Examining the Nature of Published Research

About Mentoring in Higher Education

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Abstract

The various forms of mentoring relationships in higher education have all proven to be valuable, offering numerous benefits to mentors and protégés. Research into mentoring provides critical insight into aspects of these relationships, which can be used to advance theoretical and practical understandings of the topic. However, little is known about the methodological characteristics of the mentoring research itself. Using descriptive quantitative content analysis, I examined five years of articles published in five scholarly journals to determine the prevalence of research about mentoring in higher education. Not surprisingly, the prevalence of these articles differed significantly among journals in higher education (1.07% to 3.13%) compared to the considerably higher prevalence rate of 53.15% for the mentoring journal, *Mentoring & Tutoring* [$\chi^2 (4, N = 82) = 143.98, p < .01$]. I also report findings related to the prevalence of different empirical research traditions, research designs, and data sources, as well as various populations, such as faculty members or graduate students who serve as mentors or protégés. Given the limited number of mentoring articles published in higher education journals, I was unable to compare methodological characteristics across journals. Implications for theory, research, and practice in the area of mentoring in higher education are also suggested. Understanding the methodological characteristics of the current literature allows researchers to tailor their current studies by either continuing with existing trends in methodological approaches or seeking opportunities to incorporate under-utilized research traditions, designs, or data sources, with the aim of continuing to improve mentoring knowledge and outcomes.

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Table of Contents

List of Tables

List of Figures

CHAPTER ONE: INTRODUCTION

Mentors are some of the most important and influential individuals in the lives of others; their significance cannot be overstated (Kram, 1988). Within higher education, mentoring relationships can be essential sources of support, advice, and guidance for students and faculty members alike (Johnson & Huwe, 2003). Consequently, researchers have engaged in considerable scholarly activity in an attempt to understand various aspects of mentoring in higher education. Although these efforts and the resulting literature help to advance the collective body of mentoring knowledge, especially as it relates to higher education, little is known about the methodological characteristics of the literature in the field of higher education (Hutchinson & Lovell, 2004).

Based on my efforts to locate relevant literature, I discovered that limited attention has been given to investigating the methodological characteristics specific to research about mentoring in higher education. This study represents a first step in that direction, for the purpose of this study was to examine the nature of published research about mentoring in higher education. Rather than examining aspects of mentoring relationships such as the benefits each member receives or functions provided in mentoring relationships, which have been examined in varying levels of detail in the existing published literature, I examined characteristics of the mentoring research itself. Using a descriptive quantitative approach, I completed a content analysis of five years of articles from five scholarly publications in mentoring and higher education.

This research offers at least five significant contributions to the advancement of knowledge, including providing a profile of (a) the methodological characteristics of mentoring in higher education research and (b) the journals under investigation in this

study, which will allow researchers to target appropriate journals either by (c) following the existing pattern of what journals are currently publishing or (d) adopting underutilized methods that fill existing gaps with complementary evidence and (e) allow higher education programs and instructors to target the research methods needed by graduates to be able to engage with published literature in the field.

Purpose and Research Questions

The purpose of this study was to examine the nature of published research related to mentoring in higher education. To do so, I examined the following research questions:

1. What is the prevalence of articles about mentoring in higher education among selected mentoring and higher education publications?

2. What is the prevalence of different methodological characteristics in articles about mentoring in higher education?

    a. What is the prevalence of different empirical research traditions (i.e., qualitative, quantitative, and mixed methods) in articles about mentoring in higher education?

    b. What is the prevalence of various research designs in articles about mentoring in higher education?

    c. What is the prevalence of various data sources in articles about mentoring in higher education?

    d. What is the prevalence of different populations (e.g., faculty members, graduate students, undergraduate students) as mentors in articles about mentoring in higher education?

e. What is the prevalence of different populations (e.g., faculty members, graduate students, undergraduate students) as protégés in articles about mentoring in higher education?

3. Are there differences among journals in the prevalence and characteristics of articles about mentoring in higher education?

Using a descriptive quantitative approach, I examined methodological aspects of published research about mentoring in higher education. The articles that I analyzed involve mentoring with students, faculty members, or staff members, and include mentoring that developed formally or informally. My analysis was not limited to traditional dyadic mentoring, for I also included studies that involve peer mentoring or group mentoring.

My purpose for conducting this study was not to evaluate the findings of mentoring research, but instead to concentrate on the methodological aspects of the existing literature. Furthermore, it was not my intention to critique any particular research article, author, or research methodology, but instead to provide insight into the characteristics of the existing research, which can then be used to inform further research and graduate study into mentoring in higher education.

Research Focus and Justification

Within the academic literature and the popular press, many authors cite positive outcomes of mentoring for mentors and protégés (e.g., Allen, Eby, Poteet, Lentz, & Lima 2004; Cronan-Hillix, Gensheimer, Cronan-Hillix, & Davidson, 1986; Paglis, Green, & Bauer, 2006), making mentoring an important relationship within higher education. There is also plenty of anecdotal evidence to support the powerful impact of these interpersonal

relationships. For example, Levinson (1978) proclaimed mentoring relationships as one of the most "developmentally important" (p. 97) relationships a person can have. Taken together, this support serves to promote the importance of mentoring, both as a topic of study and as an organizational practice.

Over time, authors have noted how mentoring research has proliferated (e.g., J. Allen & Johnston, 1997, as cited in Bozeman & Feeney, 2007; Eby, Allen, Evans, Ng, & DuBois, 2008). Despite this apparent growth in research, a number of authors have criticized the lack of rigorous, empirical studies about mentoring (Crisp & Cruz, 2009; Jacobi, 1991; Johnson, 2010). Therefore, it seems that even though mentoring has become a popular topic of study, mentoring research may not be meeting some expected standards (Crisp & Cruz, 2009). Furthermore, although a number of authors have conducted reviews of the findings associated with mentoring in higher education (e.g., Crisp & Cruz, 2009; Dorsey & Baker, 2004; Jacobi, 1991; Merriam, 1983), little effort has been given to examining the mentoring research itself. Despite completing an extensive literature search, I was unable to locate any studies that explicitly and purposefully examined the methodological characteristics of mentoring literature.

In contrast to the field of mentoring, scholars have begun to investigate the methodological characteristics of published research in other fields of study. Most of this research focuses on examining the prevalence of mixed methods in various areas, including the social sciences (Alise & Teddlie, 2010; Collins, Onwuegbuzie, & Jiao, 2006), leadership (Bryman, 2011), professional development of principals (Parylo, 2012), and mathematics education (Hart, Smith, Swars, & Smith, 2009). However, as

Hutchinson and Lovell (2004) point out, few scholars have investigated the methodological characteristics of published research in higher education.

At present, the only reference to prevalence rates in the existing literature about mentoring refers to the occurrence of mentoring relationships within specific populations. For example, scholars (e.g., Clark, Harden, & Johnson, 2000; Cronan-Hillix et al., 1986; Johnson, Koch, Fallow, & Huwe, 2000) have tried to ascertain how many graduate students in a particular program report mentoring relationships. In contrast to the other areas mentioned above, such as social sciences (Alise & Teddlie, 2010; Collins et al., 2006) or leadership (Bryman, 2011), an investigation of the prevalence rates of mentoring research has not yet been completed. To the best of my knowledge, no studies have examined the prevalence rates of published literature about mentoring in higher education, nor have any studies investigated the prevalence of specific methodological characteristics such as empirical research traditions, research designs, or data sources within the mentoring literature. Consequently, an investigation into the prevalence rates of studies about mentoring in higher education and the prevalence of methodological characteristics within this literature is warranted.

Additionally, researchers have begun making a number of recommendations with the intention of advancing research on mentoring in higher education. For example, Johnson (2010) noted that he found "very few empirical investigations of mentorship in academe" (p. 205). He also made a number of other observations, including the rarity of "studies that move beyond observation and anecdote" (p. 205) and the frequent use of retrospective surveys. Although Johnson can certainly be considered a leading scholar in the field of mentoring in higher education based on his extensive publishing record (e.g.,

Bigelow & Johnson, 2001; Clark et al., 2000; Dickinson & Johnson, 2000; Fallow & Johnson, 2000; Huwe & Johnson, 2003; Johnson, 2002, 2007, 2008; Johnson & Huwe, 2002, 2003; Johnson et al., 2000; Johnson & Nelson, 1999), he does not provide sufficient detail regarding the methods he undertook when completing his review for his 2010 book chapter. As far as I understand, his comments are based upon his extensive personal experience in the literature and not based upon a systematic review. Given the lack of established evidence to substantiate Johnson's (2010) claims, examining the prevalence of research on mentoring in higher education, along with the prevalence of methodological features, such as article type or research design, is justified and would make a valuable contribution to the scant empirical evidence on this topic.

Finally, from a personal perspective, this study is valuable to me in at least three ways. Understanding the nature of published research about mentoring in higher education provides insight into the current state of methodological characteristics of mentoring research. These findings help to shed light on the types of research that are conducted most and least often, including whether these studies tend to be qualitative, quantitative, or mixed methods in nature. Similarly, these findings reveal the research designs and data sources that are used most and least frequently within research about mentoring in higher education. With this information, and as I consider possible PhD dissertation topics, I may be able to design research that complements the existing mentoring research and addresses a gap in the literature through the use of underutilized research methods or data sources.

Undertaking this study has also strengthened my skills in research methodology, for I must be familiar with the various elements I have measured. For example, I must

understand the differences among research designs in order to assess and code published studies. Furthermore, given the focus on comparing different journals, I have extended my knowledge about the journals examined in this study and the types of articles they publish. This information will serve me well as I look for outlets to share my research in the future.

Outline of the Remainder of the Document

The remainder of this document provides the information required to achieve the purpose of this study and examine the aforementioned research questions. In Chapter Two, I discuss mentoring in higher education, including information pertinent to student, faculty, and staff mentoring relationships. I then describe similar studies that examine the nature of published research in other areas of education and related disciplines, which provides further support for undertaking the current study.

Building from this literature base and demonstrated gap, in Chapter Three, I detail the research design and methods used in this study. I outline the content analysis approach I followed, providing details on the ways the journal publications and individual articles were selected, coded, and analyzed. Finally, I describe the efforts I undertook to ensure the trustworthiness of my data, and acknowledge the limitations and ethical considerations associated with my study.

In Chapter Four, I present the findings of my research. I discuss the prevalence rates of published articles about mentoring in higher education, showing a statistically significant difference in the prevalence rates across the various journals. I also present my findings related to the prevalence of different empirical research traditions, research designs, and data sources, as well as various populations, such as faculty members or

graduate students, who serve as mentors or protégés. Given the limited number of mentoring articles from higher education journals, I was unable to make comparisons across journals as I had hoped. I end by presenting additional findings about the manifest and latent coding processes that I undertook in this study; although these results are not directly related to my research questions, they are noteworthy nonetheless.

I conclude the document with Chapter Five, where I present a summary of my study, highlighting my findings and situating these within the existing literature. I also suggest ways this study may influence theory, research, and practice. I end the project with a reflection of what I have learned from completing this study, and outline some of the ways I believe this study will inform my future research and professional development.

CHAPTER TWO: LITERATURE REVIEW

This review of the literature describes mentoring in higher education as well as academic studies that have examined prevalence rates in other disciplines, including areas of education outside higher education. With respect to mentoring, I provide a brief history of mentoring in general and describe mentoring in higher education, offering a summary of relevant review articles. I then focus on student mentoring relationships and present a discussion of faculty members mentoring each other, along with some of the limited research related to staff mentoring within higher education. Next, I introduce a line of inquiry focused on determining the prevalence rates of methodological characteristics in a particular area of research. Within this recent trend, and as a complement to reviews of content or findings, authors focus on the characteristics of the literature itself and tend to report the prevalence of various methodological aspects of the research. I provide a brief summary of this literature and detail studies that are relevant to the current investigation.

A Brief Overview of Mentoring

Mentoring has become a popular phenomenon within organizational practice and as a topic of academic investigation (Eby, Rhodes, & Allen, 2010). It is studied within a number of contexts, namely organizational mentoring, youth mentoring, and mentoring in academia. The concept of mentoring can be traced to Ancient Greece, when Mentor was entrusted to care for Odysseus' son (Roberts & Chernopiskaya, 1999). Mentoring became the subject of increased scholarly attention in the late 1970s. Although many authors had alluded to or briefly mentioned the concept of mentoring (e.g., Collins & Scott, 1978; Kanter, 1977), Levinson (1978) is routinely credited with undertaking the first empirical

studies examining mentoring relationships (Allen et al., 2004; Eby et al., 2010; Jacobi, 1991). Using a life-cycle approach to studying adult development, Levinson determined that mentoring relationships are some of the most complex yet developmentally important relationships of a person's early adulthood.

