhD-related work tells us that these relationships are often problematic (Pyhältö, Vekkaila, & Keskinen, 2015). The data analyzed for this study provide numerous examples. Blog_02 enrolls in a MOOC where the first module asks PhD students to articulate their emotional experiences related to the supervisor relationship; in Blog_05 the content reveals, “My main supervisor is patient and brilliant but I feel guilty emailing her too frequently” (Blog_05, para. 119). In another example, the author’s supervisor “suggested [going] to a meeting of the Qualitative Interest Group” (Blog_12, para. 62).

**Pedagogical networking and work conferences.** In the Pedagogical sub-category identified as *networking*, the findings suggest that this activity associated with PhD-related work is worthwhile to consider alongside some the findings from the category of work practices. The findings from data analysis initially showed the potential for the two to have distinct overlap, namely networking as a pedagogical activity and conferences as a work activity. To better report these findings I decided that when coding conferences as a category, to break it down into three subcategories (1) attending a conference, (2) contributing to a conference, and (3) critical reflection of the conference experience. This decision was made to better reflect the range of practical decision-making about attending a conference and the multiple understandings and
experiences of academic conferences, these categories naturally emerged in the process of data analysis.

In the final analysis and reporting of findings, the overlap is not as pronounced as I initially anticipated. Within the category of ‘conference’, there were 11 references in individual blogs. However in the content analyzed, only 6 individual blogs make connections between networking and conference attendance. Independently, as reported in 9 out of 14 blogs, the individual content of the blogs demonstrates that conference attendance and networking are still very important, as well as the opportunities to interact with other professionals. This is evident in that the students specifically acknowledge that successful networking requires particular skills.

**Work publishing and pedagogical presenting.** Under Pedagogical Practices, for the sub-category *presenting*, and under Work Practices, the sub-category *publish*, I have chosen to report the findings alongside one another because analysis showed connections between these practices. I chose not to include the practice of Writing because writing refers primarily to the practices of research and writing as part of the process toward completing a thesis or dissertation.

Ten of the 14 blogs referenced presenting across 23 coded segments of text. Some segments of text refer to presenting as fear, anxiety, and “epic brutality” (Blog_06, para. 163). In other segments, it is clear that an opportunity to practice presenting are afforded to students as part of PhD-related work: “Today I have a wonderful opportunity to discuss my research” (Blog_12, para. 76) and “my group for class had our big presentation today. Last night I had everyone over for dinner and practice session” (Blog_06, para 133). The author of Blog_11 discusses practicing presenting skills by taking part in practicing an elevator speech about the topic of research, saying it “is also useful to practice presentations etc. but only if you don't need notes” (para. 43).
In the content referring to publishing, 5 out of the 14 blogs across 15 coded segments articulated thoughts such as, “I’m very excited that my first PhD paper has recently been accepted for publication” (Blog_05, para. 186), or, “Would I like my stuff to be published? Sure, who wouldn't! But that's not my driving purpose” (Blog_06, para. 142), and, “My first book contract was issued from an academic press!” (Blog_014, para. 239). Two of the blogs spoke about publishing via the Internet, as invited guest writer’s for other PhD-related work blog sites.

Interestingly, emerging from the findings on conferences, networking, presenting, and publishing, this content analysis suggests that practices for those engaged in PhD-related work, although nerve-racking at times, are nonetheless aspects of the work that provide opportunities for professional participation, and in turn these provide role validation and promote a willingness to potentially seek out other similar academic opportunities.

**Research reviewing, designing, generating, analyzing, theorizing, and securing.** In the sub-categories attached to research, aside from writing, the categories, reviewing, designing, generating, analyzing, theorizing, and securing, the content shows us how important the Internet, social media, and other computer based solutions have become to accomplishing the tasks involved in PhD-related work. When beginning coding I became aware of a technological thread in the content. I took the decision to create two specific coding categories, (1) software advice and solutions, (2) social media use. The coding of data for these categories was emergent and made use of an in Vivo method. In revisiting these codes and reorganizing, creating categories, and deleting some coded segments it became apparent that a large number of the 162 coded segments, overlapped with the research category. For example, content which shows taking to Twitter for examples on designing a research study, using Twitter to crowdsource advice on methodologies, and using other PhD-related sites to learn complex theory in an
informal friendlier manner. Elsewhere in the content the importance of the blog site @Thesiswhisperer is evident as a go-to place for research suggestions and instruction.

Advice on various types of software deemed helpful across the tasks of PhD-related work shows up in 10 out of the 14 blogs. This content, such as one titled "Essential Productivity Strategies for PhD Students" and another titled "Apps for Academics and Scholars", are evidence of a shift in how PhD-related work is organized. Across the content of the blogs, the coded segments related to using an institution’s library for PhD-related work totals 6 instances from only 7 blogs.

The overall finding suggests that it is the management of the research tasks involved in PhD-related work, which are evident in the content, and that primarily there is a reliance on the Internet, social media, and software to manage the research. An example from the content on the merits of Endnote reads "I can save all my pdf’s…and access it from…whenever I like, [it]is a godsend" (Blog_7, para. 107), and "Google have… introduced Google Scholar library, and it seems easy to use" (Blog_05, para. 267).

**Analysis of Text using Linguistic Inquiry and Word Count (LIWC)**

Having completed the analysis of data regarding the research questions, (a) what practices related to PhD work show up in the blog content? and (b) which of the sub-categories related to PhD work show up in the blog content? I returned to my memo’s, the coding frame, and data, because the deductive phase of analysis had lent itself to further questions. These questions regarded the tone of the text data. What did the text data present from an emotional context, what mood did the blog posts show related to PhD work?

In recent years, research literature has reflected the potential for computational algorithms to detect human sentiment in text (O’Leary, 2011, Liu, 2012, Thelwall & Buckley,
Initially the impetus for sentiment analysis was driven by commercial companies to gage customer satisfaction and opinion (e.g., analyzing Amazon customer reviews), however, sentiment analysis has found its way into social science research (Thelwall & Buckley, 2013). For this study I utilized basic sentiment analysis techniques using Linguistic Inquiry and Word Count software (LIWC) to provide additional insight into the content of the blogs and PhD-related work. LIWC is a powerful software tool that provides an in-depth social and psychological analysis of text.

The questions asked were:

- What does a basic sentiment analysis of the total number of words in the blogs reveal regarding PhD-related work?
- What PhD-related work practice has the highest score for an overall positive emotional tone?
- What is the overall tone for the content for each practice category?

As depicted in figure 3, the majority of the blog content revealed that the bloggers used positive emotional language regarding PhD-related work. In examining each PhD-related work practice for positive tone, the content related to research practice scores the highest for positive emotional tone (Figure, 4). In breaking down the tone for each practice per blog (Figure, 5) the content of blog_10 shows research practice rated the highest, in the text Blog_10 had revealed “My qualitative data analysis plan was that last little hurdle I needed to get over” (Blog_10, para. 10).
Whereas blogs_13, _8, and _4 showed no positive rating for research practice, Blog_14 scores the highest positive emotional tone for work practice, which is not surprising as the content had already revealed “My first book contract was issued from an academic press!” (Blog_014, para. 239). Blog_14 also scores the highest for pedagogy practice, the content of the blog reveals Blog_14 as committed to teaching and becoming a future faculty member. In looking at the breakdown of scores for positive emotional tone related to curricular practice these are interesting. In the overall scores for number of positive emotional words, curricular practice is the 2nd highest, however, when broken down per blog curricular practice only shows significance in Blogs_5, _7, _9, and _13.
The next phase of data analysis addresses two research questions. The first is related to the ways in which differing personal contexts influence the practices of PhD-related work. The second asks how the informal learning behaviors traditionally associated with the workplace show up in a content analysis of PhD-related work practice blogs.
For both of these questions, I was aware of the dangers of not only coding for inferences in the content but also loosely associating a code with a text segment. The problem of “loosely coupling” codes to data (Flick, 2008) unearths interesting findings, but these results have no context. Therefore, I began this inductive and interpretive phase of my data analysis by drawing from the conceptual framework to put together a starting list of codes (Miles & Huberman, 1994). For the first question, the starting codes draw directly from Bronfenbrenner’s (1979) ecological systems theory to explore content related to social and emotional contexts, relationship contexts, and health and physical wellness contexts. For the second question, I chose to simplify Milligan, Littlejohn, and Margaryan’s (2014) model of the four informal learning behaviors by coding only for the main categories as my start list: consume, create, connect, and contribute.

**Contexts and Impact on the Practices of PhD-Related Work**

The analysis from coding the social and emotional context of PhD-related work shows that all 14 bloggers struggled with myriad feelings, from being overwhelmed by the tasks related to PhD work to feeling excited and energized by the processes of research. In 9 of the blogs, the content revealed struggle with balancing family responsibilities (i.e., child care) with the tasks of PhD work. Additionally, students voiced fears of failure, thoughts of quitting, financial concerns, and the importance of having support networks and finding opportunities for mentorship.

With regard to the context of relationships, the content indicates that the connection with the supervisor is the most impactful, either positively or negatively: 62 coded segments from 9 blogs are direct references to the supervisory relationship. To dig further into the context of the supervisory relationship, I chose to further analyze the 62 coded segments to find out what the content revealed.
The content also points to the impact of establishing online relationships, particularly with other PhD students through interactions on their blogs. In twenty coded segments from 6 blogs students are concerned with a lack of physical exercise attributed to the demands on their time from tasks related to PhD work. These stressors also emerge from the data in the form of students becoming unwell: illness, poor eating habits, and poor physical health attributed to hours spent in front of a computer.

**The Four Informal Learning Behaviors**

The literature on PhD-related work acknowledges that during the process of obtaining a degree, students will experience various stages of development. The research on informal learning in the workplace offers a similar outlook as a person becomes familiar with the knowledge required to complete tasks related to work. The research question for this study asks how these informal learning behaviors, traditionally associated with the workplace, show up in a content analysis of PhD-related work practice blogs.

The content of the blogs was coded for explicit, visible instances related to consuming knowledge, creating knowledge, connecting knowledge, and contributing knowledge. First, consuming knowledge is considered to be operating on one of two levels, either active or passive (Milligan, Littlejohn, & Margaryan, 2014).

**Consuming knowledge.** The content shows us students actively engaged in consuming through practices such as direct searching for problem-solving (e.g., using the Internet to find answers to research problems) that are often connected to meeting the challenge of making changes to a study outline or idea. On a passive level, the content shows us students making use of informal networks, such as other PhD blog sites, to consume new knowledge required to complete a task related to PhD work. Student comments point to how necessary and important
these sites are in supporting their learning and understanding the processes of moving from novice to independent researcher. At this level, students are consuming the tasks of PhD-related work from others in contexts that are immediately available, such as peer networks, supportive study groups, online support networks, and social media offering the ability to ask questions.