In an interesting parallel, scholars in higher education, such as Astin (1977), Chickering (1969), and Pascarella (1980), had also begun investigating interactions that resembled mentoring relationships, but did not explicitly use the term *mentoring*. These higher education scholars focused on the importance of informal faculty–student interactions, which form the basis for many mentoring relationships. Astin found that students at small colleges, who had more opportunities for student–faculty interaction by virtue of the college structure, were much more satisfied than their counterparts at larger institutions. Chickering stated that frequent and friendly interactions with faculty would help develop students' intellectual competence, autonomy, and purpose. In addition to conducting studies of his own (e.g., Pascarella & Terenzini, 1977; Pascarella, Terenzini, & Hibel, 1978), Pascarella (1980) summarized existing literature, finding that students' informal contact with faculty was positively related to their academic achievement, personal development, and institutional persistence. Based on this early research in mentoring and higher education, relationships between faculty members and students have been recognized as an important component of student success, and are discussed in further detail below.

Despite the higher education studies noted above, much of mentoring's early published research focused on mentoring in business and organizational contexts (Dickinson & Johnson, 2000; Tenenbaum, Crosby, & Gliner, 2001). The most influential

scholarly study of mentoring to date has been Kram's (1980, 1988) qualitative examination of matched junior–senior mentor dyads (Bozeman & Feeney, 2007; Jacobi, 1991; Savickas, 2010). Kram's (1988) descriptions of mentoring functions and phases are widely cited and comprise much of the foundational theory surrounding the study of mentoring (Johnson, 2010). Although Kram's functions and phases were developed in organizational contexts, and crossover of concepts between disciplinary silos is rare (Bearman, Blake-Beard, Hunt, & Crosby, 2010; Eby et al., 2008), these aspects are routinely applied to mentoring between graduate students and faculty advisors within higher education (e.g., Beres & Dixon, in press; Clark et al., 2000; Lark & Croteau, 1998).

Mentoring in Higher Education

Mentoring in higher education can take many forms, including faculty members mentoring graduate or undergraduate students, students mentoring their peers, faculty members mentoring other faculty members, and mentoring among administration or ancillary staff members. Mentoring relationships between graduate students and faculty members are often reported to be the most prominent mentoring relationships within higher education (Johnson & Huwe, 2003) and mentoring relationships are typically considered to be very positive and influential for mentors and protégés.

Reviews of Mentoring in Higher Education

In order to gather and make sense of individual findings, which can sometimes be fragmented or contradictory, scholars have undertaken various reviews in order to arrive at unified perspectives. For example, Merriam (1983), Jacobi (1991), and Crisp and Cruz (2009) have all conducted purposeful reviews of the mentoring literature, with a focus on

mentoring in higher education. In her review of early mentoring literature, Merriam (1983) concluded "no distinct line of research can be traced with respect to mentoring in academic settings" (p. 169) and that based on the "idiosyncratic nature of available studies" (p. 169), little can be said about the frequency or importance of mentoring relationships for any individuals within educational settings. Eight years later, Jacobi (1991) agreed with Merriam that researchers still had not arrived at a consensus regarding the definition of mentoring. Focusing on undergraduate success, Jacobi also considered the frequency of mentoring relationships in higher education and the empirical connections between mentoring and academic success. She noted that the occurrence of mentoring relationships had the potential to vary based on contextual factors such as academic institution, field of study, gender, or ethnic group. She also noted that existing empirical literature from which to draw conclusions lacked methodological rigour and provided inconsistent evidence, with some studies demonstrating indirect support for the positive influence of mentoring on academic success.

Building on Jacobi's (1991) study, Crisp and Cruz (2009) sought to update the definitional aspects of mentoring and provide a critical synthesis of the mentoring literature focused on college students and published between 1990 and 2007. Crisp and Cruz concluded that not much had changed since Jacobi's review with respect to definitional consensus, but they did suggest there had been a "significant improvement" (p. 530) within the literature to investigate the effect of mentoring on various populations, such as racialized, gay, lesbian, bisexual, "at-risk," and first generation higher education students.

These reviews have summarized the findings of mentoring studies, thereby providing a synopsis of the state of mentoring research, but they have not provided an assessment of the state of the research itself. Although it is certainly helpful to understand the characteristics of mentoring and features such as the outcomes or frequency of these mentoring relationships, systematic information about the mentoring literature itself would be beneficial.

One exception to the narrow focus on the results of mentoring studies is the brief analysis conducted by Crisp and Cruz (2009). Although these authors did not conduct a formal content analysis, they claim to have examined the focus and methodology of 19 quantitative studies about mentoring. They found that the majority of these studies used non-experimental methods, with a few studies employing experimental or quasi-experimental designs. When describing their concerns with many of the articles, Crisp and Cruz noted some studies used cross-sectional data or relied heavily on descriptive research, but the authors did not provide any additional information or analyses regarding the data collection strategies beyond what is reported here. Although it is disappointing that additional analyses were not conducted, because the main focus of the article was to update Jacobi's (1991) review of the mentoring literature, merely mentioning the methodological characteristics of articles represents an encouraging first step towards recognizing the need for and conducting additional research into the methodological characteristics of mentoring in higher education research. Having summarized the review articles that synthesize the field, below I discuss aspects of mentoring related to specific groups of individuals.

Student Mentoring

Mentoring relationships between students and faculty members, especially graduate students and faculty members, can be critical in helping students navigate the complex and arduous graduate school process (Johnson & Huwe, 2003). Within these relationships, mentors provide students with many functions designed to help build the protégés' careers and develop their personal and professional identities. Mentors and protégés alike report receiving significant benefits from these relationships. In fact, for many protégés, the benefits may be innumerable (Johnson & Huwe, 2003). Measurable benefits reported by protégés include increased skill development and confidence levels (Johnson & Huwe, 2003), along with greater levels of research productivity (Paglis et al., 2006) and increased scholarship levels, including more overall publications, more first-authored publications, and greater involvement in research projects (Cronan-Hillix et al., 1986) as compared to non-mentored individuals. Mentors also accrue benefits from mentoring relationships. For example, mentors may experience increased productivity resulting from the contributions of their graduate students. Kanter (1977) and Kram (1988) have suggested that when protégés are successful in their pursuits, this success may be reflected back to the mentors, who may then be recognized by their peers as individuals who are capable of fostering talent and helping others develop.

Within academia, mentoring is not limited to just graduate students, as undergraduate students have also benefitted considerably from these relationships. In their integrative review of mentoring experiences in undergraduate nursing, Dorsey and Baker (2004) found that mentoring was positively related to students' academic success

and psychosocial development, and also contributed to student retention and graduation rates.

With respect to the members of these mentoring relationships, undergraduate students are not limited to strictly faculty–student relations, but may also engage in relationships with their undergraduate peers, graduate students, postgraduate scholars, or other individuals. For example, Behar-Horenstein, Roberts, and Dix (2010) found undergraduate students who participated in a research program had the opportunity to interact with faculty members, graduate students, and technical assistants. These more experienced individuals helped the undergraduate students to build their technical expertise and communication skills, and students also had opportunities to work collaboratively on multiple projects, and to present their findings or publish their work.

In addition to the broad distinctions between graduate and undergraduate students, some authors have examined mentoring within specific populations of students. For example, Lark and Croteau (1998) examined mentoring among lesbian, gay, and bisexual graduate students. In addition to themes present in many graduate student mentoring relationships, participants noted the benefits of having mentors who were lesbian, gay, or bisexual or were heterosexual allies; in particular, participants perceived these mentors as helpful role models. These mentors were also sources of support; helped protégés navigate possible lesbian, gay, and bisexual issues; and generally increased visibility for this specific population of individuals. Ortiz-Walters and Gilson (2005) examined the mentoring experiences of protégés of colour and found they reported receiving more instrumental and psychosocial support, and also felt more comfortable and satisfied, in relationships with mentors who were also of colour. In both cases, it should be noted that

further research must be conducted to examine the experiences of specific populations of students.

Faculty Mentoring

Faculty mentoring relationships have typically been studied less frequently than mentoring relationships that cross student and faculty lines (Sands, Parson, & Duane, 1991). In one study examining the mentoring practices of faculty members, Sands and colleagues (1991) reported that faculty frequently recounted personal experiences of being mentoring, but tended to emphasize mentoring experiences that occurred during their graduate school experiences. In contrast, only one third of respondents reported having had a mentor while they were faculty members at the institution where the study was conducted. Furthermore, Sands and her colleagues found that most faculty mentoring relationships were voluntary and were formed through mutual arrangement, as opposed to being assigned through formal mentoring programs.

Recently, some individuals have suggested that the popularity of faculty mentoring programs is on the rise (e.g., June, 2008). Still, others believe that much more effort must be devoted to helping universities develop mentoring cultures that promote faculty mentoring relationships (Bean, Lucas, & Hyers, 2014). Although additional effort may be required, some programs have been very well received. In their evaluation of a faculty mentoring program, Bean and colleagues (2014) found the benefits were overwhelmingly positive and 100% of mentors and protégés who provided feedback reported that they would recommend the program to others.

In addition to large-scale surveys of faculty mentoring program participants, other research involves faculty members' narrative reflections about the evolution of their

personal mentoring relationships. Ciuffetelli Parker and McQuirter Scott (2010), along with Griffin and Beatty (2012), each share their experiences transitioning from junior and senior faculty members to collegial collaborators. Building on commonalities found in each relationship, each mentor dyad recounted the ways their respective mentoring relationships helped the personal and professional development of each member. In both of the aforementioned studies, the junior faculty member was able to gain insight into her transition to a faculty member role and sought assistance and guidance from her more senior faculty counterpart. Both the mentor and the protégé in each mentoring relationship noted how she or he benefitted greatly from the relationship, providing further support for the positive outcomes of mentoring relationships among faculty members.

Administration and Ancillary Staff Mentoring

Within higher education, research examining mentoring among staff members is less common than mentoring that involves students or faculty. However, a limited number of studies do exist. For example, Bower and Hums (2014) examined mentoring among female athletic administrators, and Cullen and Luna (1993) examined the mentoring functions women with senior administrative roles provided for junior females in academe. Both articles noted the positive impact mentoring had on the protégés' career advancement, yet suggested the need for further research and participation in mentoring programs.

Summary of Mentoring Literature

Mentoring is a popular topic of study that is typically examined within three domains, including higher education. Students, faculty, and staff engage in mentoring

relationships with varying frequency and various levels of hierarchical or peer mentors. Mentors and protégés typically experience positive outcomes. Many authors have conducted literature reviews and synthesized the existing findings, lamenting the lack of a unified definition of mentoring. However, despite these content reviews, there has been a lack of effort in examining the methodological characteristics of the literature that informs the field. This represents a significant gap and this study begins to address that void following the model from prevalence rates studies, which are described next.

Prevalence Rates Studies

Examining the methodological characteristics of published literature has become a recent trend, especially within mixed methods research (Alise & Teddlie, 2010). Rather than summarizing the results of published research related to a given topic, authors using this research approach often attempt to determine the proportion—or prevalence rate—of qualitative, quantitative, and mixed methods research found within a particular sample.

Focus of Prevalence Rate Studies

In many cases, researchers are interested in comparing the proportion of qualitative, quantitative, and mixed methods designs within a particular set of academic publications, such as specific journals, or among fields of study, such as social or behavioural sciences. For example, Bryman (2011) examined articles published between 2005 and 2009 in the journal *Leadership*, creating a methodological profile of the articles published during that time period and providing information such as the prevalence of qualitative, quantitative, and mixed methods articles, research methods, and research designs. His goal was to determine whether the editors' mission of encouraging diverse methodological approaches had been realized. Based on these findings, Bryman was able

to make comparisons between the articles published in *Leadership* and the articles published in a similar leadership journal, as well as articles published in other management domains. Others have focused their studies on the prevalence of more specific aspects of research, such as the prevalence of mixed methods sampling designs in leading school psychology journals (Collins et al., 2006) or trends in the methods used to address triangulation and validity in three prestigious management journals in 1985–1987 compared to 1995–1997 (Scandura & Williams, 2000).