Creating knowledge. The content shows that students are in a continual and collaborative “sense-making process” (Milligan, Littlejohn, & Margaryan, 2014, p. xx). This process involves not only seeking out new knowledge but also actively engaging in capturing this new knowledge for future use. This task of creating shows up in the blog content, especially when students are making decisions, for example, regarding referencing and note-taking software, joining an Internet forum, and using collaborative social media. These are examples of creating new knowledge that is both personal and collaborative. PhD-related work requires that the student build new theoretical understandings not only around research topics but also around the processes involved in obtaining a PhD.

Connecting knowledge. The content shows that some students are moving toward establishing a personal learning network for actively engaging in completing the tasks of PhD-related work. Students are connecting with people and resources not merely to seek information but also to support one another and perhaps collectively solve challenging research tasks (i.e. asking a question regarding research design using collaborative social media sites). Other examples of connecting knowledge are the use of social bookmarking to share and create knowledge. The content of these blogs shows that these types of connections exist, but for these 14 blogs, at least, making connections, and maintaining these connections do not indicate that these relationships are reciprocal; for the most part, they are unidirectional.
**Contributing knowledge.** Presents a challenge for coding in a content analysis of student blogs, particularly for this study. The general understanding of informal learning in this context suggests an engaged flow of old and new knowledge moving around inside and outside the student’s personal learning network. This movement can be either formally or informally concerned with creating new knowledge and contributing that knowledge to his or her personal network. In turn it forms the basis for creating more knowledge. The whole process of contributing knowledge is built on encouraging collaborative discovery and others in the network purposefully using that knowledge; for example, publishing new knowledge via the act of maintaining a blog, using web tools such as Dropbox to share and disseminate, or recording materials to share via YouTube.

All these ways of contributing are at the surface of the blog content explicitly evident; just by the very nature of their uses for blogs and blogging. However, when we examine the content with the understanding of the processes required to complete the final product—the dissertation—the content shows that for these 14 blogs, at least, the metacognitive skills that provide an original contribution to a student’s discipline are not the informal learning behaviors that show up. Overall, for these 14 blogs, much evidence shows that students engage predominantly in the informal learning behaviors of consuming and creating. However, for those students who recognize the important contexts of conferences, networking, publishing, and presenting, they can be said to be engaged in semi-formal activities.

**The Major Themes**

**Theme One: PhD-Related Work Supervision and the Supervisory Relationship**

*Keywords:* supervisor, supervision, academic advisor.
Overview. The theme refers to the relationship a student establishes with a supervisor, which cuts across all practices related to PhD work. The data shows that a student’s interactions within the supervisory relationship are both positive and negative. While this relationship is the most prevalent one referred to in the content, it shows up not as lengthy narrative, but rather as tiny moments of commentary, whereby feedback on a student’s progress is offered but little evidence of that feedback’s depth appears in the content of a blog post. Glimpses into a student’s progress can be found in comments, as when a supervisor offers support by saying he or she is on the right track or he or she is heading in the right direction. But the content does not elaborate.

In a small number of the posts, the content reveals students learning, that in the supervisory relationship, it is important to be self-reliant, that supervisors are busy, and that establishing a proactive and fruitful relationship is the responsibility of the student. Students demonstrate a misunderstanding of research advice, moving forward in their work often in the wrong direction. The content reveals the possibility that students are poorly equipped to engage in conversation using appropriate language for academic research. In some cases, students appear to return from supervisory meetings and subsequently turn to Internet resources and social media to gain clarity on a topic discussed in the meeting. Elsewhere, supervisors are actively engaged in establishing and maintaining a model of a supervisor teaching a student the work of academia—mainly, the student is apprenticed to the supervisor.

Finding. For PhD students who blog in the context of formal organizational relationships, the traditional metaphor and understanding of PhD supervision are still the most prevalent.
**Discussion and interpretation.** For PhD students who blog in the context of formal organizational relationships, the traditional metaphor and understanding of PhD supervision are still the most prevalent.

The theoretical frame for this study used Bronfenbrenner’s (1979) ecological theory to explore how different contexts influence behaviors and engagement with others. In the immediate environment for a student engaged in PhD-related work, blog content shows that the supervisory relationship is essentially one-to-one. Described by ecological theory, this relationship primarily revolves around a microsystem; these are the “patterns of activities, social roles, and interpersonal relations” that immediately impact an individual (Bronfenbrenner, 1979, p. 40). In this environment, the context of successfully completing PhD-related work is achieved or made difficult by the content and structure of the student’s immediate surroundings.

In the framework of the supervisory relationship, the literature tells us that, to a large extent, students and supervisors misunderstand the activities and expectations involved in supervision (Pyhältö, Vekkaila, & Keskinen, 2015). Earlier research on the nature of the supervisory relationship pointed to inconsistencies in the PhD working environment that impact students’ experiences and successful completion rates (Golde, 2005). In a study on professional inclusion, Sweitzer (2009) demonstrated that students who perceived themselves as merely fitting in were ultimately less successful. The study also specifically addressed supervisory relationships. It is not improbable to suggest that “fit between the students’ and supervisors’ perceptions contributes to students’ persistence and satisfaction with their supervision” (Pyhältö et al., 2015, p. 4).

In the literature on socialization, development, and the PhD student, the dominant metaphor is that the PhD program is like an apprenticeship, in which “much of the important
teaching and learning takes place in a one-to-one apprenticeship between student and faculty member” (Walker, Golde, Jones, Bueschel, & Hutchings, 2008, p. 89). The content of the blogs for this study exposes these types of supervisory relationships and practices. They “reflect academic traditions and the conceptions, values, norms and conventions of the community in question, rather than disciplinary differences more generally” (Pyhältö et al., 2015, p. 6). Javvac-Martek (2009) commented that the dominant theme in socialization is power imbalance. It is the role and responsibility of the faculty and the institution to approach relationships with students from a perspective of apprenticeship. Through the context of the blogosphere and this small sample of blogs, we can hear the echoes of imbalances in power. The traditional iterations of the supervisory relationship are endorsed in the blog content. After all, the work of producing a thesis involves “research and writing, but also involves colleagues and supervisors, individual motivation and crises, contexts and organizational politics” (Letiche & Lightfoot, 2014, p. 2). It is therefore of vital importance for the PhD to understand

him or herself in a context of thesis-writing and the supervisors have to try to manage that understanding and context. A successful thesis is not just a book or manuscript; it is also a set of social relationships, it implies a statement about an organizational context, and it entails a promise of further work. (Letiche & Lightfoot, 2014, p. 2)

However, in a much larger thematic analysis of PhD supervision, as described in the scholarly literature, changes to the dominant model for supervision are taking place, albeit slowly (Halse & Bansel, 2012). The biggest challenges to making change possible are tackling the “entrenched values and practice, which should not be underestimated” (p. 389). Blog_02 demonstrates this point in a commentary on taking part in an MOOC, in which the module centered on the emotional work involved in the supervisory relationship. It is clear that others
commenting in the context of the MOOC discussion had had “bad experiences” in the supervisory relationship. The author of Blog_02 counts themselves lucky in their supervisory relationship.

In changing the traditional model of supervisory relationships, Scholars have suggested that supervision is better thought of as professional work (Halse & Malfroy, 2011). In making this shift, it becomes possible to reimagine the apprenticeship metaphor to better equip supervisors for the role of supervision through “structured training of doctoral supervisors” (p. 1). This is not to suggest that supervisors must receive training for students to ensure student success in PhD-related work. It is an acknowledgment that higher education has become a high-pressure workplace, and the various pressures on faculty’s time and expertise would be better supported through “structured training” (p. 1). The romanticized concepts of what PhD supervisors “should do” (p. 81) can shift to “what doctoral supervision actually does” (p. 81). In turn, students would be better equipped to meet the demands of PhD-related work. Students would not have to feel relieved or lucky having managed to get “a supportive supervisor” (Blog_05, para. 31), in part because expectations would be based on the understanding of professional work roles.

Theme Two: Internet and Associated Technologies for PhD-related work

Keywords: blogs, Twitter, Web 2.0 for data collection, online research ethics, seeking advice from the blogosphere, choosing a referencing application, software advice and solutions.

Overview. The theme refers to a broad spectrum of uses that support the context of practices related to PhD work, where the Internet, social media, and software applications are part of a PhD-related work ecosystem. The content of the blogs revealed that students are actively seeking out advice via online social platforms to complete a PhD-related work task (e.g.,
asking Twitter for advice in deciphering a research term). Students are offering unsolicited advice as to how useful the Internet, social media, and software applications are for specific task completion concerning PhD work (e.g., for just capturing thoughts, Ulysses is a great tool; Endnote is invaluable for keeping references, bibliographies, and citations in order).

Students are concerned about whether to maintain an online academic identity and how to do so; this includes the importance of publishing on the web, maintaining a web presence, and web collaborative research. Students are sharing their own experiences of PhD-related work in the hope of supporting others. In particular, they are giving advice on how to manage, organize, and survive the demands of PhD-related work. The content reveals a higher level of comfort in turning to semi-professional blogs and websites (e.g., @thesiswhisperer, #PhDchat) rather than communicating with supervisors, advisors, and faculty.

**Findings.** For PhD students who blog, social media and Web 2.0 technologies, software, and the Internet are integral components in activities associated with PhD-related work practices.

**Discussion and interpretation.** For PhD students who blog, social media and Web 2.0 technologies, software, and the Internet are integral components in activities associated with PhD-related work practice.

There are a large number of studies related to social media and Web 2.0 technologies in the context of the higher education environment (Boyd & Ellison, 2007; Bryant, 2007; Selwyn, 2008; Siemens, 2004). Many other studies have “accented the extent to which newer technologies are becoming increasingly entrenched in the lives and educational experience of the students of today” (Hamat, Embi, & Hassan, 2012).

In researching the learning experiences of students’ use of Learning Management Systems (LMS) and online discussions, Gulati (2003) noted that students circumnavigated
instructor-led discussions, opting to use informal online tools to communicate outside of the formal learning environment. In this study, the unit of analysis was publicly available blogs, not instructor-led discussion work; what appears to be similar is that students are seeking answers online to conversations within the formal boundaries of institutional relationships. For example, a blogger, having met with his or her supervisor, turns to Twitter to seek further clarification.

To some extent, the finding of this study implies that the Internet-connected world of today presents different questions and challenges concerning students’ use of technology than were present 15 years ago. In 2016 (at the time of writing), it would be unusual to find students reticent to embrace technologies as part of academic work; after all, social media has become a “serious academic tool for many scholars” (Howard, 2011, para. 1). At the other end of the spectrum, social media use by scholars has been described as indulgent “self-therapy” (Tan, 2008, p. 143).

But more than being an integral part of academic life, the content of these blogs hints at reasons other than using social media to join in an academic conversation or be part of an online academic community. As Meyer (2010) concluded in a study of postings in the Chronicle of Higher Education, the outcomes of the research reveal more about the person posting than about the use of the format. The same is probably applicable to the bloggers in this study and what they reveal about PhD-related work.

As noted in the literature reviewed for this study, PhD-related work is carried out in many places that are not connected to the formal physical environment of a university (McAlpine & Mitra, 2015), and the Internet is one of these places. In this respect, the tools required for many of the tasks related to PhD work are stored and made available via the Internet. The content of the blog sample indicates a blurring of the line between formal and informal learning
(Hiemstra, 2009). What lies behind this blurred line? Perhaps there is an urgency, a fear of not capturing the right information or enough of it, of forgetting a critical theory, storing knowledge away in cloud-based lockboxes just in case it is needed wherever you are.