Although most authors describe very similar processes, they do so using different terms. Authors have labelled their research as mixed methods examinations (Hart et al., 2009; Niglas, 2004), methodological reviews (Randolph et al., 2013), comprehensive reviews (Collins et al., 2006), content analyses (Bryman, 2011; Hutchinson & Lovell, 2004), systematic content analyses (Parylo, 2012), or prevalence rate studies (Alise & Teddlie, 2010). According to Alise and Teddlie (2010), prevalence rate studies are "a line of inquiry into research methods in the social/behavioral sciences (referring to the proportion of articles using a particular methodological approach)" (p. 104). I have chosen to use the term prevalence rate in this study, and also acknowledge descriptive quantitative content analysis as the specific research design.

As mentioned earlier, the majority of literature measuring the prevalence of various methodological characteristics has done so from a mixed methods perspective (e.g., Alise & Teddlie, 2010; Collins et al., 2006; Gorard & Taylor, 2004; Hart et al., 2009; Niglas, 2004; Parylo, 2012; Truscott et al., 2010). Notable exceptions include Bryman's (2011) examination of the articles published in *Leadership*, Randolph et al.'s (2013) examination of articles published in *Georgia Educational Researcher*, and

Hutchinson and Lovell's (2004) examination of articles published in leading journals in higher education. Regardless of whether the authors emphasized a mixed methods perspective or not, all of the aforementioned articles attempted to examine methodological characteristics of some selection of published research studies.

In addition, most of the literature sharing the common purpose of examining methodological characteristics has focused on analyzing articles within published journals in order to present methodological profiles of their selected research area. Exceptions to this include Gorard and Taylor (2004), who also incorporated stakeholder interviews and a large-scale survey, and Alise and Teddlie (2010), who compared the prevalence of mixed method studies across a range of social and behavioural sciences.

Although Bryman (2011) and Randolph et al. (2013) chose to limit each of their studies to one particular journal (i.e., *Leadership* and *Georgia Educational Researcher*, respectively), most authors analyzed articles from a number of related scholarly publications. These include Hutchinson and Lovell (2004), who examined articles from three leading higher education journals; Collins et al. (2006), who examined articles from four leading school psychology journals; Hart et al. (2009), who examined articles related to mathematics education from six prominent educational journals; Parylo (2012), who examined eight peer-reviewed journals publishing articles on principal professional development; Truscott et al. (2010), who examined articles in four educational disciplines (literacy, mathematics, social studies, and science) from 11 prominent educational research journals; and Niglas (2004), who examined educational research in general through articles published in 15 unspecified academic journals.

Prevalence Rate Studies in Higher Education

Although each of the published articles described above adds value to its respective field, Hutchinson and Lovell's (2004) article is of particular relevance to this study due to its focus on higher education research. Unfortunately, it appears to be the only article of its kind, which provides further support for the necessity of the current study.

Noting that research focusing on the methodological characteristics of higher education research is sparse, Hutchinson and Lovell (2004) investigated five years of research (402 articles) from three prominent higher education journals: the *Journal of Higher Education* (*JHE*), *Research in Higher Education* (*ResHE*), and *Review of Higher Education* (*RevHE*). They found a wide range in the frequency of research designs among the sample of published articles, with action research and meta-analysis reported twice each, and quasi-experimental and ethnographic designs reported three times each; in contrast to descriptive quantitative research, which was reported 58 times, and correlational studies, which were reported 192 times (which represented more than 56% of the studies).

With respect to the relative design frequency reported by journal, Hutchinson and Lovell (2004) used chi-square tests to determine there were significant differences between correlational, case study, and descriptive qualitative research designs, with *ResHE* reporting more correlational studies than *RevHE*. Case study and descriptive qualitative research were reported most often in *RevHE* and least often in *ResHE*. Quantitative studies were the most frequently published studies (73.4%), with fewer qualitative (20.3%) and mixed methods (6.3%) studies being published. Primary (41.5%)

or secondary (35.1%) data from questionnaires were the most commonly used data sources, with documents (31%) and interviews (23.8%) as the next more frequently reported data sources.

Finally, Hutchinson and Lovell (2004) also investigated the level of statistical analysis reported in the published articles. They found the level of statistical sophistication in published articles was high, as more than 75% of articles reported intermediate or advanced level statistics, which they described as statistical procedures normally taught in second, third, or fourth semester doctoral-level statistics or research methods courses and included examples such as analyses of variance, multiple regression, or structural equation modelling. Given the frequent use of these advanced procedures, Hutchinson and Lovell noted concern over disseminating information to practitioners, and especially those practitioners who lack the statistical training required to comprehend complex analyses.

Bringing together the assertions made by Hutchinson and Lovell (2004) that suggest the presence of advanced statistics in the higher education literature, with Crisp and Cruz's (2009) and Johnson's (2010) claims of relative simplicity within the mentoring literature, it is not clear what level of statistical and methodological rigour is evident in articles about mentoring within higher education. This study represents an important first step in determining the methodological characteristics of articles about mentoring in higher education to begin to resolve the contradictions among these authors.

Summary of Literature Review

As demonstrated above, students, faculty members, and staff members engage in mentoring relationships in higher education, which can be critical to the development of

individuals, and often offer positive outcomes. Although it is important to understand and investigate features of mentoring relationships within higher education, examining the methodological characteristics of the research itself can provide insight into the ways this mentoring knowledge was developed and highlight research strategies that are currently used or underused.

A number of scholars have examined the methodological characteristics of various academic literatures, especially with a focus towards examining the prevalence of mixed method studies. At present, the literature examining methodological characteristics within higher education research is very limited, as Hutchinson and Lovell (2004) are some of the only researchers to have undertaken this line of inquiry. An even larger gap in the literature exists with respect to the methodological characteristics of published research about mentoring in higher education; aside from Crisp and Cruz's (2009) brief mention of quantitative article characteristics, to the best of my knowledge, there are no existing studies that have examined these features. Consequently, by conducting this study, I hoped to begin filling that gap in the current literature.

CHAPTER THREE: RESEARCH METHODS

This is a descriptive quantitative study designed to examine the nature of published research about mentoring in higher education. Using content analysis, I examined five years (2009–2013) of publications from five different academic journals. In this chapter, I outline my research design and justification for this choice, describe the data collection methods, explain the data coding and analysis procedures, describe my efforts to establish trustworthiness, discuss limitations to this study, and outline relevant ethical considerations.

Research Design

Content analysis can be defined as a "research technique for the objective, systematic, and quantitative description of the manifest content of communication" (Berelson, 1952, p. 18). Rourke and Anderson (2004) extended Berelson's definition, noting content analysis is "a process that includes segmenting communication content into units, assigning each unit to a category, and providing tallies for each category" (p. 5). In the context of the current study, I focused on analyzing scholarly communication. Journals represent one form of communication in a discipline or subject area. Individual articles within these journals are the units of communication. Based on this, I coded each article and these codes were tallied and further analyzed to provide insight into the methodological characteristics of journal articles about mentoring in higher education.

Within content analysis, there are a variety of approaches. Kondracki, Wellman, and Amundson (2002) acknowledged that those undertaking content analysis "may face several challenges because there are so many options and no straightforward guidelines" (p. 229) and that every content analysis project "requires tailored procedures to fully

explore the richness of the data" (p. 229). The aims of content analysis can be descriptive or inferential, among others (Neuendorf, 2002), with researchers conducting quantitative or qualitative content analyses using manifest or latent coding (Berelson, 1952). Content analysis can also be completed deductively or inductively, using manual or computer-assisted processes (Kondracki et al., 2002).

In this study, I used a descriptive quantitative approach (Neuendorf, 2002). Descriptive quantitative content analyses seek to establish the existence and frequency of concepts (Mathison, 2005). I determined the frequency of articles related to mentoring in higher education, along with the frequency of certain methodological characteristics in these articles. Although critics may decry its simplicity (Elo & Kyngäs, 2008; Mathison, 2005), descriptive quantitative research plays an important role in the early phases of research programs (Riffe, Lacy, & Fico, 2005). By undertaking a descriptive quantitative approach, I was able to note some of the trends in published scholarly articles related to mentoring in higher education, which can then be used to inform current and future research practices on the topic.

Data Collection

Data collection consisted of selecting published journal articles from five prominent scholarly publications. The selection of scholarly journals and the selection of individual articles from those journals are described below.

Selection of Scholarly Journals

The scope of published articles for possible inclusion in this study is too large to be examined in its entirety; therefore, a sample of these articles must be established. I used purposeful, non-random sampling (Krippendorff, 2013) to select five peer-reviewed

English language journals. I selected two journals from the broad mentoring literature and the remaining three journals from the higher education field. All five journals use a blind review process and each journal has an external board of reviewers. Acceptance rates, which often represent the prestige of journals, are described below.

There are a limited number of journals with a specific focus on mentoring. *Mentoring & Tutoring: Partnerships in Learning* (*M&T*) is an international publication and has become the premier journal for publishing mentoring and tutoring related information. It is published by Routledge and associated with the National Council of Professors of Educational Administration (2014). The volumes for *M&T* are organized by year and I analyzed each of the four issues for volumes 17–21 during the period from 2009–-2013. One method of assessing journal quality involves examining a journal's acceptance rate. Journals with low acceptance rates accept fewer articles that are submitted to the journal and tend to be viewed as publishing higher quality studies. As of July 1, 2013, *M&T* had a 20% acceptance rate according to Cabell's *Educational Curriculum and Methods* directory. Cabell's directory ranks *M&T* as *qualified*, which means the journal has been published for more than 5 years but does not have citation counts.

The *International Journal of Evidence Based Coaching and Mentoring* (*IJEBCM*) is an international, open-access publication that began in 2003. It is hosted by the International Centre for Coaching & Leadership Development (2014) at Oxford Brookes University Business School, which is located in Oxford, United Kingdom. The volumes for *IJEBCM* are organized by year and I analyzed each of the two issues for volumes 7—11, along with special issues 3–7, all of which were published during the period from

2009–-2013. It is not indexed in Cabell's (2014) database and acceptance rates are not provided, which prevents direct comparisons regarding the journal's prestige. Given *IJEBCM*'s aim of providing practitioners with a platform for accessible yet powerful discussions, this journal may differ from *M&T* and the three higher education journals used in this study. Nevertheless, articles from the *IJEBCM* were included in this study based on the journal's specific mentoring focus.

The three education journals that were examined in this study are the *Journal of Higher Education* (*JHE*), *Research in Higher Education* (*ResHE*), and *Review of Higher Education* (*RevHE*). I selected these publications because of the prestige of each journal and the potential to compare the results of this study with Hutchinson and Lovell's (2004) research involving these journals. As described earlier, Hutchinson and Lovell reviewed methodological characteristics in higher education during a five-year period. They selected *JHE*, *ResHE*, and *RevHE* based on the journals' relatively prestigious statuses among core education journals.

As previously noted, journals with low acceptance rates are assumed to publish rigorous, high quality studies. *JHE* is indexed within Cabell's (2014) *Educational Psychology and Administration* directory and, as of June 4, 2013, had an acceptance rate of 8% of submitted articles. *ResHE* is also indexed within Cabell's *Educational Psychology and Administration* directory and, as of February 12, 2013, accepted 10% of submitted articles. Finally, *RevHE* is indexed in Cabell's *Educational Psychology and Administration*, *Educational Curriculum and Methods*, and *Psychology and Psychiatry* databases and, as of April 17, 2014, accepted 5% of submitted articles.

Additionally, Cabell's directory (2014) classifies *ResHE* and *RevHE* as having *significant influence* on future research, suggesting both journals are within the top 11–20% of journals with citation counts. *JHE* is considered to have a *high influence* on future research, which indicates it falls outside the top 20% of articles with citation counts (Cabell's Publishing, 2014). Based on these statistics, the three selected higher education journals represent some of the most prestigious journals in the field of higher education and consequently, readers can expect to find rigorous, high quality research studies in these journals.

JHE is published by The Ohio State University Press (2014), *ResHE* is published by Springer and is the journal of the Association for Institutional Research (2014), and *RevHE* is published by The Johns Hopkins University Press and is the official journal of the Association for the Study of Higher Education (2014). The volumes for *JHE* and *ResHE* are organized by year; *RevHE* differs, as volumes in this journal are spread over multiple years. Consequently, I examined each of the six issues for *JHE* volumes 80–84 and each of the eight issues of *ResHE* volumes 50–54 during the period from 2009–2013. I also examined *RevHE* during the same 2009–2013 timeframe; the corresponding sample included volume 32, issue 2 through to volume 37, issue 1.

By focusing on multiple journals from the two areas where research about mentoring in higher education may logically be published (i.e., mentoring and higher education), I hoped to capture a broad swath of research being published during the desired time frame. I recognize, however, that articles about mentoring in higher education are also published in discipline-specific publications and therefore were not included in this study. In addition, articles on mentoring in higher education that are

published in lower-tier higher education journals were also excluded from this study. Nevertheless, including a wide range of top-tier scholarly publications and a practitioner-oriented publication allowed for a broad sampling of current research about mentoring in higher education.

Selection of Journal Articles

As previously described, the sample for this study was restricted to articles published in five academic journals within a five-year time period. Those journals publish articles on other topics in addition to mentoring in higher education; therefore I needed to distinguish which articles were relevant for this study.

I accessed every article published within each issue of each of the selected journals from 2009–2013. I began in reverse chronological order, starting with the most recent issue from 2013 and worked towards the first issue published in 2009. In order to be included in this study, each article had to meet inclusion criteria related to mentoring *and* higher education.

In order to be included as a mentoring article, the term *mentor* or some derivation of it (e.g., mentoring, mentorship) had to be explicitly included in the title, abstract, keywords, purpose statement, or research questions. Any articles that did not explicitly mention *mentor* were not included. Articles that described similar yet distinct intrapersonal relationships or processes (e.g., coaching, tutoring, or socialization) were excluded from the study.

After determining that the article involved mentoring, I next discerned whether the article was directly related to higher education. In order to be included as a higher education article, the article needed to have an immediate focus on or involvement of

individuals in higher education, or relate directly to higher education in some way. At times this was difficult to distinguish. Studies that collected data from students, faculty, or staff were included, regardless of whether additional data from individuals who were not involved in higher education were included. For example, studies where higher education students had mentoring relationships with individuals outside higher education were included, provided data were collected from the higher education students or the students were the focus of the article.

I excluded articles that did not report directly about individuals in higher education institutions, or about the ways mentoring relationships occurred in those settings. For example, one article discussed a mentoring program that was sponsored by a higher education institution and involved college student mentors, but the mentoring program and resulting publication focused exclusively on the at-risk youth as protégés not the college students as mentors (Thompson, Corsello, McReynolds, & Conklin-Powers, 2013). None of the data collected or strategies proposed in the article involved individuals in higher education, such as students, faculty, or staff, therefore I excluded this article. Similarly, many articles focused on mentoring beginning teachers (e.g., Catapano & Huisman, 2013; Eisenschmidt, Oder, & Reiska, 2013; Long, 2009; Parker, Ndoye, & Imig, 2009). If the individuals were still students, the article was included. If the individuals were working in schools as teachers and were no longer students, the article was excluded.

Articles that met all of the criteria described above were included. If after reading the title, abstract, purpose, research questions, and methods sections, I was still unable to

ascertain whether the article involved mentoring in higher education, it was excluded from the study.

In addition to selecting the relevant articles, I also noted the total number of entries in the table of contents and the number of published articles in each issue. I repeated this process for every issue of every journal. I alternated between higher education-focused journals and mentoring-focused journals to counterbalance the coding process. At the completion of this preliminary phase, I had compiled a census of all of the articles about mentoring in higher education published in the five selected journals between 2009 and 2013.

Data Analysis

Data analysis consisted of conducting pilot coding to test the codebook, manually coding the selected journal articles, preparing the data for analysis in Microsoft Excel, and analyzing the data using descriptive statistic techniques.

Pilot Coding

The first step of my coding process involved conducting a pilot test of the codebook and operational definitions to determine the validity and reliability of my coding measurements (Neuendorf, 2002). According to Neuendorf (2002), pilot reliability analyses should be conducted using a randomly selected subsample from all sources included in the final analysis. I selected two articles from journals similar to those in this study and eight articles from three of the journals (i.e., *M&T*, *IJEBCM*, and *ResHE*) that are included in this study.

During the pilot coding exercise, I assessed the reliability of my codebook by examining whether I applied the same categorical code to studies with the same research

design. For example, when I coded multiple pilot articles with the research design label

of *not applicable*, I examined the articles again to verify that I had applied this label in a

consistent manner. I also tried to identify problematic aspects, such as definitions that

were unclear or coding categories that did not allow mutual exclusivity, and then made

any necessary modifications before beginning the final coding process (Neuendorf,

2002). The pilot coding exercise was very helpful in differentiating what would be

included and excluded under the *documents* data source label. I struggled to code the data

sources from a number of narrative studies, which prompted me to adjust my definition

of observation data sources to also include narrative sources.

Coding Process

Although many options exist for conducting computer-assisted content analysis,

including programs that purport to automatically code manifest and latent content

(Neuendorf, 2002), I completed the coding manually. After identifying the relevant

journal articles using the selection process described above, I coded each article using a

standard coding sheet (see Appendix).

The coding process was deductive because a deductive approach is appropriate

when there are predetermined categories stemming from previous literature (Julien,

2008). Characteristics of research methodologies are well known, and the roles of mentor

and protégé are well established, I was therefore able to adopt an a priori coding approach

(Neuendorf, 2002). Consequently, my coding categories and operational definitions were

determined prior to beginning the coding process. Having clear operational definitions for

each of the coded variables allowed me to apply the codes consistently, thereby

increasing the reliability of the study (Neuendorf, 2002). All operational definitions listed

in the various codebooks were developed using elements from Hutchinson and Lovell (2004), Alise and Teddlie (2010), and the following standard research methods textbooks: Berg (2004); Creswell (1998, 2008); J. P. Gall, Gall, and Borg (2005); M. D. Gall, Gall, and Borg (2003); and Mertens (2010).

When coding the article type, I followed the codes and definitions found in Table 1. Similar to other authors (e.g., Hutchinson & Lovell, 2004; Truscott et al., 2010), I excluded those entries listed in the table of contents that were not academic articles. Examples of excluded items included book reviews, editorials, listings of editorial and review boards, reviews of the year, and errata. These article types were mutually exclusive and articles could only be coded in one category.

Using the definitions presented in Table 2, I coded articles based on the empirical research traditions. Non-empirical articles were assigned a code of *not applicable*. All articles in this study were assigned a specific empirical tradition or given a label of *not applicable*; none were labelled as *undetermined*. Each empirical research tradition was mutually exclusive, with articles assigned to one category only.

Next, articles were coded based on the research designs presented in Table 3. In these cases, the most salient codes were applied. Key features of each research design helped to distinguish among designs with seemingly similar procedures. These codes were also mutually exclusive and articles could be coded to one research design only.

In contrast to many of my other codebooks, the data sources described in Table 4 were not mutually exclusive. Because studies could include data from multiple sources, multiple categories could be applied, with no limit to the number of categories applied.

Table 1

Coding Categories and Operational Definitions for Article Types

Article Type	Definition
Empirical	Designed to build knowledge of phenomena and report, at minimum, the purpose, methodology, and findings based upon data collection and analysis.
Literature review	Reviews or evaluates previous literature (empirical and theoretical) from a defined period of time with the goal of compiling what is known about a particular topic. Often provides information regarding what is missing from existing literature.
Expository	Addresses an issue primarily through the use of literature. Lacks a methodology section and may use data, usually secondary, to support the main argument, but does not present data collection or analysis procedures. Examples include proposing a conceptual model or developing best practices.
Opinion	Primarily reflects the views of the author(s), with limited supporting literature. May or may not be labelled as a position paper or editorial.
Historical review	Focuses on a historical event or phenomenon, and does not include data collection or analysis procedures (i.e., not historical qualitative or archival research).
Other	Does not fit into the aforementioned types.
Undetermined	Unable to determine the article type.

Note. Definitions adapted from Hutchinson and Lovell (2004); Alise and Teddlie (2010); and the following standard research methods textbooks: Berg (2004); Creswell (1998, 2008); J. P. Gall et al. (2005); M. D. Gall et al. (2003); and Mertens (2010).

Table 2

Coding Categories and Operational Definitions for Empirical Research Traditions

Research Tradition	Definition
Quantitative	Uses primarily numerical data, often with a focus on statistics, objectivity, generalization, and removing researcher influence. Research grounded in the assumption that reality is objective and constant across time and space.
Qualitative	Uses primarily words with a focus on induction, individual meaning, natural environments, and acknowledging researcher influence. Research grounded in the assumption that reality is constructed through individual meanings and interpretations, and changes over time.
Mixed methods	Reports qualitative and quantitative methods or analyses.
Undetermined	Unable to determine the empirical research tradition.
Not applicable	Not an empirical article.

Note. Definitions adapted from Hutchinson and Lovell (2004); Alise and Teddlie (2010); and the following standard research methods textbooks: Berg (2004); Creswell (1998, 2008); J. P. Gall et al. (2005); M. D. Gall et al. (2003); and Mertens (2010).

Table 3

Coding Categories and Operational Definitions for Research Designs

Research Design	Definition
True experimental	Establishes causation, where at least one variable is manipulated to determine its effect on another variable(s). Has a control group, random assignment of individuals to conditions, and pre- and post-tests.
Quasi-experimental	Establishes causation, where at least one variable is manipulated to determine its effect on another variable(s). Lacks at least one of the following: a control group, random assignment of individuals, or a pre-test.
Correlational	Describes and measures the direction and magnitude of the relationship(s) between two or more variables or sets of scores.
Longitudinal	Examines patterns of stability or change in variables over time. Takes measurements from the same sample at multiple points in time. May feature panel, cohort, or trend samples.
Cross-sectional	Examines patterns in data from various samples at a single point in time.
Scale development or validation	Creates or examines the psychometric properties of a measurement tool, instrument, or questionnaire.
Meta-analysis	Aggregates findings from multiple empirical studies to determine the overall effect of an independent variable(s). Facilitates standardization of outcomes and comparisons across studies.
Descriptive quantitative	Collects and analyzes numerical data, such as characteristics, with the purpose of providing a detailed portrayal of one or more cases. Includes data collection at a single point in time only. Does not include inferential statistics. Does not belong to a more specific category (e.g., longitudinal or cross-sectional).

(continued)

Table 3 (continued)

Coding Categories and Operational Definitions for Research Designs

Research Design	Definition
Descriptive qualitative	Provides characteristics of a phenomenon or population. Does not belong to a more specific category (e.g., narrative, ethnographic).
Ethnographic	Examines the features of a particular culture, including shared behaviours, meanings, beliefs, and languages, in a naturalistic manner.
Narrative	Gathers and shares stories of participants' or researcher-participants' lived experiences.
Phenomenological	Examines the essence or underlying central meaning of the lived experiences of participants. Is strongly rooted in philosophy, typically with a focus on bracketing the researchers' preconceptions and personal experiences.
Action	Designed to improve elements of participants' or researchers' own practices or lives. Presented from an applied perspective.
Critical	Challenges taken for granted norms and produces social change. Often focused on issues of power and oppression as related to race, gender, class, ability, sexual orientation, or other factors.
Grounded theory	Develops theory from immediate data collected by the researcher. Involves continual analysis between the data and emerging themes to derive theory.
Case study	Provides in-depth exploration of a bounded system or social phenomenon.
Other	Does not fit into the aforementioned types.
Undetermined	Unable to determine the research design.
Not applicable	Not an empirical article.

Note. Definitions adapted from Hutchinson and Lovell (2004); Alise and Teddlie (2010); and the following standard research methods textbooks: Berg (2004); Creswell (1998, 2008); J. P. Gall et al. (2005); M. D. Gall et al. (2003); and Mertens (2010).