The content of these blogs reveals three important points about PhD-related work. First, as suggested by Greenhow (2011) social media and Web 2.0 technologies, software, and the Internet are now being used to provide academic support. Second, as Attwell (2007) suggested concerning informal workplace learning, social media—particularly personal learning environments—provide possibilities for individuals to supplement formal learning through personalized informal learning online. Third, the communities that students establish with other PhD students online provide opportunities to validate experiences of PhD-related work, offer solutions to challenges presented by the work, and are similar to peer-to-peer mentorships. As Nonaka (1994) noted, trust is a major factor in how knowledge is shared. In the blog data, there is clear evidence that students find trustworthy sources via technology. For example, as part of a daily routine, a blogger checks in with the last post from @thesiswhisperer, or a blogger regularly consults PhD blog sites for authentic advice that is trustworthy.

**Theme Three: Opportunities for Academic Preparation**

*Keywords:* attending conferences, conference reflection, conference presentation, networking, publishing.

**Overview.** The theme refers to all of those aspects of PhD-related work that provide opportunities for students to contribute to the wider academic community and within their disciplinary field. These contributions revolve around attending conferences, making presentations at conferences and within student organizations, and the possibilities and challenges of networking.
The content of the blogs reveals that students who attend and present at conferences and other events outside of their institutions express how valuable these opportunities are for their professional development, particularly in hearing themselves talk about their research and becoming comfortable with academic conversations. Students acknowledge that these are important skills, particularly for those who are looking forward to a faculty career. For some students, the value in attending a professional event affords an opportunity to engage in some critical thinking around their disciplinary interests. Furthermore, opportunities to present at an event in a student’s disciplinary field provide that student with validating professional experiences.

For some students, these validating experiences provide significant ongoing motivational support for their research interests and a general positive sense of self-efficacy, self-reliance, and academic independence. Students are aware that it is important to practice presentation skills, and some will seek out opportunities to present. Some students are afforded formal opportunities to practice these skills through developmental preparation workshops as part of the PhD experience, while other students must attend these developmental workshops as a mandatory component of their degree.

In addition to conferences, networking, and presenting, students self-disclose in the blog content that opportunities to write papers for publication build self-efficacy and resiliency; particularly important as a validating experience are opportunities to co-author papers with supervisors or other faculty members. Students report that professional participation as emerging academics builds a solid foundation, which, in turn, provides role validation, promotes a willingness to seek out other similar educational opportunities, and is an essential ingredient in academic identity development.
**Finding.** For those students who blog, the practices of PhD-related work make the most sense through the contexts of conferences, networking, publishing, and presenting.

**Discussion and interpretation.** *For those students who blog, the practices of PhD-related work make the most sense in the contexts of conferences, networking, publishing, and presenting.*

One of the ways to support students in learning the skills necessary for PhD-related work and providing opportunities to develop skills for future researchers is through “the collaborative experiences offered at research conferences or forums” (Coryell & Murray, 2014, p. 311). Jacobs and Macfarlane (2005) have found that attendance at an academic conference for a novice researcher is an opportunity to be part of “the business of being a professional researcher” (p. 319). But as Coryell and Murray (2014) pointed out, there are too few studies on what exactly students learn and how they learn by attending such events. In fact, most of the research on conferences as learning opportunities comes from studies into undergraduate research (Coryell & Murray, 2014). However, in one recent study that examined graduate motivation for attending conferences, Kim, Lee, Choi, and Huffman (2010) concluded that while students welcomed the chance to attend conferences in their discipline, motivations for participation were determined by the availability of funding. Alongside specific funding for graduate students, the participants surveyed by the authors spoke to how, often, if funding were available, “it is often expended on faculty member[s]” (p. 79).

The blog content in this study revealed that those students who valued the importance of attending and presenting at a conference outside of their institutional setting also valued and pursued opportunities for publishing and contributing to team research. These same students showed in the blog content that they were taking steps toward a career in higher education. In a
study concerning the activities and difficulties in PhD-related work that influence identity development, McAlpine, Jazvac-Marek, and Hopwood (2009) found that students who engaged in formal and semi-informal activities of academic work developed “a feeling of belonging to academic communities” (p. 107). Further data demonstrated that these activities had an overall positive effect, showing that there is a connection between seeing yourself as an academic and “performing as an academic” (p. 107).

In this particular study, the findings are very similar. However, not all of the study’s data supports this conclusion. On the other hand, the study shows that students who do not display a positive sense of self as an academic still recognize that activities such as networking and presenting are beneficial, even though they are hesitant to become fully engaged. I use the phrase that “the practices of PhD-related work make the most sense” because these activities, presenting, networking, publishing, and attending conferences, are visible and tangible, and, moreover, they are activities of the workplace. As work tasks to be performed, they are elements of a job that do not take place in isolation and provide opportunities to engage with others in the same workplace.

The wider implication of suggesting that PhD-related work makes more sense in the contexts of conferences, presenting, networking, and publication revolves around how we make sense of the fluidity of PhD-related work. To put it another way, the tasks required to complete PhD work assume an individual has the ability to work effectively in isolation, but also in a community. From becoming a PhD student, to becoming a researcher, and eventually emerging as an engaged member of the academic community, each sense of “becoming” assumes the development of a sense of independence and a demonstration of self-directedness. Throughout these phases of transition, however, the academic workplace provides “affordances…and
constraints” (McAlpine & Mitra 2015, p. 112). The problem, however, is that the academic workplace “generates learning outcomes less predictable and more variable than when learning is formally structured” (p. 113). It makes sense, then, that when given the opportunity to move beyond the departmental contexts where the majority of work happens, students are afforded space to make sense of PhD-related work, which provides opportunities for professional validation to develop and practice the necessary skills of academic work.

However, there is one caveat to bear in mind: If we return to the conceptual framework for this study, we note that most students during the course of their studies develop the skills needed for PhD-related work and do so within the context of interactions between themselves and the immediate environment (mesosystem). In a desire to move beyond the boundaries of their programs, departments, and supervisory relationships, students become aware of how organizational policies and procedures may negatively impact their future aspirations.

Theme Four: Widening Participation and Access

Keywords: full time, part time, employed, job, balance, family, parenting, coursework.

Overview. The theme refers to the organization of PhD programs and how elements of formal PhD-related work cause conflicts or are affected by the informal and personal contexts of students’ lives outside of the academic setting. In the content of the blogs, students write about juggling employment, parenting, health concerns, financial stressors, and family alongside the demands of PhD-related work. It is evident in the content that students experience PhD programs along traditional programmatic lines. Therefore, the majority of instances referring to the social and emotional contexts of students’ lives present an image of students in conflict with pursuing a PhD.
In the content, it is noticeable that irrespective of a student’s academic status—be it part time or full time—the ways of knowing how to engage in the tasks of PhD-related work are experienced along the lines of a traditional PhD program. The structures and components of PhD-related work do not, in the content of the blogs, show that students are experiencing diversity in program format, except for the differences in programs based on international differences in educational systems.

Consequently, students who are parents, on some occasions, have to make difficult decisions to prioritize child care over school work, miss time working on-site and in the labs, rearrange group projects, endure long hours working at night, and take family vacations at the expense of PhD work. The content reveals that full-time students experience difficulties in managing an academic schedule, problems such as allocating time to different tasks, and PhD-related work not seeming like working at a “real” job.

**Finding.** Despite changes to PhD delivery models, to be successful students must learn to navigate traditional iterations of PhD-related work.

**Discussion and interpretation.** The traditional PhD program model requires students successfully navigate PhD-related work.

There is considerable evidence showing that how students imagine PhD-related work and doctoral programs has shifted considerably in the last few decades (Danby & Lee, 2012). As a response to global economic change, institutions that want to remain competitive must offer degree choices that appeal to a wider audience (Nerad & Heggelund, 2008). Mostly, people’s ideas about what is required to earn a PhD have changed. From a global perspective, there are four new iterations of the PhD carved out of the traditional model that take into account the diverse needs of education, industry, and individuals wishing to gain a terminal degree and
remain outside of academia (Louw & Muller, 2014). However, the content of the blogs for this study suggests otherwise.

The blogs make it clear that students are working within the traditional confines of PhD work. Consequently, students are responsible for managing any external and personal issues that might conflict with the work tasks of a PhD program. Golde and Gallagher (1999) commented on interdisciplinary PhD work, “we contend that our system of graduate education has evolved into a form that nurtures disciplinary specialization and is inherently inhospitable to interdisciplinary work” (p. 285). Leaving aside the complexity of arrangements necessary for interdisciplinary graduate work to be successful, comments such as these point to an all-pervasive, entrenched mindset that assumes, one, a model of PhD-related work as belonging to distinct disciplines, and, two, impetus for change and “fitting in” is the student’s responsibility.

The conceptual framework for this study, which was adapted from Cumming’s (2010) integrative doctoral enterprise model, provided a coding scheme for the typical approaches to formal and informal PhD-related work. What emerged is that students who blogged were following a traditional PhD program. Moreover, given that data was obtained using a nonprobability purposive sampling approach, I would expect that across national boundaries, there would be evidence of diverse PhD models. As we saw in the content, some students had to balance child care as they navigated around PhD-related work schedules. Signs of conflict between the external environment of a student’s life and the institutional practices and ways of doing PhD work are concerns echoed in the literature. In taking a developmental networks approach, Sweitzer (2009) reminds us that there are many “studies accounting for the multitude of relationships students are likely to rely on outside of the academic community” (p. 1).
There is enough research evidence to show that obtaining a PhD is “as much about identity formation as it is about knowledge production” (Green, 2005, p. 153). But if in this identity formation, you are subjected to the push and pull of differing contexts and environments, how likely are your chances of success? Sweitzer (2009) argued that examining PhD-related work as operating “within the broader social context [this] requires us to consider the systems of support, socialization, and varying interactions that also play a role in a doctoral student’s journey” (p. 322). In the context of blog data, we cannot determine to what extent a parent has access to campus child care, and we cannot know if a student has access to college health care, but we can determine that one of the most important relationships is between the supervisor and the student.

Given the complexities of how PhD-related work operates along traditional lines, how possible is it to widen participation and access and acknowledge the lives that students bring when entering the academic workplace? The literature tells us that providing student support built on a model of undergraduate student affairs is not appropriate. At the same time, if we perceive graduate education to be about professional development, we forget that many students first need to learn how to “do school”. This is not about teaching students how to “fit in” or assimilate into the cultural norms of a department.

Lovitts and Nelson (2000) argued that PhD-related work is flawed for these fundamental reasons: (a) insufficient integration of the student into the academic community; (b) not enough and/or adequate funding for the student; (c) department culture and academic expectations are not communicated to the student; (d) faculty take a passive role in the student’s experience in PhD-related work. Each one of these is present in the blog content, both on explicit and implicit levels. I would suggest that the traditional and dominant model of how we accomplish PhD-
related work no longer fits into the organizational model of how higher education operates. I say this because, despite global reforms to the PhD, at the core of the constituent pieces of PhD-related work, the key stakeholders in institutions of higher education “have to be brought to greater awareness about their role in reproducing inequality” (Hurtado, Alvarez, Guillermo-Wann, Cuellar, & Arellano, 2012, p. 42).

**Theme Five: Informal Workplace Learning and PhD-Related Work**

*Keywords*: create, consume, connect, contribute, seeking knowledge, sharing knowledge.

**Overview.** The theme refers to whether, in the context of the blogs, there is evidence of informal learning behaviors. In the tasks related to PhD work, in what ways are students informally interacting within their personal networks to be successful in achieving learning goals? In the content for these 14 blogs, there is evidence of students actively using the Internet to seek out answers to questions predominantly centered on research methodologies and research design. There is no evidence of students explicitly asking these questions of a supervisor or another faculty member. In the workplace, this is considered to be a behavior associated with consuming knowledge, and it is evident that this is applicable also to how students are informally trying to learn the tasks of PhD-related work.

The contextual differences between academic and nonacademic workplaces show up, in some part, through how students are using technology. The content shows how students are primarily consuming and creating knowledge, not to complete a collaborative task, but instead to learn in an informal setting how to complete the tasks required of individuals. In the context of these blogs, we see how the technologies of the Internet and social media are engaging some students in connecting knowledge and contributing knowledge back to the networks they have
established. However, for the most part, the content reveals students seeking out and sharing information on how to do the work related to a PhD.

**Finding.** PhD-related work activities revolve around consuming and creating knowledge.

**Discussion and interpretation.** PhD-related work activities revolve around consuming and creating knowledge.

There are many complex ecological factors and environments in which a student participates that influence PhD-related work. The relationship between the student and the situation is a reciprocal process with bidirectional influences (Bronfenbrenner, 1979). In the content of these blogs, it is difficult to discern reciprocal relationships. As in the conceptual framework, students are at the center of the model; their development and growth are dependent on the immediate settings related to PhD work. The completion of PhD-related work requires a student to complete a thesis or a dissertation, and, in this respect, the most crucial skill to acquire is that of writing. Writing is an “important and a significant learning task for doctoral students” (McAlpine, 2012, p. 351), and equally important is the work of reading (McAlpine, 2012).

Developing the skill of reading has a reciprocal effect of developing “thinking, writing and academic identity” (p. 351). One of the problems in PhD-related work is that the core academic skills of reading and writing, which lead to success in an undergraduate context, do not necessarily prepare a student for graduate-level PhD work (Golde, 2005). In the blog content, we see students struggling with reading and knowing what literature to read (McAlpine, 2012) and turning to the informal learning environment of the Internet for advice.

Through the use of the Internet, the informal learning behaviors associated with the workplace are evidenced in the content of the blogs and the informal learning behaviors of those engaged in PhD-related work. As noted by Marsick, Watkins, Callahan, and Volpe (2009), most
learning occurs not through formal contexts but in informal and incidental contexts. In PhD-related work, informal and incidental learning are referred to by McAlpine, Jazvac-Martek, and Hopwood (2009) as taken-for-granted activities: “They can be spontaneous, unplanned, unstructured, and undocumented; they may be private or involve interaction with others but are not public or visible to the extent of formal and semi-formal activities, e.g., conversation with peers” (p. 100).

What is visible in the workplace regarding informal learning is that individuals develop internal and external networks among trusted coworkers to learn and gain expertise to complete required work tasks (Milligan, Littlejohn, & Margaryan, 2014, p. 1). Informal learning behaviors in education have traditionally been classified as behaviors such as self-directed learning, and this is clearly visible in the blog data. The data relevant to working outside of the confines of a department and external to the institution (e.g., attending and presenting at a conference) showed students engaging in self-directed work. But for the most part, interaction with their informal networks resulted in students consuming and creating knowledge (Milligan et al., 2014). In the context of this study, students made use of the Internet and social media to, first, consume knowledge—that is, to seek out factual understandings of how workplaces work—and, two, to create knowledge—that is, to make sense of conceptual understandings of PhD work.

In turn, how do students’ interactions within their personal networks established online change a more traditional belief of PhD-related social interactions “nested” in a series of environments and contexts (Bronfenbrenner, 1979)? After all, the impact that systems exert over one another in determining the rates of innovation and change alter when mediated through an online world. Milligan, Littlejohn, and Margaryan (2014) wrote that “social tools disrupt previously closed organisational networks, freeing knowledge from internal silos. The use of
public social networks blurs the boundaries between peers within the organisation and colleagues in the wider network” (p. 8).

The informal activities of PhD-related work as outlined by McAlpine, Jazvac-Martek, and Hopwood (2009)—such as writing a dissertation or thesis, preparing for comprehensive exams, and job application work (e.g., writing letters, preparing for an interview)—require students to demonstrate the application of informally learned behaviors to complete the tasks relevant to acquiring a PhD. On the one hand, these informal behaviors of PhD work could only possible by attaining a certain degree of independence or self-directedness. But successfully navigating and negotiating the tasks of PhD work must also include an ability to be self-regulated in learning. If we accept the idea that PhD-related work is knowledge work, then it becomes possible to see that the nature of PhD knowledge work places “increasing demands on knowledge workers [students and faculty] to self-regulate their learning in the workplace” (Milligan et al., 2014, p. 8).

In an interpretation of the idea that PhD-related work activities revolve around consuming and creating knowledge, there is one other component that requires further discussion: Bronfenbrenner’s (1979) notion that relationships between the individual [the student] and the environment are viewed as a reciprocal process with bidirectional influences. I posed a question about reciprocity, defined as those practices of exchange with others for mutual benefit. For students predominantly involved in consuming factual knowledge and creating conceptual knowledge through informal Internet-connected learning, it is important to consider that reciprocity is dependent not just on exchange for mutual benefit. But perhaps it should encompass an element of reflective practice. Perhaps for supervisors, faculty, and those responsible for graduate students, exploring the demands of PhD-related work as reflective
practices, makes it is possible to discern whether informal learning behaviors are part of a cycle of learning and becoming. Or whether the Internet enables students to hide fears of lacking the knowledge to succeed in the high-pressure PhD-related workplace.

**The New and Emergent Themes**

Toward the end of data analysis in discussion with my peer reviewer, I revisited two short memos recorded early in the process of approaching the data. I had made a note of two observations, first why I had expected to find evidence of peer mentorship in the content, and second, why I had expected to find evidence of references to formal taught courses and coursework. Theoretically, both these content areas could be accounted for and coded using Cumming’s (2010) model. However, the explicit evidence did not reveal itself. My initial findings showed that in the content of the sample of blogs, proof of mentorship was very limited and that the substance of the sample of 14 blogs revealed too that PhD-related coursework was not a priority. Both these emerging themes warranted a return to the literature. In the original literature review, I did not explicitly address mentorship, except as referenced in the wider discussion of socialization, identity development, and knowledge sharing. Neither had I explicitly addressed coursework, except in the broader discussion of diversity and change to the traditional types of PhD occurring in the last 15 years. Therefore it is important that these themes are discussed and included in the overall analysis and findings for this study.

**Theme One. Online Peer Mentorship and PhD-related Work**

*Keywords:* Mentor, Mentorship, Mentoring

*Overview.* Theme one addresses whether the blogs show evidence of students accessing and benefiting from relationships with mentors; the theme arose out of the inductive and emergent processes of analyzing data: As *in vivo* coding progressed, I began asking the question,
does anyone specifically refer to having a mentor? In these 14 blogs, only 2 specifically reference having a mentor, someone who was helping the writer navigate and negotiate PhD-related work responsibilities and decision-making. The other questions that emerged asked whether mentorship is an integral part of PhD work: Should students expect to be mentored outside of the supervisory relationship? Are these roles in fact different? Using the blogs’ content, it is difficult to conclusively answer these questions. However, they do warrant further discussion, perhaps because of my assumptions, I expected to see more evidence of students referring to being mentored or having a mentor. Cumming’s model (2010) for integrative doctoral enterprise has mentorship as a task related to PhD work, but I question this role for PhD students because the blog evidence does not support the concept that PhD students are actively engaged in mentoring, or, for that matter, in being mentees. So why in the literature is mentorship offered as “a cornerstone of the most effective and promising practices” (Holley & Caldwell, 2011, p. 244)?

**Finding.** *For those PhD students in this sample of blogs, evidence of mentorship is very limited.*

The research shows that often faculty are too passive in their relationships with students and that consequently mentoring is nonexistent for many students (Lovitts & Nelson, 2000), and in the United States, the Council for Graduate Schools highlighted mentoring as an area that required improvements (2010). Golde (1998, 2005) observed that the lack of effective mentoring affected students’ time to completion and attrition rates. Seagram, Gould, and Pyke (1998) indicated that perceptions of the mentor/mentee roles differed between faculty and students, which impeded finding effective mentorship and made retaining students difficult. The research regarding international students suggests that for students studying in the United States, more
emphasis is placed on mentorship between themselves and faculty as an indicator of success (Le & Gardner, 2010; Rose, 2005). In fact, belonging to and participating in a network of peers has been shown in research to have a positive effect on PhD students in their developing an academic identity (Baker & Pifer, 2011).

According to Preston, Ogenchuk, and Nsaish (2014), one aspect of mentoring that can lead to success and transformational learning is peer mentoring. The authors note that for students who are undertaking PhD-related work, it is not only economical but also practical, and it is a powerful way to build relationships among students; they commented that “efforts to improve PhD attrition rates generally focus on financial support, academic preparation, professional development, and trusting relationships” (Preston, Ogenchuk, & Nsaish, 2014, p. 64). Yet the authors also “articulated how most of these supports were naturally provided through the formal and informal experiences of peer mentorship” (Preston, Ogenchuk, & Nsaish, 2014, p. 64). In a study concerning nursing PhD programs, Roy and Linendoll (2006) noted that in nurse education worldwide, “a common concern among nurse educators is an understanding of the process of mentoring, which is so central to developing new doctoral-level research scholars in the field” (p. 347).

It would seem from the research that mentorship, mentoring, and mentor roles and responsibilities in PhD-related work are as confusing as the findings on the roles and responsibilities for supervision in PhD work. One of the problems in higher education is that of definition—often, “advising,” “mentoring,” and “supervising” are used interchangeably (Knox, Schlosser, Pruitt, & Hill, 2006). Mentorship is also viewed as context dependent; workplace and university settings have specific mentoring needs and processes (Phillips, 1979). Campbell and Campbell (2000) defined faculty approaches to mentoring students as revolving around (a)
genuine altruistic strategies to help students, (b) contributing evidence of service toward promotion and tenure, and (c) building relationships and friendships with students. Perhaps the lack of evidence in the blog content parallels the ongoing difficulties referenced in the literature? It should be noted here that there is evidence to suggest that the world of research into doctoral education is concerned with faculty mentoring for PhD students (e.g., Millett & Nettles, 2010; Holley & Caldwell, 2011).