Table 4

Coding Categories and Operational Definitions for Data Sources

Data Source	Definition
Interviews	A purposeful conversation between a researcher and a participant. May be conducted in-person, online, or via telephone. May have varying levels of researcher influence on the questions being posed to participants. May be structured, semi-structured, or unstructured.
Focus groups	A type of interview with a group of participants and at least one researcher. Participants interact with each other and these interactions often provide additional insight. May have varying levels of researcher influence on the questions being posed to participants.
Observation	Records of participants in their daily lives. Allows live and detailed collection of data. May have varied levels of fieldnotes and interaction with participants based on the researchers' observational roles (i.e., observer only, observer-as-participant, participant-as-observer, participant only). The researcher may not be present and participants may be captured by other means (e.g., audio or video recording).
Documents	Information contained in public or private records, including newspapers, meeting minutes, letters, films, or other communication media. Documents may or may not have been created specifically for research purposes.
Questionnaires	Self-report data from participants. Can be presented in written form via paper and pencil, electronically, or verbally. Can be open-ended or closed-ended questions and often includes many variables.
Meta-analysis	Statistical analysis and integration of related empirical studies through the use of effect sizes.
Tests	A structured performance where participants receive a score, from which inferences can be drawn. May or may not have been undertaken specifically for research purposes (e.g., GPA scores).
Other	Does not fit into the aforementioned data sources.
Undetermined	Unable to determine the data sources.
Not applicable	Not an empirical article.

Note. Definitions adapted from Hutchinson and Lovell (2004); Alise and Teddlie (2010); and the following standard research methods textbooks: Berg (2004); Creswell (1998, 2008); J. P. Gall et al. (2005); M. D. Gall et al. (2003); and Mertens (2010).

For article type, empirical research tradition, research design, and data source, I also noted whether the labels were explicit or implied, or if there was any disagreement between the authors' label and my assigned label. The details of these categories are presented in Table 5. The category of *authors' label replaced* was reserved for extreme cases where the authors had explicitly provided a particular label but I did not agree with their assessment and instead chose to apply my own label. Based on the amount and quality of information provided by the authors, the level of inference required on my part varied considerably for different articles.

Following the definitions given in Table 6, I coded the mentor and protégé roles. These codes were not mutually exclusive, as it was possible to have multiple groups serving in the same role in the same study. For example, one study could report faculty members and graduate students serving as mentors for undergraduate students. Similarly, the studies could include relationships other than traditional mentoring dyads and have individuals serving as both a mentor and a protégé. One example of this would be if a graduate student were serving as a mentor to an undergraduate student while simultaneously being mentored by a faculty member. In those cases, faculty members and graduate students serve as mentors, while graduate students and undergraduate students are protégés, and the article would be coded accordingly.

Given the complexities and varying structures of programs designed to prepare future teachers, teacher candidates were assigned a separate code in the mentor and protégé categories. All teacher candidates were assigned this unique code even if it was made explicit that their program of study was at the undergraduate or graduate level. When relevant, non-empirical articles were assigned a mentor or protégé code, especially

Table 5

Coding Categories and Operational Definitions for Label Agreement

Agreement	Definition
Explicitly stated	Authors of article explicitly provided a label or category that was used in the coding process.
Inferred	Authors of article did not explicitly provide a label or category, but a label could be inferred based on information given in the article.
Authors' label retained	The authors' stated label was retained, but the veracity of this label was questioned.
Author's label replaced	The authors' stated label appeared inconsistent with the procedures described. A different label was applied in its place.
Multiple labels provided	Authors provided multiple labels within the same category, yet coding did not permit the application of multiple labels. One of the authors' stated labels was applied.
Other	Does not fit any case described above.

Table 6

Coding Categories and Operational Definitions for Mentor and Protégé Roles

Populations	Definition
Faculty member	Individuals employed in a higher education setting who are responsible for any combination of teaching students, conducting research, and performing service. Will usually, but not necessarily, hold an advanced degree.
Graduate student	Individuals enrolled in any graduate (master's or doctoral) program.
Undergraduate student	Individuals enrolled in any undergraduate program.
Teacher candidate	Individuals enrolled in an initial teacher education or certification program.
Other higher education student	Individuals enrolled in any other higher education program (e.g., community college, CEGEP).
Non-higher education student	Any students not captured by the other student categories (e.g., high school, elementary, other).
Administration member	Individuals responsible for supervising and maintaining higher education institutions. Usually separate from academic roles, though individuals may hold joint positions.
Higher education staff member	Individuals employed in any capacity, other than faculty members or administration, in a higher education institution.
Community teacher	Individuals who hold teaching positions in the community.
Other	Individuals who do not belong to the aforementioned mentor or protégé categories.
Undetermined	Unable to determine who was classified as the mentor or protégé (e.g., discussion of individual roles or description was not specific enough to classify in a distinct category).
Not applicable	Coding a mentor or protégé role was not applicable (e.g., no discussion of mentoring roles).

if the article focused on a particular group of individuals, such as a literature review focusing on undergraduate students. In some instances, the authors were not specific enough to permit a particular label. For example, when students' level of study was not stated explicitly, the article could not be coded with a more specific label and instead, the label *undetermined* was applied. In cases where the authors stated the students were at the graduate and undergraduate levels, both of the corresponding labels were applied.

I had hoped to use mainly manifest coding, which involves analyzing the stated meanings that are visible in the text and generally representing meanings that are shared among individuals (Berelson, 1952; Kondracki et al., 2002; Riffe et al., 2005). In contrast, latent coding involves making inferences about deeper level meanings that are not made explicit (Berelson, 1952; Kondracki et al., 2002) and often involves individual interpretations (Riffe et al., 2005). Ideally, the articles would have contained explicit statements about the methodological characteristics, allowing me to simply note the authors' choices using manifest coding. This was not the actual outcome, however, for I was able to use the authors' explicit labels only in 49.60% ($n = 187$) of the cases involving article type, empirical research tradition, research design, and data source. Furthermore, I was forced to engage in latent coding for 32.36% ($n = 122$) of the codes for the aforementioned categories, as these labels were not made explicit. In 2.12% of cases ($n = 8$) I expressed concern over the authors' stated labels, though only 1.59% ($n = 6$) of the authors' stated labels were replaced as I retained the authors' labels in the other 2 cases (0.53%).

Data Preparation

Once all articles published in a specific year from a particular journal had been manually coded using the coding sheets, I manually entered these data into Microsoft Excel. For example, after completing the coding for all relevant articles published in *M&T* in 2013, I inputted the data into Microsoft Excel. I took care to ensure there were no errors in the transfer process; I then double-checked each entry. After all data had been inputted, I checked the database for erroneous values, such as those that fell outside the various ranges for each coding category. To do this, I used sort and filter functions within Microsoft Excel (Creswell, 2008). I also checked for missing data (M. D. Gall et al., 2003). Given that all of the relevant journal articles were accessible through online databases, there were no missing data. Consequently, I did not have to revisit any articles to collect missing values or assign a dummy-coded variable in place of any missing values (Creswell, 2008).

Statistical Analyses

The data collected in this study were nominal, which means they involved discrete and non-ordered categories (J. P. Gall et al., 2005). In order to answer my research questions, I used descriptive statistics, and more specifically, frequency analyses. This included using the functions in Microsoft Excel to calculate counts, sums, and percentages for each individual journal and the overall coding categories as a whole. My approach was consistent with other authors (e.g., Bryman, 2011; Collins et al., 2006; Gorard & Taylor, 2004; Hart et al., 2009; Hutchinson & Lovell, 2004; Parylo, 2012; Truscott et al., 2010) who have conducted similar prevalence rates studies and also used these descriptive statistics.

I also completed a chi-square test in order to determine whether the differences in prevalence of mentoring articles across journals were statistically significant or whether those results could have occurred by chance. Chi-square tests are appropriate for non-parametric data when certain assumptions, including having equal intervals between measures, are not met (M. D. Gall et al., 2003).

Efforts to Establish Trustworthiness

In my attempt to establish trustworthiness in this study, I followed established content analysis procedures. As described above (Kondracki et al., 2002), there is considerable flexibility in the way researchers apply content analysis. In order to achieve replicability, I was as detailed and transparent as possible when describing the procedures I followed in this study (Neuendorf, 2002). I also completed a 10 article pilot test of the codebook and operational definitions to determine the reliability of my coding measurements (Neuendorf, 2002). During this pilot coding exercise, I assessed the reliability of my codebook by determining whether I applied the same categorical code to studies with the same research design. Having explicit operational definitions, such as those contained in the codebook, also served to increase the reliability of this study (Neuendorf, 2002).

With respect to the validity of this study, I analyzed a census, or the total population, of articles (Krippendorff, 2013) related to mentoring in higher education published between 2009 and 2013 in five selected journals. Consequently, concerns related to population validity and the extent to which the selected articles are representative of the articles published during the given time period are reduced (Neuendorf, 2002). As a result of my decision to limit my study to include five journals

only, I cannot generalize beyond those publications to wider mentoring or higher education literature. I addressed the face validity of this study by having another individual, who is an expert in research methodology, review my codebook to assess the extent to which it measured what it purports to measure (Neuendorf, 2002). Finally, in order to improve the content validity of my study, I have tried to be very inclusive when developing each aspect of the codebook so that it reflects the breadth of possibilities for each coding category (Neuendorf, 2002), yet is discriminating enough to not erroneously include similar but distinct concepts.

Limitations

I hope to have produced meaningful contributions with this study; however, as with all research, I must acknowledge the current delimitations and limitations. Based on the nature of my research questions, I conducted a descriptive quantitative study. Although the data I collected were appropriate and have provided insight into the methodological characteristics of published research about mentoring in higher education, I was necessarily limited by the nature of these data. Structuring my questions in a different manner would warrant collecting different data, such as qualitative responses, and would allow me to explore a similar concept in a different way. For example, undertaking a hermeneutic analysis of published research on mentoring in higher education would produce different results than those obtained in this study. Although my study lacks the richness of qualitative responses, I was able to answer my research questions and explore the nature of published research about mentoring in higher education.

I consciously limited the sampling timeframe to a five-year period. This means I was not able to produce a complete or historical review of the methodological characteristics of all published research on mentoring in higher education. However, by selecting the most recent years possible from a number of relevant journal publications, I developed a profile of the methodological aspects of current mentoring in higher education research, which can then inform current and future research.

It is also possible that researchers examining mentoring in higher education, especially within a specific discipline, will have chosen to publish their findings in discipline-specific journals. As a result, I did not have capture all of the methodological nuances related to particular academic fields or specific mentor or protégé populations. Although this may limit the generalizability of my results, it was not feasible to include every possible published article during the time frame. By studying the main publishing outlets, I was able to provide an overview of current research trends within mentoring in higher education.

Content analysis is a useful approach, but there are limitations that must be considered. Most notably, critics decry the simplicity of content analysis and its lack of detailed statistical analyses (Elo & Kyngäs, 2008). Given the nature of the research questions in this study, which included examining the prevalence of articles about mentoring in higher education and the prevalence of methodological characteristics within these articles, content analysis was a well-suited research method. If I were hoping to examine authors' motives for their chosen research methodologies or editors' decisions about publishing particular papers, which would necessarily require latent coding and

inferences about meaning (Neuendorf, 2002), among other things, content analysis would not be appropriate.

Establishing reliability is a critical element of content analysis, especially given that Neuendorf (2002) defines this method as a "systematic, objective, quantitative analysis" (p. 1) and states that "without the establishment of reliability, content analysis measures are useless" (p. 141). Two main ways to establish reliability, and therefore further enhance the trustworthiness of content analyses, are through interrater and intrarater reliability (Neuendorf, 2002). Given the time constraints of this study, it was not feasible for me to establish measures of interrater or intrarater reliability, which represents an additional limitation of this study. However, before attempting to submit this study for scholarly publication, I will establish interrater and intrarater measures. To examine interrater reliability, I will have a peer coder check my application of the codebook. My chosen peer coder will have an extensive background in research methodology and will be familiar with the aspects being coded in this study, including article types, research designs, and data sources. My peer coder will code a selection of approximately 10–20% of the total articles. From this sample, a Cohen's kappa will also be calculated (Neuendorf, 2002). If there are any discrepancies during this a posteriori verification, they will be discussed until the raters arrive at consensus for all discrepancies (Neuendorf, 2002). After several weeks, I will also recode a selection of journal articles, which will allow me to calculate intrarater reliability by calculating the percent agreement for data coded at the two points in time (Neuendorf, 2002).

Finally, I must acknowledge possible bias in my coding process. As Neuendorf (2002) points out, bias is likely reduced when using manifest coding because manifest

coding involves counting or taking note of explicit factors, which requires less interpretation and is generally thought to be more objective than latent coding (Berelson, 1952). Unfortunately, many methodological aspects were not explicitly stated in the articles and I was forced to engage in latent coding, which required me to make inferences about deeper meanings that were not explicit in the written text (Berelson, 1952). In these cases, I tried to be as consistent as possible when applying my codebook. It is possible that bias may be present in the development of my codebook or within the coding decisions I made. For example, I coded individuals into mentor and protégé roles. This coding is based on an assumption of dyadic mentoring. When individuals engaged in author-labelled peer mentoring, I coded the same population as both the mentor and the protégé. For future studies, I may consider revising this aspect of the codebook to be more inclusive.

Ethical Considerations

My data were collected from published scholarly articles. Consequently, there were no human participants involved and hence I did not require clearance from the Research Ethics Board. The articles, of course, were written by humans who could potentially be implicated or harmed if I were to discuss and especially critique individual articles or specific authors in my findings. My intention, however, was to present an aggregate profile of methodological aspects of the selected articles and not to draw undue attention to any particular articles or their authors. Lastly, I recognize that there are many factors and considerations that affect researchers' decisions related to research designs and affect editors' and reviewers' decisions about publication. It was not my intention, through my analysis of current research trends, to disrespect any of the authors,

reviewers, editors, or academic journals associated with the specific articles analyzed in this study or as part of the larger scholarly community. This study was undertaken with the intent to determine the methodological characteristics of current published research in order to advance the field of mentoring within higher education, and I hope the language I have used in this article reflects that aim.

CHAPTER FOUR: FINDINGS

In this study, I examined the methodological characteristics of research about mentoring in higher education. Using content analysis, I analyzed five years of articles from five scholarly journals in the fields of mentoring or higher education. I specifically attempted to determine the prevalence of articles related to mentoring in higher education and, within these articles, the prevalence of different methodological characteristics, including specific empirical research traditions, research designs, and data sources, as well as the prevalence of various populations serving as mentors and protégés. It was also my intention to compare results among the selected mentoring and higher education journals. Unfortunately, due to the very low number of mentoring articles found in the higher education journals, it was not possible to make direct comparisons between journals as I had hoped. As a result, I have integrated any possible comparisons into the appropriate sections below. I present the result of my study in the remainder of this chapter.

Prevalence of Mentoring in Higher Education Research

The first aim of this study was to investigate the prevalence of articles about mentoring in higher education. There was a total of 1,074 entries in the various tables of contents across every journal issue in the selected five publications between 2009 and 2013. After removing entries such as book reviews, editorials, lists of editorial and review board members, and errata, a total of 648 articles ($n = 648$) remained. Using the inclusion criteria previously described, I identified 82 articles ($N = 82$) about mentoring in higher education, which represents a total prevalence rate of 12.65%. In other words,

about one eighth of the articles published in the five scholarly journals were about

mentoring in higher education.

There was, however, considerable variance between the selected journals; these

journals differed significantly in the prevalence of articles about mentoring in higher

education, χ^2 (4, $N = 82$) = 143.98, $p < .01$. Figure 1 shows the general prevalence rate of

articles about mentoring in higher education, along with a breakdown of the prevalence

of these articles across the selected journals, in graphical and tabular format. The three

higher education journals all had very low prevalence rates of articles about mentoring in

higher education, ranging from 1.07% to 3.13%. *IJEBCM* had a prevalence rate of

12.50%. All of these rates fell well below *M&T's* prevalence rate of 53.15%.

Prevalence of Methodological Characteristics

The second aim of this study was to investigate the prevalence of various

methodological characteristics within articles about mentoring in higher education. I was

specifically interested in examining the article types, empirical research traditions,

research designs, and data sources found within the mentoring in higher education

literature. I was also interested in determining the prevalence of different populations,

such as graduate students, undergraduate students, or faculty members, in mentor and

protégé roles. Each of these aspects is discussed below.

Article Types

Over three-quarters of the total number of articles about mentoring in higher

education ($n = 63$, 76.83%) were empirical. There was a total of 12 expository articles

(14.63%) and 5 literature reviews (6.10%), along with 1 opinion article (1.20%) and 1
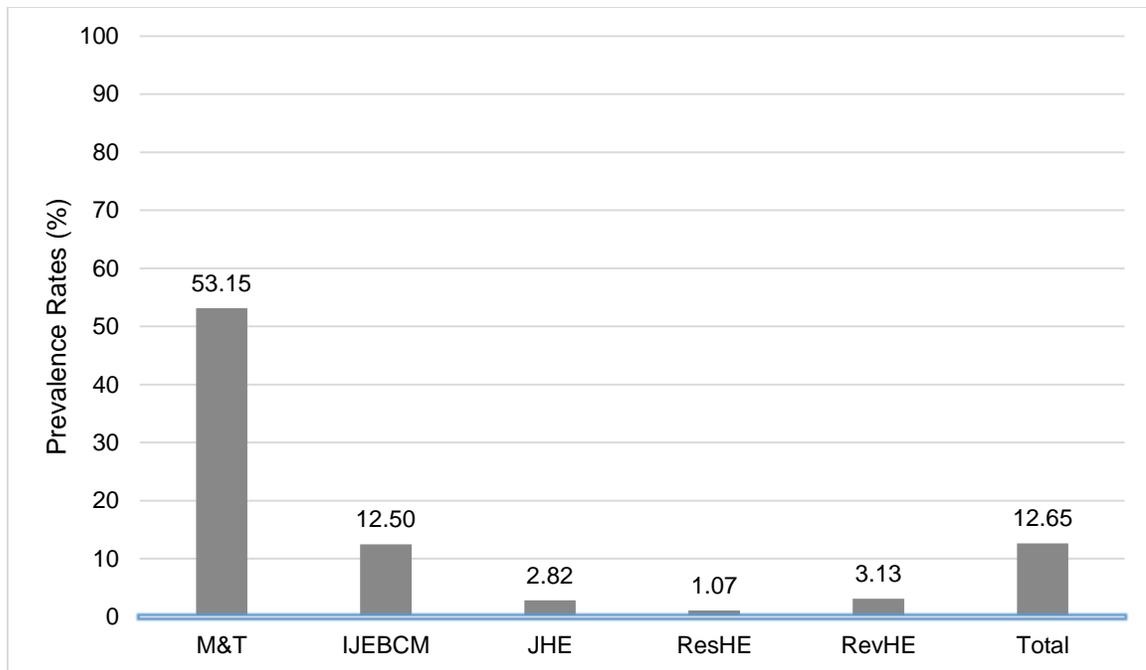
	M&T	*IJEBCM*	*JHE*	*ResHE*	*RevHE*	Total
Articles (*n*)	111	112	142	187	96	648
Mentoring (*n*)	59	14	4	2	3	82
Prevalence (%)	53.15	12.50	2.82	1.07	3.13	12.65

Figure 1. Graphical and tabular representation of the prevalence rates for articles about mentoring in higher education published between 2009 and 2013 across the five selected journals. *M&T = Mentoring & Tutoring*; *IJEBCM = International Journal of Evidence Based Coaching and Mentoring*; *JHE = Journal of Higher Education*; *ResHE = Research in Higher Education*; and *RevHE = Review of Higher Education*.

article (1.20%) that was classified as "other." There were no historical reviews and no articles that I was unable to classify.

Given the small number of articles about mentoring in higher education published in the higher education journals, analyses beyond the frequency counts of the article types are not possible. All of the articles published in *JHE* ($n = 4$) and *RevHE* ($n = 3$) were empirical. Of the 2 articles about mentoring in higher education that were published in *ResHE*, 1 was empirical and 1 was a literature review. Of the 14 articles about mentoring in higher education in *IJEBCM*, 12 were empirical (85.71%) and the remaining 2 were expository (14.29%).

The majority of the articles included in this study were taken from *M&T*, therefore it follows that the general prevalence of article types mirrors the prevalence rates found in *M&T*. For example, 72.88% of the mentoring in higher education articles in *M&T* was empirical, compared with 76.83% of the total number of mentoring in higher education articles. Figure 2 contains graphical representations of the prevalence rates for different article types in *M&T* and in the complete set of articles from the five selected journals set, as well as a table of comparative frequency and prevalence rates.

Empirical Research Traditions

The frequencies of each empirical research tradition for each of the journals are found in Figure 3. There was a strong quantitative focus within the articles published in the higher education journals. Most (75.00%, $n = 3$) of the articles published in *JHE* were quantitative; similarly, 50.00% ($n = 1$) and 66.67% ($n = 2$) of the articles published in *ResHE* and *RevHE*, respectively, were also quantitative, for an overall average of 66.67% ($n = 6$) of the articles about mentoring in higher education that were published in the