In looking at mentorship as a potential emerging theme in this study, I questioned where it existed in the content of these blogs; it could not have been missing, could it? In carrying out emergent and inductive qualitative research, Merriam (2009) stated that in designing studies, the research questions must match the design but also that “you should also consider whether the design is a comfortable match with your worldview, personality, and skills” (p. 1). As a researcher, I am comfortable with content analysis as a method, but more than that, I am comfortable in and live in a digital Internet-connected world; my workplace lives as much online as off-line.

Seeing the content of the blogs from this perspective enabled my lens to shift sufficiently to see that mentorship was scattered throughout these 14 blogs; in fact, two of the blogs I now consider to be examples of peer-to-peer mentorship. In the literature review for this study, I had not reviewed materials specific to mentorship because it was a context that already ran throughout much of the research on socialization and development of PhD students. In addition, I had reviewed literature regarding knowledge sharing online and the kinds of knowledge students shared, but I needed to return to the literature regarding aspects of online mentorships, specifically peer mentorship. A research question emerged with which to approach the literature, how does peer mentorship show up in the context of a blog?
Research shows that mentorship and mentoring can support knowledge sharing and powerful opportunities for informal learning (Swap, Leonard, Shields, & Abrams, 2001), and Swap et al. (2001) stated that when technologies are involved, “computer systems can help the apprentice teach the novice…Information technology similarly is an indispensable tool for peer mentoring” (p. 7). Davis, Deil-Amen, Rios-Aguilar, and Canche (2012) acknowledged the importance of building support relationships with students in higher education through the use of social media as a mentoring tool. Social media supports students’ adjustment to college life by creating “opportunities to establish peer-support networks” (DeAndrea, Ellison, LaRose, Steinfeld, & Fiore, 2011, p. 2); the thought is that most of these studies are aimed at undergraduate student populations. A small number of recent studies acknowledge the use of social media as a means of mentoring PhD students, for instance, mentoring in an online doctoral program (Kumar & Dawson, 2012), the characteristics of E-mentors and mentoring the dissertation process online (Nieto, 2016), and supporting the next generation of faculty and the career trajectories of PhD students (Curtin, Malley, & Stewart, 2016).

All these studies provide important contributions to the discussion on mentoring from an institutional standpoint. However, studies relating to peer-to-peer mentorship via social media for PhD students by PhD students appear to be lacking in the literature. Moreover, in my search of education databases and journals, using the search terms informal mentorship and social media, EBSCOhost returned two results. Adding the words doctoral students returned zero results; changing the search terms using a variety of combinations of social networks, communities of practice, online identity formation, web 2.0 technologies, and computer-mediated communication returned too many results to be of use in this study at this time.
There is an apparent lack of research on peer mentorship in connection to PhD-related work mediated through open online social media. As an emerging theme in this study, further research would address a gap in the literature that specifically looks at how students use blogs as a method of providing peer-to-peer mentorship. In this study, peer mentorship is evidenced in the blog content, but we do not know the motivations for providing lengthy posts that provide advice and guidance for others pursuing a PhD. The content of some blogs shows evidence of reciprocity as a blogger thanks the wider digital community using a digital user name, for instance, @sarah64; this is noteworthy because it raises the question of whether this could be considered reciprocal mentorship. Moreover, it raises the question of whether intent to share knowledge without expecting reciprocal dialog can be considered mentorship.

A study relating to mentorship and PhD-related work in the context of blogging would contribute further to exploring how PhD work knowledge is shared along with the types of knowledge shared. Further too, research that has examined microblog sites such as Twitter and Tumblr could add to the discussion of peer-to-peer mentorship as it relates to the PhD workplace. Another avenue of research is exploring PhD-related work blogs that actively not only examine the original postings but also take into account replies to postings. A study that used qualitative methods of analysis in communication studies could provide evidence regarding the blogging practices of PhD students, specifically, how bloggers perceive relationships with their audiences. In essence, further study could benefit from talking to these bloggers to assess how they envisioned their blogging practices; for instance, do they see their blogging as a means to provide mentorship or as a way to provide knowledge and contribute to wider online academic conversations?
Theme Two. PhD-related Coursework

*Keywords:* coursework, classes, lectures, seminars

**Overview.** This emergent theme relates to all elements of formally taught PhD-related work. The theme arose from both the deductive and inductive processes of analyzing data. In using Cumming’s (2010) model for integrative doctoral enterprise as part of the conceptual framework and coding structure, I had expected to find in the data evidence of the practices of pedagogy and research that explicitly referenced the contexts of formally taught courses, programs, classes, lectures, and seminars. However, this was not the case: Of the 14 blogs, nine contained 36 explicit references to formally taught PhD-related work. It is important to note that these were explicit references and not in-depth reflective content (i.e., course content, such as readings). Moreover, the content had little or no impact on completing assignment work. Considerations of national differences in PhD programs, and whether coursework is required, do not necessarily account for its absence in the blog content, particularly in the two practices where I thought it would appear.

For the sake of clarity and an account of international language differences, I am going to use the term *coursework*, when speaking to this theme, to refer to any formally taught PhD-related work. The literature reviewed for this study regarding how a student approaches PhD-related work tends to make two points about coursework. First, prior academic success, involving coursework at an undergraduate or a master’s level, does not necessarily indicate success at the doctoral level. Second, students entering a PhD program have individual personal learning objectives, “which influence how they approach coursework” (Sweitzer, 2009, p. 18). The international differences in approaches to coursework, as represented in the literature, can be summarized and defined within three broad categories. First, the Australian system requires little
to no coursework, although some changes are taking place which include not only research and academic skills but also “a plethora of workplace capabilities and professional attributes” (Kiley, 2014, p. 8). Second, the United Kingdom, as in much of Europe, follows what is essentially “a research apprenticeship in which individual students work[ed] closely with a nominated supervisor” (Go8, 2013, p. 8), which involves little or no formal coursework. Third, in the United States, students complete a “prescribed course of graduate study” (Go8, 2013, p. 8).

There is little room in this particular study to explore and describe the nuances of PhD-related coursework and the issues facing those responsible for doctoral programs both in the United States and internationally. However, the question remains: Why does coursework not show up in the blogs?

**Finding.** *The content of the sample of 14 blogs reveals that PhD-related coursework is not a priority.*

A potential explanation for this emergent finding from the blog content is connected not only to the wider systems and practices of doctoral education but also to the purpose of schooling as an agent of socialization. Compared to the wealth of literature dedicated to PhD-student socialization into the academic norms of PhD-related work in the United States (Austin, 2002; Gardner & Mendoza, 2010; Weidman & Stein, 2003), there is not as much emphasis placed on student socialization elsewhere in the world. The literature revolves around the often intense relationship between the research agenda of a supervisor and those of his or her apprenticed students. Moreover, the current international debates regarding research skills training, generic skills, and doctoral competencies are often focused on defining the word “skill”—“Nor is there agreement on what skills doctoral study should develop” (Mowbray & Halse, 2010, p. 654).
Yet, despite the national systems represented in the blog sample for this study, where are the examples of either coursework-intensive programs (such as in the United States) or the more flexible approaches to providing curricula aimed at PhD students (such as in the United Kingdom or Australia)? It appears that on a day-to-day basis, PhD-related work, whether informal and flexible or coursework-dependent, tends to be just one of multiple tasks related to the process of earning a PhD. There is a sense of what I am calling the ordinariness of coursework among PhD students, whereas it is the extraordinariness of tasks regarding the thesis or the dissertation that contributes defining moments and sense-making to PhD-related work. After all, “the dissertation looms as the most difficult time for many students” (Gardner, 2008, p. 328).

Obviously, it is important to interject a note of caution in drawing inferences from this emergent finding. In querying the lack of explicit references to students connecting with their coursework, reflecting on class lectures, or referring to pre-PhD coursework as having transferable value, I am reminded that “when we come up with a finding in a field of study... [there is often the rush to] quickly assume it to be typical, an instance of a more general phenomenon” (Miles & Huberman, 1994, p. 263). Moreover, as a PhD student myself, with opinions on coursework, I have had to check my biases: Am I seeing what I want to see in the relevant data? At this juncture, if I had more time and resources, I would expand the sample size of blogs and include other data collection methods, such as interviews, focus groups, and case studies.

Widening the study parameters would potentially allow me to account for how the milestones of PhD-related work, such as success in candidacy exams, perceived as a component of coursework. A comparative study of different program-delivery models for coursework could be beneficial and would provide a valuable contribution to the wider dialog of assessment of
PhD-student work. In fact, focusing the debate of assessment in doctoral programs could provide an important avenue for the study of how students perceive the importance of coursework, or the ordinariness of coursework.

Returning to a wider discussion of socialization, I wondered whether the lack of explicit references to coursework were an example of what Dewey (1900) described as a product of changing social situations. Has coursework lost its relevance, no longer meeting the needs of a “new society” (Dewey, 1900, p. 20)? The diversity of and changes to PhD curricula suggest that these two questions warrant further discussion. Another compelling explanation incorporates aspects of Bronfenbrenner’s ecological theory. I suggest that, through interactions of the microenvironment, the sustained activities and patterns of schooling have anesthetized students. That is, by the time a graduate student encounters coursework, that student’s ways of interacting and doing have become natural and learned behaviors requiring little metacognitive skill. Therefore, coursework becomes an invisible task associated with the overall task of completing PhD-related work.

**Analytical Categories**

The analytical categories table (Table 5) provides a meaningful visual to show the connections between the study’s research questions, the findings, and the research problem (Bloomberg & Volpe, 2015). I found this an invaluable tool to support the development of my critical thinking regarding the findings and themes for the study. It helped to anchor my thinking, check my understanding, and help uncover any hidden meaning or biases on my part regarding data analysis. Once I had completed the data analysis and constructed my analytical table it was possible to revisit my themes and findings to ensure alignment with the research questions. The development of this tool provided a means to “step back” from the narrative of the reported
findings, to gain an overview of the study. As Yin (2011) explained in qualitative research, the use of tables is an opportunity to help make data more visual and understandable to the reader.
### Table 5