Prevalence of Article
Types in *M&T*

Prevalence of Total
Article Types

■ Empirical   ■ Literature Review   ■ Expository   ■ Opinion   ■ Other

Article Type	*M&T*		Total Articles	
	n	%	*n*	%
Empirical	43	72.88	63	76.83
Literature Review	4	6.78	5	6.10
Expository	10	16.95	12	14.63
Opinion	1	1.69	1	1.22
Other	1	1.69	1	1.22
Total	59	100.00	82	100.00
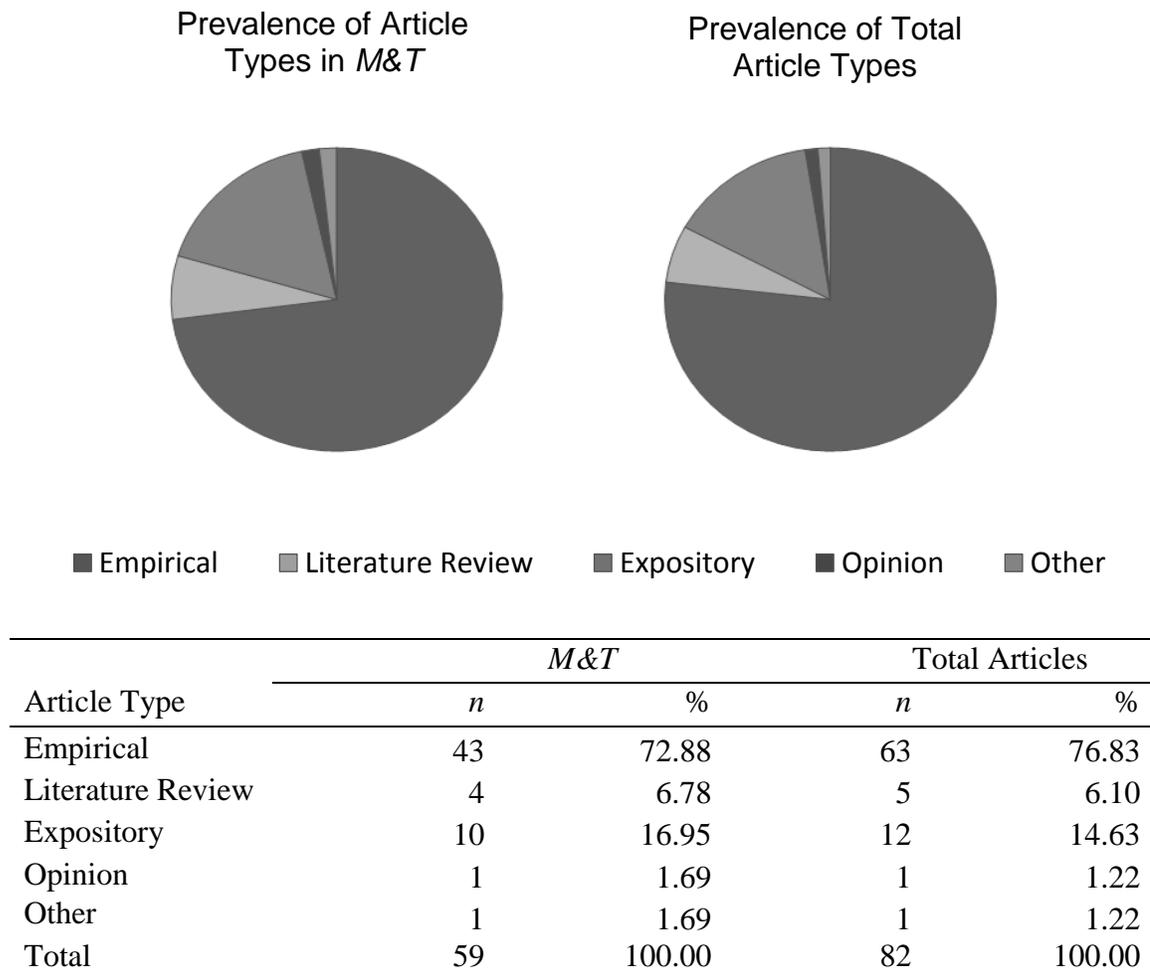
Figure 2. Graphical representations of prevalence rates for different article types about mentoring in higher education published between 2009 and 2013 in *Mentoring & Tutoring (M&T)* and in the complete set of articles from the five selected journals, as well as a comparative tabular representation of frequency (*n*) and prevalence rates (%).
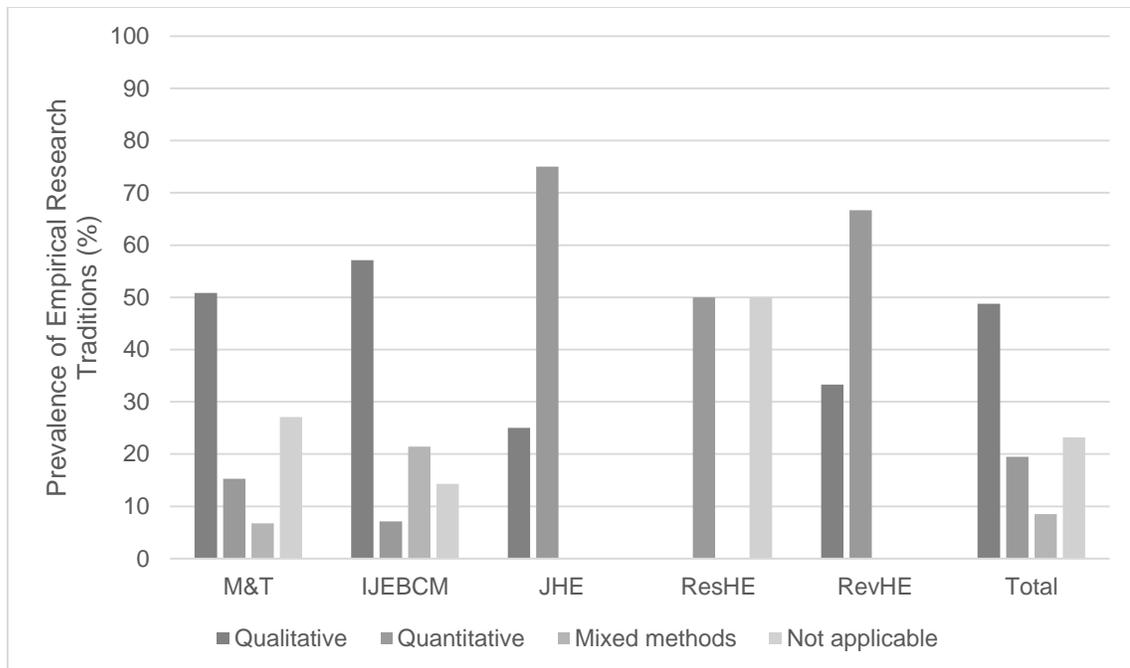
Research Tradition	*M&T*	*IJEBCM*	*JHE*	*ResHE*	*RevHE*	Total
Qualitative	30	8	1	0	1	40
	(50.85)	(57.14)	(25.00)	(0.00)	(33.33)	(48.78)
Quantitative	9	1	3	1	2	16
	(15.25)	(7.14)	(75.00)	(50.00)	(66.67)	(19.51)
Mixed methods	4	3	0	0	0	7
	(6.78)	(21.43)	(0.00)	(0.00)	(0.00)	(8.54)
Not applicable	16	2	0	1	0	19
	(27.12)	(14.29)	(0.00)	(50.00)	(0.00)	(23.17)
Total	59	14	4	2	3	82
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Figure 3. Prevalence rates of empirical research traditions for articles about mentoring in higher education published between 2009 and 2013 across five selected journals, with a comparative tabular representation of frequency (*n*) for each selected journal (with prevalence rate in parentheses). *M&T = Mentoring & Tutoring*; *IJEBCM = International Journal of Evidence Based Coaching and Mentoring*; *JHE = Journal of Higher Education*; *ResHE = Research in Higher Education*; and *RevHE = Review of Higher Education.*

higher education journals. In contrast, only 10 of the 73 articles published in the mentoring journals were quantitative, which represents an average of 13.70%.

In comparison, the mentoring journals contained a greater number of qualitative articles. For both journals, the total number of qualitative articles approximated 50% of all published articles, with *M&T* containing 50.85% ($n = 30$) and *IJEBCM* containing 57.14% ($n = 8$). Comparatively, only two of the articles in the higher education journals were qualitative, which represents 22.22% of the articles about mentoring in higher education published in the higher education journals.

With respect to the number of mixed methods articles, it was relatively low for all journals except *IJEBCM*. The higher education journals did not contain any mixed methods articles, whereas *M&T* contained 6.78% ($n = 4$). In comparison, *IJEBCM* had a higher prevalence rate of 21.43%, but this was based upon a low absolute number ($n = 3$).

Finally, the number of non-empirical articles ranged by publication. *ResHE* had the greatest prevalence of non-empirical articles at 50.00%; however, there were only two articles about mentoring in higher education published in this journal, so this statistic cannot be interpreted in the same fashion as the others. Of the articles published in *M&T*, 27.12% ($n = 16$) were non-empirical whereas 14.29% ($n = 2$) of the articles in *IJEBCM* were non-empirical.

Research Designs

The frequency of the different research designs found in the articles about mentoring in higher education varied among journals. The most frequent coding category for research design was the *not applicable* category, which was assigned to articles that were non-empirical. This does not mean that the greatest number of studies was non-

empirical; just that when separated into the various research designs, *not applicable* was the most frequent category. As was demonstrated in Figure 3, the majority of studies (76.83%) were empirical. The various types of qualitative designs accounted for 48.78% of the total studies. The most popular research designs across all journals were descriptive qualitative with 15 occurrences and a prevalence rate of 18.29%, and case study with 11 occurrences, which represented 13.41%. True experimental and grounded theory designs occurred very infrequently (just once each across all journals). Categories that were originally listed in the codebook but were not adopted in any studies have been removed from Table 7, which presents the frequency counts and prevalence rates for the remaining research designs across each of the journals.

Data Sources

The frequencies for the various data sources from articles across all journals are presented in Table 8. Articles could include multiple data sources, I therefore coded multiple labels and hence the number of data sources ($N = 131$) exceeds the total number of included articles ($N = 82$). Questionnaires were the most frequently reported data source, occurring 35 times for a prevalence rate of 26.72% across all articles. Interviews, documents, and observations were the next most frequently reported data source, occurring 27 (20.61%), 24 (18.32%), and 20 (15.27%) times, respectively.

Focus groups and tests were the least frequently reported data sources, as they were each coded three times only, for prevalence rates of 2.29%. Only one article failed to provide sufficient information to accurately code the specific data sources used in that study; this article was consequently assigned a code of *undetermined*.

Table 7

Frequency of Research Designs for Articles About Mentoring in Higher Education

Across Five Selected Journals (Prevalence Rates in Parentheses)

Research Designs	*M&T*	*IJEBCM*	*JHE*	*ResHE*	*RevHE*	Total
True experimental	1	0	0	0	0	1
	(1.69)	(0.00)	(0.00)	(0.00)	(0.00)	(1.22)
Correlational	7	0	0	0	1	8
	(11.86)	(0.00)	(0.00)	(0.00)	(33.33)	(9.76)
Cross-sectional	2	0	3	1	1	7
	(3.39)	(0.00)	(75.00)	(50.00)	(33.33)	(8.54)
Descriptive qualitative	11	4	0	0	0	15
	(18.64)	(28.57)	(0.00)	(0.00)	(0.00)	(18.29)
Ethnographic	2	0	0	0	0	2
	(3.39)	(0.00)	(0.00)	(0.00)	(0.00)	(2.44)
Narrative	6	0	0	0	0	6
	(10.17)	(0.00)	(0.00)	(0.00)	(0.00)	(7.32)
Phenomenological	1	0	1	0	0	2
	(1.69)	(0.00)	(25.00)	(0.00)	(0.00)	(2.44)
Action	2	0	0	0	0	2
	(3.39)	(0.00)	(0.00)	(0.00)	(0.00)	(2.44)
Grounded theory	1	0	0	0	0	1
	(1.69)	(0.00)	(0.00)	(0.00)	(0.00)	(1.22)
Case study	6	4	0	0	1	11
	(10.17)	(28.57)	(0.00)	(0.00)	(33.33)	(13.41)
Other	4	4	0	0	0	8
	(6.78)	(28.57)	(0.00)	(0.00)	(0.00)	(9.76)
Not applicable	16	2	0	1	0	19
	(27.12)	(14.29)	(0.00)	(50.00)	(0.00)	(23.17)
Total	59	14	4	2	3	82
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Note. M&T = Mentoring & Tutoring; *IJEBCM = International Journal of Evidence Based Coaching and Mentoring*; *JHE = Journal of Higher Education*; *ResHE = Research in Higher Education*; and *RevHE = Review of Higher Education.*

Table 8

Frequency of Data Sources for Articles About Mentoring in Higher Education Across

Five Selected Journals (Prevalence Rates in Parentheses)

Data Sources	M&T	IJEBCM	JHE	ResHE	RevHE	Total
Interviews	17	8	1	0	1	27
	(17.17)	(34.78)	(25.00)	(0.00)	(33.33)	(20.61)
Focus groups	2	1	0	0	0	3
	(2.02)	(4.35)	(0.00)	(0.00)	(0.00)	(2.29)
Observation	18	2	0	0	0	20
	(18.18)	(8.70)	(0.00)	(0.00)	(0.00)	(15.27)
Documents	22	2	0	0	0	24
	(22.22)	(8.70)	(0.00)	(0.00)	(0.00)	(18.32)
Questionnaires	21	8	3	1	2	35
	(21.21)	(34.78)	(75.00)	(50.00)	(66.67)	(26.72)
Tests	3	0	0	0	0	3
	(3.03)	(0.00)	(0.00)	(0.00)	(0.00)	(2.29)
Undetermined	1	0	0	0	0	1
	(1.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.76)
Not applicable	15	2	0	1	0	18
	(15.15)	(8.70)	(0.00)	(50.00)	(0.00)	(13.74)
Total	99	23	4	2	3	131
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Note. M&T = Mentoring & Tutoring; *IJEBCM = International Journal of Evidence Based
Coaching and Mentoring*; *JHE = Journal of Higher Education*; *ResHE = Research in
Higher Education*; and *RevHE = Review of Higher Education.*

As noted above, some articles reported the use of more than one data source. There were 18 articles that were non-empirical, thereby having no explicit data sources and were coded as such. Therefore, the other 113 data source codes were spread over the remaining 64 empirical articles. There were 34 articles that used a single data source; this represents 41.46% of all articles or 53.13% of the empirical articles. There were 30 articles that used more than one data source; this represents 36.59% of all articles or 46.88% of the empirical articles. Specifically, one article reported five data sources, four articles reported four data sources each, eight articles used three data sources, and 17 articles reported two sources.

Mentor Samples

The articles could have more than one category of people serving as mentors, therefore multiple codes were permitted for each article; hence the total number of mentor roles ($N = 100$) exceeds the total number of mentoring articles ($N = 82$) contained in this study. Table 9 presents the frequency counts of these various mentor groups.

Faculty members were the most common mentors in all articles, accounting for 33.00% of the labels. Administrative members and higher education staff members served as mentors infrequently, reporting a prevalence rate of 2.00% each; teacher candidates also served infrequently as mentors, accounting for 3.00% of the codes. There were no articles where other higher education students served in a mentoring capacity (0.00%).