**Analytical categories**

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Finding Statement</th>
<th>Source of Research Problem</th>
<th>Analytic Category</th>
</tr>
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<tbody>
<tr>
<td>What practices related to PhD-work show up in blog content?</td>
<td>Finding In the context of formal organizational relationships, the traditional</td>
<td>Student’s success depends of the formal organizational workplace of the academy. However,</td>
<td>Category Supervision and supervisory relationship.</td>
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<td></td>
<td>metaphor and understandings of supervision is still prevalent.</td>
<td>“workplaces differ substantially in how they support learning” (McAlpine &amp; Mitra, 2015, p.</td>
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<tr>
<td>Which sub-categories related to PhD work show up in the blogs?</td>
<td>Finding The activities of PhD-related work make the most sense through the</td>
<td>To succeed in PhD-related work, students must develop a sense of independence and produce</td>
<td>Category Validation and positive self-efficacy via opportunities for professional participation, mentorship</td>
</tr>
<tr>
<td></td>
<td>following contexts a. Conferences and Networking.</td>
<td>work of academic originality while demonstrating self-directedness in their learning.</td>
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<td>Finding For PhD students who blog, Social media and Web 2.0 technologies; software, and</td>
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<td>the Internet are an integral component in activities associated with PhD-related work practice.</td>
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<td></td>
<td>Finding The Internet is a new nontraditional area where people engage in learning.</td>
<td>Finding Despite changes to PhD delivery models, to be successful students must learn to</td>
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<td>navigate traditional iterations of PhD-related work.</td>
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<td>There is enough research evidence to show that obtaining a PhD is “as much about</td>
<td>There is enough research evidence to show that obtaining a PhD is “as much about  identity formation as it is about knowledge production” (Green, 2005, p. 153).</td>
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<tr>
<td>In what ways are external personal contexts impacted by the structure of the PhD-related workplace</td>
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<tr>
<td>How are the four informal learning behaviors associated with work revealed in a content analysis of PhD student blogs</td>
<td>Finding PhD-related work activities revolve around consuming and creating knowledge.</td>
<td>Although successful in prior learning. Students are often not prepared for graduate level PhD-related work.</td>
<td>Category The relationship between informal workplace learning and PhD-related work learning</td>
</tr>
</tbody>
</table>
Chapter Summary

An analysis of blogs explored what practices related to PhD work show up in blog content, and which subcategories related to PhD work show up in the blogs. The content revealed that PhD-related work takes place in many settings and is impacted directly and indirectly by multiple relationships across many differing environments. Analysis of data asked another two questions. In what ways are external personal contexts impacted by the structures of the PhD-related workplace? Moreover, how are informal learning behaviors associated with the workplace revealed in a content analysis of PhD student blogs? Themes emerged that align with those in the literature: supervision, validation and professional participation, the important role of the Internet and social media, widening participation and access, and informal workplace learning in relationship to PhD-related work. While these themes are extensively explored by others working in the field, two emergent themes were revealed in data for the study, not because there was evidence, but rather because there was little evidence. In the research I expected to find content related to coursework and mentorship. However, the opposite was revealed leading to new and exciting avenues for future studies.
CHAPTER VI
RECOMMENDATIONS AND CONVERSATIONS

The purpose of this qualitative content analysis was to explore the context of the Blogosphere as an informal learning space, specifically looking at the content of PhD student’s blogs and what the content of these blogs reveal about PhD-related work practices. The conclusions drawn begin by asking why the findings of this study matter through an overview of the major findings and recommendations, which moves on to address these areas in closer detail. In closing, I provide a short critique and along with changes to my conceptual framework, my contribution to the conversation for future studies, recommendations for research and a personal reflective statement.

Overview of Major Findings and Recommendations

In posing the question why do this study's findings matter? I know there is not one answer. In part this is due to content analysis as a research method. As noted in chapter two, any interpretation of data must be transparent, it is not possible to spiral into the depths of deep meaning making as in methods of data interpretation more suitable to a critical study (Sandelowski, 2009; Schreier, 2012). Therefore, any new and intriguing questions that emerged during this study might require a change of research approach to deepen understandings. For example, mentorship is acknowledged in the literature as an integral component in PhD-related work, but in coding the data, mentorship was not a common topic. Does this lack of evidence suggest there is an incongruence with the literature? Perhaps, or not. What it reveals is an important component in social science research; approaching data from different research approaches. One could supplement the current findings with follow-up questions with the bloggers themselves asking whether mentorship is of enough personal importance to reflect on in
the practice of blogging. Or, ask in what ways does coursework contributes to identity
development in the process of PhD work. Both these questions help to develop our knowledge of
the blogosphere and what makes the blogosphere a unique space for students to inhabit?
On one level the findings from this study further illuminate some of the overarching issues
related to doctoral education reflected in the literature. However, not that the study's findings
merely echo that which is already known. At another level a study of blogs makes a significant
and unique contribution to several of the conversations related to doctoral education, PhD work,
and the differing contextual spaces where PhD-related work is carried out. Furthermore, while
PhD-related work is diverse and complex, as are the conversations about how to reform doctoral
education, a content analysis of blogs shows us that at a student-level, the contexts where
experiences of PhD-related work occur influence the content of an individual's blog. The practice
of blogging therefore plays a vital supporting role, not only as an aid to help make sense of the
uncertainties related to PhD work but also to aid discussion on how informal learning plays an
integral role in PhD work. Therefore, at a deeper level the study proposes new and interesting
ways to frame further exploration into PhD-related work and informal learning, moving beyond
the online context which had served as the beginning rationale for this study.

What is already known about blogging from the literature tells us that people blog for numerous
reasons, one of those being as a method for reflection (Nardi, Schiano, Gumbrecht, & Swartz,
2004). In the blogs studied for this content analysis, the context of the blogosphere is a space that
complements a student's learning experiences in other more formal contexts by acting as an
outlet for reflection. In this respect the act of blogging is not so much about engaging in a
remedial activity; that is trying to learn and make sense of the unknown, searching the Internet
for answers, but rather to supplement and enrich the experiences of PhD-related work.
Broadening the conversation, the literature researched for this study showed that the Internet supports student learning by allowing students to personalize their learning experiences, share knowledge, and provide an environment that elicits engagement (McLoughlin & Lee, 2011). The content of the blogs reinforces this point in showing how blogs can engage students in creating and personalizing their learning needs. For example, in providing detailed explanations of various software and web 2.0 resources, the contextual space of a blog supports the practice of making-sense, trying out ideas, and charting one’s requirements for success. What is intriguing, and warrants further study, is just how much blogging influences a student’s experiences in other microsystems, such as relationships with peers, faculty, and family? And, to what extent the blogosphere, and the Internet in a more general sense, exerts influence over how knowledge and learning is validated, endorsed, and adds value.

Throughout much of the literature on reforming doctoral education the dominant conversation remains focused on the central role that PhD graduates play in a well-equipped 21st century workforce. However, in the blogosphere and these 14 blogs analyzed, the wider implications of reforms and changing times does not invade the immediate contexts where PhD-related work is experienced. The blogs did not reveal themselves to be contexts where the bloggers appeared overly concerned with reforming doctoral education. The findings on formal relationships (e.g., supervisor) point to the opposite, the bigger issues being confined to the immediate micro-contexts surrounding the PhD work itself. This raises the question of awareness, and whether it is necessary to identity development as an emerging scholar to know of how attitudes and ideologies of the wider culture operate?
Supervision and the Supervisory Relationship

A prominent finding that emerged from this study is the nature of the supervisory relationship. In the day-to-day work related to a PhD, supervisory oversight is limited to formal interactions associated to reviewing a student’s progress. Sometimes, a few months may pass with little or no contact. The impetus to maintain the supervisory relationship defaults to the student. Evident are the writers’ fears of appearing to make mistakes or looking stupid when discussing individual PhD-related work. Although the content provides evidence of the writers’ struggles, it does not reveal whether students are struggling directly with PhD work or with external problems that are linked with a supervisor. Evident is that mythical beliefs and misunderstandings persist regarding the supervisor–student relationship. Pyhältö, Vekkaila, and Keskinen (2015) comment that “both the quantity and the quality of supervision have been shown to have a significant impact on the doctoral experience” (p. 5), while Green (2005) described supervision as a mysterious activity (p. 151).

Two conclusions are drawn from this finding. First, despite a changing landscape related to the practices of PhD work, in formal organizational relationships the traditional metaphor and understanding of PhD supervision are still the most prevalent. Second, there are few or no professional development opportunities for those responsible for the direct supervision of PhD-related work. Consequently, the practical aspects of the actual supervision depend on departmental norms and an individual supervisors’ sense of what to do (Cotterall, 2013). A related conclusion suggests that organizational level policy and procedure decisions negatively affect PhD-related work, thus creating misunderstandings among the supervisor, the student, and the institution (Golde, 1998, 2000).
**Internet and Associated Technologies for PhD-Related Work**

The second finding of this study shows the prominence of the Internet, social media, and software applications have to the tasks of PhD-related work (Cevetello, 2009). The blogs revealed an understanding of various technologies and how these operate in the larger scholarly ecosystem (Wilmott, 2011). In this respect, technologies are used to transcend formal learning boundaries, seek out reassurances, provide information, develop knowledge, and capture knowledge (Raschke, 2003). Recognizing technology as central to successful completion of the tasks related to PhD work, some institutions are offering workshops on the uses of a variety of technologies for PhD students beyond the traditional referencing and bibliographic technologies. The content of these blogs shows that there is much to gain from a structured organizational approach to supporting students’ use of technology for PhD-related work.

**Opportunities for Academic Participation**

The third finding of this study brings to light the importance of opportunities for students to attend professional conferences, present, and publish work, and network effectively with others in field. The blogs reveal that for students seeking a career trajectory in higher education, these opportunities are vital, in that they provide validation for an individual’s PhD-related work, mentorship from senior researchers in his or her discipline, and opportunities to practice the skills of presenting and networking. Through these activities, it becomes possible to develop an academic identity and to develop independence and self-direction. Another way for students to develop independence and self-direction are opportunities to co-author and publish as an active part of their PhD-related work (McAlpine and Amundsen, 2011; Sweitzer, 2009).

In conclusion, given that just over half of the blogs showed evidence of the importance of these activities, these participatory expectations should be offered for all students within PhD
preparation programs. Through these activities, those students who are nervous and anxious regarding establishing an academic identity can begin the process of gaining confidence in their own PhD-related work.

**Widening Participation and Access**

The fourth finding of this study is concerned with how PhD-related work is offered in higher education. Many elements of formal PhD work create additional problems for students trying to manage the various demands of full-time employment, family obligations and parenting, and financial responsibilities. Even though the research tells us that PhD programs have diversified their offerings (Krull, 2010), the findings suggest otherwise. Mostly, the traditional PhD program (irrespective of country) dominates how PhD-related work takes place. The dominant paradigm is still centered on socialization into the social and cultural academic norms of the institution. The blogs reveal to us the possibility that not all PhD students envision an academic life in the academy (Sweitzer, 2009). However, the overall content tells us that PhD-related work cannot be left out of the general conversations in higher education regarding accessibility and widening participation.

In conclusion, widening participation in and prospective student access to enrollment in a PhD program are not about lowering standards or expectations. They are more about listening to how students need to imagine and organize their studies and then responding with flexible options and greater access to student support services tailored specifically to PhD graduate students (Fenwick & Tennant, 2004). For those students returning to learning after engaging in full-time employment, how might a conversation on credits for prior experience and learning play out in the design of PhD programs? The question is, does this conversation deserve a role in how institutions plan and offer PhDs?
Institutions should also acknowledge that PhD students juggle multiple priorities and often PhD work takes time away from their families. By recognizing the priority of the student’s family, universities could provide support services, such as child care, after-school clubs, and low rates on short-term family housing on campus. Institutions could further engage families by hosting dedicated days, “PhD family fun days”, where they can take advantage of university resources, such as a sport and recreation facility, pool, or attend a sporting event. Distance learning programs, where students earn required residency through occasional on-site weekend courses, could integrate family fun programs making the program more accessible for student’s attendance and participation.

In addition, to support for disciplinary dissemination and engaging families, Institutions can scaffold students toward success before the students formally begin their program. For example, following program acceptance, college, or university graduate schools or departments could facilitate PhD preparation courses to help students acclimate to the skills, demands, and rigor of doctoral level work. Coupling this with ongoing, multi-format researcher skills events that are multidisciplinary would build a culture of doctoral student support across programs. As state previously, recognizing the significant technological needs of PhD students, the institution should consider fostering external partnerships with software and allied technology companies to provide affordable and accessible technological resources for the duration of a student’s program.

**Informal Workplace Learning and PhD-Related Work**

The fifth finding in this study recognizes that academic work operates along the lines of a workplace. The flexibility of technology enables PhD-related work to be carried out in places other than at school (McAlpine & Mitra, 2015). The behaviors associated with informal
workplace learning (Margaryan, Littlejohn, & Milligan, 2013) are directly applicable to those PhD students who use technologies to complete individual assignments and collaborative projects and to build personal networks to achieve success in their learning.

Informal workplace learning behaviors also appear in the blogs as a direct correlation to the numerous development models of associated behaviors as a student moves toward independent scholarship (e.g., Austin, 2001; Lovitts, 2001; Golde, 1998). The findings show that students’ struggles with the tasks related to PhD work tend towards research practices. Here students are engaged in trying to make sense of information and to gain new skills by relating these to work tasks with which they have some familiarity; however, prior academic success does not guarantee PhD success (Golde, 1998). In conclusion, students are comfortable consuming and creating knowledge. Some students have a greater sense of resiliency and can establish connections with people and resources, develop their learning goals, and eventually contribute new knowledge back to the network (Margaryan, Littlejohn, & Milligan, 2013).

**Recommendations**

A comprehensive review of PhD programs can help to shed light on an institution’s understanding and expectation of the PhD supervisory relationship. In particular, a climate study can uncover barriers to student success and hidden departmental norms. A carefully conducted audit of student feedback and/or evaluations related to supervision is advisable. Institutions that do not collect evaluation or feedback data should develop and implement a system for ongoing tracking and assessment.

The role of supervisor requires the time necessary for adequate supervision of assigned PhD students. Department chairs have the responsibility to ensure proportional faculty assignments. Departments facing an overload of PhD students to supervise would benefit from
implementing a system for group supervision. Regular meetings with a group of students can reduce faculty load while developing a process for peer feedback, support, and encouragement.

Opportunities for professional development for supervisors would enhance their skill level and efficacy their position. One such ongoing opportunity could include implementing a system where senior faculty supervisors mentor newly assigned faculty regarding the role and responsibilities elicited by the supervisory relationship. Junior mentors further develop their mentoring skills and experience supervising PhD students. Additional compensation, or other means of recognition, should be provided to supervisors, such as stipends to accompany students to disciplinary conferences to immerse them in the field and introducing them to other scholars.

Institutions should investigate and seek vendor partnership to provide free and affordable technology trials and training to PhD students. For example, an annual technology-related vendor fair to introduce students to a variety of solutions to support them at each stage of their doctoral journey provides an opportunity to compare and share resources. Students would also benefit from an ongoing graduate series on useful technologies for organizing and completing their work. Regular professional workshops and seminars highlighting technologies exposes students to various options, allowing them to make choices based on their needs, organizational style, and skill level. Introducing students to a range of technologies early in their program will help them determine how technology can support the systems and skills for managing each stage of the PhD process. Through institutional opportunities for software trials and training, students will save valuable time and money that may otherwise be lost through seeking their own solutions. Connecting with other PhD students and discussing successful tools and technologies can also ease the anxieties of a student struggling with finding adequate organizational and research software solutions.
A help desk or a technology clinic with knowledgeable and experienced staff who can assist with a range of support for a struggling doctoral student could provide another valuable resource for PhD students. Doctoral or graduate assistants, well-versed in technology tools relevant to various stages of disciplinary writing, research methods, and analysis, would be ideal candidates for staffing such a clinic while also benefiting peer support.

An assessment of current mechanisms and budget for funding students’ attendance at discipline-related conferences provides an initial snapshot for existing support. In addition, a review of the number of students who are actively taking part at external conferences and disciplinary meetings will help programs project and plan for future student travel support. Departments can further progress their efforts by setting targets for students to co-author publications, attend disciplinary conferences and meeting, and present or co-present with faculty at these meetings. Graduate schools and colleges can further support this initiative by offering workshops on writing for publication and presentation, oral, and poster presentation skills, and disciplinary networking.

A review of existing graduate support systems targeted for academic, information, and research literacy would reveal strengths and gaps in an institution’s services. By creating partnerships across graduate programs, college, or university departments could receive additional support for activities such as recruitment. Institutions may want to consider accelerated PhD degree programs and/or academic credit for prior workplace experience and learning. The ability to take advantage of such opportunities would create program efficiencies and offset the time and costs required to complete all the PhD-related work for students.

PhD granting institutions should consider assessing their structure for academic support, including intrusive and inclusive advising models. Institutions should provide a forum and
multiple modes for students to voice their concerns and suggestions for programmatic change. By listening attentively to PhD students’ thoughts on the curricular components and departmental structures, programs could adapt policies and process to strengthen student support structures. Universities could also consider creating a center for graduate researchers staffed by faculty with appropriate experience supporting PhD students, who bring expertise in multiple disciplines and methods of research. This would decrease the burden on overworked supervisors. Finally, universities should provide opportunities for department chairs, faculty, and research specialists to attend international conferences focused on doctoral work and future PhDs, to develop evidence-based best practices and provide ongoing professional development.

**Critique, Future Research, and Personal Reflection**

Having completed the current study, it important to include a critique of my conceptual framework. I will then discuss areas of future research this study suggests, and end by returning to the reflection that began this dissertation.

**Critique**

Cumming’s (2010) integrative framework for doctoral enterprise provided this study with an entry point into research related to PhD work. However, it had limitations. Because of this, I would amend my original conceptual framework to make use of McAlpine, Jazvac-Martek, and Hopwood’s (2009) work related to doctoral specific activities and general academic activities. In their research, the theoretical lens of identity theory supports the exploration into variations of activities categorized into six activity clusters. Doctoral and general activities were coded using a typology of activities, distinguishing “activities according to degree of formality…Formal…Semi-formal…and Informal” (McAlpine, Jazvac-Martek, & Hopwood, 2009, p. 100). These categories are in better alignment with the literature reviewed for this study.
(Re)framing my original conceptual framework shows how the connections between informal and incidental learning, with an emphasis on workplace learning, complements an understanding of PhD-related work as an act of work. Included in reframing is the need to move beyond the narrow definitions of self-directedness that implies that a successful PhD student is a self-directed student. Using a framework for informal and incidental learning in the workplace (Marsick & Watkins, 2001) supports my assertion that students are better equipped for PhD work through developing the skills of self-regulated learning. Future studies are necessary, as there is still much to learn from the content of PhD student blogs.

Figure 6. A new conceptual framework

A Future Research Agenda

I recommend the following for future research. High impact global blog sites customized to address PhD-related work that give advice, guidance, and support, warrant a study to find out why these sites attract 130,000 visitors per year. What are the fundamental components that have
gained students’ trust? A survey design comparing an institutional site providing essentially the same services to a high impact website can provide valuable data to explore students’ levels of trust in using social media for seeking PhD-related knowledge.

A quantitative content analysis of the reviews for popular PhD-related books that address “How to finish a PhD” and “Writing a thesis” provides another avenue to explore PhD-related work. It is important to know the kinds of knowledge that PhD students value, trust, and find helpful to fill gaps in the work related to completing a PhD. It would be interesting to carry out a longitudinal study to compare students in writing a dissertation. Essentially, to follow them through their early work and into the dissertation phase to see what changes in what kinds of knowledge they seek and sources they value?

It would be interesting to learn whether PhD students who write informally become more adept in the skills of creativity and technical writing. A study design might include recruiting two groups of students from the same discipline, institution, and phase of a program: Assign Group One to blog and write using a more informal style; Assign Group Two to use more traditional resources and methods available to them for writing support.

Finally, I recommend a study that specifically addresses the types and quality of foundational materials provided to students. What do students receive from their formal setting and how they perceive the value of the materials? Why and where do they seek resources independently, and what are those resources? How do the resources from either source support their learning, inform their process, and contribute to their success? The findings would be interesting and provide insight to formal doctoral programs as to what students consider beneficial.
Personal Reflective Statement

A few months into the practical task of writing this dissertation, an awareness of myself becoming a researcher gnawed away at the fingers on my keyboard. What did I believe to be a truth, reality, knowledge, and why such unease with the stalwart texts provided as aids to embedding myself in a research genre? There I sat questioning everything, yet all I was doing was writing a dissertation, having conducted what I hoped was an informative piece of research. I understood that it was important that I took into consideration how my personal experiences in the world shaped my understanding of the world (Creswell, 2003), but just how important was it?

I began this dissertation with a story. As you know from that story, in my household, two students are pursuing their PhDs. You also know both these students acknowledge anxiety-inducing feelings of impostership. You also know both believed it is easier to fill in their gaps regarding PhD-related work via the safety afforded by the Internet. Now, it is time to take a deeper look into a part of that story. It is a small fragment of my personal connection to the identity of a novice student, navigating, and stumbling through the steps required for PhD-related work.

My name is Sarah and my use of the internet to support my studies began when I was having difficulty filling in the boxes provided in the dissertation proposal template provided in my doctoral seminar. I went out on the internet to search how to write a Problem Statement for Chapter 1. After a while, I noticed that I had become more comfortable reading the work and comments of other PhD students because I could connect to their explanations more authentically than those provided by the formal structures of my institution. In my professional life, I have taught in higher education for many years and have taught adult learning theory.
Therefore, this should not have come as a surprise because adult learners are more likely to take their own initiative to construct meaningful moments of engagement in learning processes.

I read a blog by a British PhD student and asked myself questions aside from reading the content of his blog. For example, “What kind of added value was this blogging process providing for him?” “What were his reasons for blogging his PhD process?” and “Did his blog content share the answers to the questions that many students have on how to complete a PhD?” I might add I was also quick to judgment, thinking you would never catch me blogging! However, this blog intrigued me. It was written with authoritative informality, and given my knowledge of adult learning theory, I wondered if there were elements of informal adult learning revealed through his blog posts.

Through further reading, I came to realize that I too was engaging in the process of informal learning. I had learned from him how to do a PhD. Intrigued by this insight, I became curious enough to write out ideas and notes, primarily asking, “What is going on here?” He shared his PhD content knowledge and how it connected to his research. He was sharing the contextual knowledge of PhD-related work and situating his learning and his life as they related to being a student in the context of higher education. As he talked about belonging to a higher education organization, it became clearer that these references were written almost as if the PhD itself was a metaphorical “workplace.”

In the broadest sense, I noticed in this blog the possibilities of connections between the contexts of PhD-related work shared online and the contexts of informal workplace learning. Each time I returned to his blog, I became less interested in the usefulness of its content for my PhD work but more interested in what practices related to PhD work showed up in the blogs of other PhD students. His blog did not offer answers to the specific questions I had about writing a
dissertation, rather it had me asking larger questions about engaging in informal learning during the dissertation process. The more I returned to his blog, the more questions I had. Ironically, these issues eventually shaped the Problem Statement that had started with my initial search for “fill-in-the-blank examples.” I have since emailed with the now doctorate conferred blogger, who kindly provided me a copy of his completed thesis and wished me well in my PhD-related work.

So, here I am, as a finale of sorts to the tale of the two students in my household. I have learned through these quest challenges of completing my first piece of grown-up research that as an educator, I am committed to the study of learning, to solve problems, and to contribute to our knowledge of teaching and learning. Both my belief and approach regarding research is connected to who I am, and I have learned that it is not possible to separate one from the other (Harding, 1987). Bourke (2014) has suggested that if a piece of research is to be valuable, then it does not end at the completion of any findings. My research then is influenced not only by my rationale for carrying out the study but is also influenced by how I reflect throughout and beyond.

In exploring the context of the Blogosphere as an informal learning space, specifically looking at the content of PhD student’s blogs and what the content of these blogs show us about PhD-related work practices, I end with this statement. I am enthralled by the online world. In fact, what I find particularly captivating is the capacity of my online existence to resemble nothing, of my manifest self. I am connected and aloof, a consumer and participant, an observer and an explorer. The Internet is the place to which I retreat, tweet, theorize, legitimize. It is almost as if, in this virtual world of lived-in spaces the essences of our social world collide and
collapse, expand, and retract, and in doing so provide concealed glimpses of plausible meaning as to the state of individual realities.

**Chapter Summary**

The purpose of this qualitative content analysis was to explore the context of the Blogosphere as an informal learning space and to specifically look at the content of PhD student’s blogs and what the content of these blogs reveals about PhD-related work practices. The study resulted in several recommendations for policy and practice in higher education related to PhD level work and highlighted future research directions toward extending this research. The study concluded with a critique of my method and methods chosen to study PhD student blogs, and I have written a personal reflection on my reason for and interest in the topic for my PhD dissertation. I finish with one acknowledgment that I was the instrument for inquiry in this study, the analyst, the interpreter, and the writer. Others using my dataset could easily construct a different story (Yin, 2011).
REFERENCES


Kiley, M. (2015). 'I didn’t have a clue what they were talking about’: PhD candidates and theory. Innovations in Education and Teaching International, 52(1), 52–63.


http://www.nall.ca.


Appendix A

Code System
### Appendix A. Code System

<table>
<thead>
<tr>
<th>CURRICULAR PRACTICES</th>
<th>Coding Memo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum: Evaluating</td>
<td>Personal goals, direction, program outcomes,</td>
</tr>
<tr>
<td>Curriculum: Participating</td>
<td>Participate</td>
</tr>
<tr>
<td></td>
<td>Dialog, discourse, relationships in academy,</td>
</tr>
<tr>
<td></td>
<td>professional, organizations</td>
</tr>
<tr>
<td>Curriculum: Organizing</td>
<td>Organize &amp; plan elements of degree (student)</td>
</tr>
<tr>
<td></td>
<td>Internships, fieldwork, practicum</td>
</tr>
<tr>
<td>Curriculum: (re)Framing</td>
<td>Changing ideas, rethink skills, abilities, etc.</td>
</tr>
<tr>
<td>Curriculum: Negotiating</td>
<td>Negotiation (with institution)</td>
</tr>
<tr>
<td></td>
<td>Program components, courses, credits, different</td>
</tr>
<tr>
<td></td>
<td>options, policies, practices, requirements, etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PEDAGOGICAL PRACTICES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical: Presenting</td>
<td>Conference presentations using own research.</td>
</tr>
<tr>
<td>Pedagogical: Mentoring</td>
<td>Acting as: Other students, undergraduates</td>
</tr>
<tr>
<td>Pedagogical: Collaborating</td>
<td>Peer-to-Peer research/study</td>
</tr>
<tr>
<td>Pedagogical: Networking</td>
<td>Writing groups, Seminars, Online participation</td>
</tr>
<tr>
<td>Pedagogical: Training</td>
<td>Skill building, knowledge, procedures, requirement</td>
</tr>
<tr>
<td>Pedagogical: Interacting</td>
<td>Opportunities for critical discourse</td>
</tr>
<tr>
<td></td>
<td>outside academy</td>
</tr>
<tr>
<td>Pedagogical: meeting</td>
<td>Supervision expectations (student)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RESEARCH PRACTICES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Research: Securing</td>
<td>Understand protocols, Review Board, Permissions,</td>
</tr>
<tr>
<td></td>
<td>e.g., Institutional review board, participant</td>
</tr>
<tr>
<td></td>
<td>permissions, ethics, research funding</td>
</tr>
<tr>
<td>Research: Theorizing</td>
<td>Theorizing, critical inquiry, questioning</td>
</tr>
<tr>
<td>Research: Analyzing</td>
<td>Analyzing data</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>Research: Generating</td>
<td>Gathering data</td>
</tr>
<tr>
<td>Research: Designing</td>
<td>Deciding on research approach, methods, methods chapters</td>
</tr>
<tr>
<td>Research: Reviewing</td>
<td>Reviewing literature, other studies, types of research</td>
</tr>
<tr>
<td>Research: Writing</td>
<td>Writing research, writing dissertation/thesis</td>
</tr>
</tbody>
</table>

**WORK PRACTICES**

<table>
<thead>
<tr>
<th>Work: Conference</th>
<th>Use new code each time a separate conference insistence/s occurs in a blog. (e.g., attending more than one conference)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work: Conference</td>
<td>Evidence that the content of blog demonstrates reflective/critical thought on attendance at conference/s</td>
</tr>
<tr>
<td>Reflection/critical thinking</td>
<td></td>
</tr>
<tr>
<td>Work: Contributing</td>
<td>Team research, policy decisions, search committees</td>
</tr>
<tr>
<td>Work: Volunteering</td>
<td>Supporting others research, Interviews, community service, tutoring</td>
</tr>
<tr>
<td>Work: Publishing</td>
<td>Articles peer-reviewed journal, online journals, co-authoring with supervisor</td>
</tr>
</tbody>
</table>

**FOUR LEARNING BEHAVIOURS CONTEXT**

The groupings have been simplified for coding purposes. Changes to the original model have taken into account blogging an act of sharing knowledge.
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTRIBUTE</td>
<td>Make new knowledge structures public, through formal mechanisms. Make new knowledge structures public, through formal mechanisms. Make goals or development plan or strategies public and accessible by all.</td>
</tr>
<tr>
<td>CONNECT</td>
<td>Find others with similar experiences to establish/confirm causality. Engage with others to achieve learning goals, through collecting and connecting knowledge and developing new knowledge structures. Connect to personal network to seek advice, or identify others with similar goals.</td>
</tr>
<tr>
<td>CREATE</td>
<td>Write personal, reflection notes. Create new knowledge or augment existing knowledge. Articulate and record goals and learning strategies.</td>
</tr>
<tr>
<td>CONSUME</td>
<td>Seek evidence to validate strategy. Explore requirements via a search engine or other trusted information sources. Discover new knowledge to help achieve goals.</td>
</tr>
</tbody>
</table>
Appendix B

Sample Of In Vivo Codes and Associated Memos
### Sample Of In Vivo Codes and Associated Memos

<table>
<thead>
<tr>
<th>Code System</th>
<th>Memo</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOFTWARE ADVICE/SOLUTIONS CONTEXTS</td>
<td>Actively engaged in describing/demonstrating (through own use) the relevance in PhD-Related Work.</td>
</tr>
<tr>
<td>Online identity</td>
<td>Recognizing &amp; Managing Online Presence</td>
</tr>
<tr>
<td>Academic blogging</td>
<td>Purposes, comments, why, how</td>
</tr>
<tr>
<td>Coursework/Presentation: collaborative web 2.0 software</td>
<td>Evidence of collaborative use of internet software for completing group coursework assignments, presentation proposals.</td>
</tr>
<tr>
<td>SOCIAL MEDIA USE [OTHER]</td>
<td>Blog content refers to other social media used by the blogger (e.g., Twitter) for PhD-Related work. Social media is part of the wider eco-system and Integrative frameworks?</td>
</tr>
<tr>
<td>PHD-RELATED WORK STATUS CONTEXT</td>
<td>Blogger’s PhD program Status, e.g., part-time,</td>
</tr>
<tr>
<td>Unclear</td>
<td>Unclear, refers to more than three employed (paid) activities</td>
</tr>
<tr>
<td>Full-time PhD</td>
<td></td>
</tr>
<tr>
<td>Part time PhD</td>
<td></td>
</tr>
<tr>
<td>BACKGROUND CONTEXT</td>
<td>Prior/before PhD - reflective commentary/comments, paid work</td>
</tr>
<tr>
<td>Vocational Calling</td>
<td>Called to work in field of interest, spiritual dimension of work.</td>
</tr>
<tr>
<td>Ideas about student life as PhD student</td>
<td>Expectation that PhD student life would</td>
</tr>
<tr>
<td><strong>Personal about statement</strong></td>
<td>A post with explicit content, an About post; excluding an “about” tab</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>flexibility of a PhD</strong></td>
<td>Different daily living planning and tasks, to-do lists, nonstandard 9-5 working day</td>
</tr>
<tr>
<td><strong>Justifying getting a PhD</strong></td>
<td>Reasons for pursuing PhD linked to personal development and growth, desire for learning, not linked to professional career advancement</td>
</tr>
<tr>
<td><strong>PhD necessary for professional life</strong></td>
<td>Necessary for career advancement</td>
</tr>
<tr>
<td><strong>Decision to re-enter Academia</strong></td>
<td>Personal statement reflective statement</td>
</tr>
<tr>
<td><strong>Questioning PhD related work (SELF)</strong></td>
<td>Others questioning pursuit, statement justifies choice/decision to pursue</td>
</tr>
<tr>
<td><strong>Decision to Pursue PhD</strong></td>
<td>Commentary on why starting a PhD</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th><strong>SOCIAL AND EMOTIONAL CONTEXT</strong></th>
<th>Connected to Bronfenbrenner ecological systems theory</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HEALTH/PHYSICAL WELLNESS CONTEXTS</strong></td>
<td></td>
</tr>
<tr>
<td><strong>FUTURE ASPIRATION CONTEXT</strong></td>
<td></td>
</tr>
<tr>
<td>Career trajectory (H.E faculty)</td>
<td>Content references desire to pursue future faculty position in H.E.</td>
</tr>
<tr>
<td><strong>RELATIONSHIP CONTEXTS</strong></td>
<td></td>
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<tr>
<td>Parenting/Balance</td>
<td>All Types/kinds inside/outside of PhD-related work</td>
</tr>
<tr>
<td><strong>EMOTIONAL CONTEXTS</strong></td>
<td></td>
</tr>
<tr>
<td>Social Life</td>
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