As noted, there were a total of 100 individual mentor role codes ($N = 100$), yet a total of only 82 articles ($N = 82$), which indicates that some articles had mentors from multiple categories. There were 9 articles that did not discuss specific mentor roles and

Table 9

Frequency of Mentor Samples for Articles About Mentoring in Higher Education Across

Five Selected Journals (Prevalence Rates in Parentheses)

Mentor Role	*M&T*	*IJEBCM*	*JHE*	*ResHE*	*RevHE*	Total
Faculty member	21	5	4	1	2	33
	(30.00)	(33.33)	(57.14)	(50.00)	(33.33)	(33.00)
Graduate student	8	0	0	0	0	8
	(11.43)	(0.00)	(0.00)	(0.00)	(0.00)	(8.00)
Undergraduate student	11	1	1	0	1	14
	(15.71)	(6.67)	(14.29)	(0.00)	(16.67)	(14.00)
Teacher candidate	2	1	0	0	0	3
	(2.86)	(6.67)	(0.00)	(0.00)	(0.00)	(3.00)
Other higher education student	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-higher education student	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Administration member	1	1	0	0	0	2
	(1.43)	(6.67)	(0.00)	(0.00)	(0.00)	(2.00)
Higher education staff member	1	0	0	0	1	2
	(1.43)	(0.00)	(0.00)	(0.00)	(16.67)	(2.00)
Community teacher	3	2	0	0	0	5
	(4.29)	(13.33)	(0.00)	(0.00)	(0.00)	(5.00)
Other	6	2	1	0	1	10
	(8.57)	(13.33)	(14.29)	(0.00)	(16.67)	(10.00)
Undetermined	8	3	1	1	1	14
	(11.43)	(20.00)	(14.29)	(50.00)	(16.67)	(14.00)
Not applicable	9	0	0	0	0	9
	(12.86)	(0.00)	(0.00)	(0.00)	(0.00)	(9.00)
Total	70	15	7	2	6	100
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Note. M&T = Mentoring & Tutoring; *IJEBCM = International Journal of Evidence Based Coaching and Mentoring*; *JHE = Journal of Higher Education*; *ResHE = Research in Higher Education*; and *RevHE = Review of Higher Education.*

were coded as *not applicable*. Therefore, the other 91 mentor role codes were spread over the remaining 73 articles that made reference to at least one specific group of individuals as mentors. There were 59 articles that discussed a single group of individuals as mentors; this represents 71.95% of all articles, or 80.82% of articles that discussed specific mentor roles. There were 14 articles that mentioned more than group of individuals serving as mentors; this represents 17.07% of all articles or 19.18% of articles that discussed specific mentor roles. Of those with multiple mentors, one article included four categories of mentors, two articles included three distinct categories of mentors, and 11 articles had two distinct categories of mentors.

Protégé Samples

As with the mentor samples described above, the articles could have more than one category of people serving as protégés, so multiple codes were permitted for each article, and therefore the total number of protégé roles ($N = 93$) exceeds the total number of mentoring articles ($N = 82$) contained in this study. Table 10 provides a breakdown of the frequencies for each protégé sample across each journal.

Higher education students were the most popular protégés, with undergraduate students serving as protégés 19 times (20.43%) and graduate students serving as protégés 17 times (18.28%). Teacher candidates served as protégés a further 10 times (10.75%). Three articles described college students as protégés; these were coded as other higher education students and represented a prevalence rate of 3.23%. Not included in these counts of student protégés is the one article that mentioned higher education students as protégés but did not give sufficient detail to allow coding based on the specific student group(s). Taken together, higher education students of all types served as protégés a total

Table 10

Frequency of Protégé Samples for Articles About Mentoring in Higher Education Across

Five Selected Journals (Prevalence Rates in Parentheses)

Protégé Role	*M&T*	*IJEBCM*	*JHE*	*ResHE*	*RevHE*	Total
Faculty member	10 (15.38)	4 (25.00)	0 (0.00)	0 (0.00)	0 (0.00)	14 (15.05)
Graduate student	9 (13.85)	3 (18.75)	3 (50.00)	1 (33.33)	1 (33.33)	17 (18.28)
Undergraduate student	13 (20.00)	2 (12.50)	1 (16.67)	2 (66.67)	1 (33.33)	19 (20.43)
Teacher candidate	8 (12.31)	2 (12.50)	0 (0.00)	0 (0.00)	0 (0.00)	10 (10.75)
Other higher education student	1 (1.54)	0 (0.00)	1 (16.67)	0 (0.00)	1 (33.33)	3 (3.23)
Non-higher education student	7 (10.77)	1 (6.25)	0 (0.00)	0 (0.00)	0 (0.00)	8 (8.60)
Administration member	1 (1.54)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (1.08)
Higher education staff member	1 (1.54)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (1.08)
Community teacher	1 (1.54)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (1.08)
Other	4 (6.15)	2 (12.50)	1 (16.67)	0 (0.00)	0 (0.00)	7 (7.53)
Undetermined	3 (4.62)	2 (12.50)	0 (0.00)	0 (0.00)	0 (0.00)	5 (5.38)
Not applicable	7 (10.77)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	7 (7.53)
Total	65 (100.00)	16 (100.00)	6 (100.00)	3 (100.00)	3 (100.00)	93 (100.00)

Note. M&T = Mentoring & Tutoring; *IJEBCM = International Journal of Evidence Based Coaching and Mentoring*; *JHE = Journal of Higher Education*; *ResHE = Research in Higher Education*; and *RevHE = Review of Higher Education.*

of 50 times, representing a prevalence rate of 53.76%. Administration members, higher education staff members, and community teachers served as mentors least often, each accounting for one occurrence only.

There were a total of 93 individual protégé role codes, yet a total of only 82 articles, which indicates that like the mentor roles, some articles had protégés from multiple categories. There were 7 articles that did not discuss specific protégé roles and were coded as *not applicable*. Therefore, the other 86 mentor role codes were spread over the remaining 75 articles that made reference to at least one specific group of individuals as protégés. There were 69 articles that discussed a single group of individuals as mentors; this represents 84.15% of all articles, or 92.00% of articles that discussed specific mentor roles. There were 9 articles that mentioned more than group of individuals serving as protégés; this represents 10.98% of all articles or 12.00% of articles that discussed specific protégé roles. Of those articles that reported multiple protégé categories, two articles had a total of three categories of protégés in each study, whereas seven articles had two categories of protégés.

Label Agreement

Although not directly tied to an explicit research question, I can also report the outcomes of my attempt to conduct manifest as opposed to latent coding. As previously explained, each time I coded an article type, empirical research tradition, research design, or data source, I noted my level of agreement with the authors' explicit terminology. I coded a total of 377 separate instances of levels of agreement ($N = 377$), which is in perfect agreement with the number of codes I applied across the four coding categories. Of those codes, 49.60% ($n = 187$) were explicitly stated by the authors, whereas 32.36%

(n = 122) were derived based on the meaning and explanations contained in the articles. In comparison, there were two cases (0.53%, n = 2) where I questioned the authors' use of a particular label, but acquiesced by using their label and a further six instances (1.59%, n = 6) where I felt compelled to replace the authors' label with my own label. Table 11 provides these frequencies.

Examining the frequency of my agreement codes across the coding categories shows I was able to use explicit labels most often when coding data sources (85.50%), and was required to infer only one data source code. Conversely, I had to infer the greatest number of meanings when coding the article types (82.93%, n = 68) because less than 16% of these codes were explicitly stated (15.85%, n = 13). There was a fairly even balance between the number of explicit (35.37%, n = 29) and implicit (40.24%, n = 33) codes for research traditions, with a further 23.17% (n = 19) of articles coded as *not applicable* because of their non-empirical status.

The coding category that proved to be the most challenging to code, and resulted in the greatest distribution of coding categories, was research design. Although 40.24% of the codes in this category were explicitly stated (n = 33), 24.39% of the codes had to be inferred (n = 20). The research design codes were also where I found the largest number of disagreements between my labels and those provided by the authors: a total of six cases. In two of these cases, the authors' label was retained, whereas in the other four cases, the authors' label was replaced in favour of my label. Finally, the research design code was the only category where articles contained multiple research design labels (n = 4) and I was forced to choose the most appropriate label based on the coding criteria.

Table 11

Frequency of Label Agreement for Methodological Characteristics Across Coding

Categories (Prevalence Rates in Parentheses)

Agreement	Article Type	Research Tradition	Research Design	Data Source	Total
Explicitly stated	13	29	33	112	187
	(15.85)	(35.37)	(40.24)	(85.50)	(49.60)
Inferred	68	33	20	1	122
	(82.93)	(40.24)	(24.39)	(0.76)	(32.36)
Authors' label retained	0	0	2	0	2
	(0.00)	(0.00)	(2.44)	(0.00)	(0.53)
Author's label replaced	1	1	4	0	6
	(1.22)	(1.22)	(4.88)	(0.00)	(1.59)
Multiple labels	0	0	4	0	4
	(0.00)	(0.00)	(4.88)	(0.00)	(1.06)
Not Applicable	0	19	19	18	56
	(0.00)	(23.17)	(23.17)	(13.74)	(14.85)
Total	82	82	82	131	377
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Summary of Findings

Based upon the aforementioned analyses, I have answered the research questions established at the beginning of this study. More specifically, I have examined the prevalence rate of articles about mentoring in higher education across two selected mentoring journals and three higher education journals for the period between 2009 and 2013. I examined the prevalence of certain methodological characteristics within these articles, focusing on the article types, empirical research traditions, research designs, and data sources. I have also reported the level of agreement between my codes and those given by the authors, along with the prevalence of various groups serving in mentor and protégé roles. I had hoped to draw comparisons between the articles published in the mentoring and higher education journals, but because of the very limited number of articles about mentoring in the higher education journals, this was not feasible. When possible, I have made any relevant comparisons. An elaboration on the summary of these results, along with a discussion of the implications of these findings is provided in Chapter Five.

CHAPTER FIVE: CONCLUSIONS

In this chapter, I present a summary of my study and revisit the reported findings. I then discuss these outcomes in the context of the limited current literature. I identify a series of recommendations for research moving forward. I conclude with some reflections on what I have learned during this project and how this experience and the skills I have developed could help advance my future research.

Summary of Study and Findings

Mentoring relationships are important developmental relationships experienced by students, faculty, and staff within higher education institutions. Although understanding aspects of these relationships is valuable, it is also helpful to understand the characteristics of published research related to these mentoring relationships. Based on my search efforts, I could not find any relevant literature examining the methodological characteristics of published research about mentoring in higher education and consequently, this study represented a first step towards filling the existing gap in the literature.

In this study, I undertook a descriptive quantitative analysis of the nature of published research about mentoring in higher education. Using content analysis, I examined the prevalence of mentoring in higher education articles, along with the prevalence of various methodological characteristics of these articles. I engaged in both manifest and latent coding to analyze the article types, empirical research traditions, research designs, data sources, and mentor and protégé roles. I then used descriptive statistics to calculate the frequency and prevalence rates of each of the aforementioned characteristics. It should be noted again that the results describing the methodological

aspects of mentoring articles published in higher education journals must be interpreted with caution, especially given the limited number of articles published in those outlets.

Based on my analysis, I identified 82 articles ($N = 82$) about mentoring in higher education published in the five selected journals over the five-year period from 2009 to 2013. This represents a total prevalence rate of 12.65%. There were, however, significant differences between the prevalence rates of the individual journals, χ^2 (4, $N = 82$) = 143.98, $p < .01$. Prevalence rates ranged from 1.07% ($n = 2$) to 3.13% ($n = 3$) in the selected higher education journals. Not surprisingly, there were more articles about mentoring in the mentoring journals. *IJEBCM* had a prevalence rate of 12.50% ($n = 14$) articles about mentoring in higher education, which was very close to the overall prevalence rate of 12.65%. In contrast, *M&T* had a considerably higher prevalence rate of 53.15%, which represented 59 articles about mentoring in higher education.

Having determined the prevalence rates of the articles about mentoring in higher education across the selected journals, I then investigated the prevalence of various methodological aspects within these articles. Over three-quarters (76.83%) of the mentoring articles were empirical, whereas expository articles accounted for 14.63% and literature reviews comprised 6.10%. Given that there was a total of nine articles published about mentoring in higher education across all three higher education journals, comparisons between the higher education journals, either individually or as a collective group, was very difficult. Within *M&T*, 72.88% of the articles were empirical and within *IJEBCM* this rate was 85.71%.

As for the empirical research traditions used within these articles, the prevalence rate for qualitative articles was 48.78%. Nearly one quarter (23.17%) of the articles were

non-empirical, whereas almost one fifth of the articles were quantitative (19.51%).

Within the higher education journals, two thirds of the articles were quantitative

(66.66%), but again, the very small sample size ($n = 9$) must be considered. The

prevalence rate for qualitative articles published in *M&T* was 50.85%. Mixed methods

research was not published in any of the higher education journals and had prevalence

rates of 6.78% for *M&T* and 21.43% in *IJEBCM*.

The most frequent coding category for research design was the category assigned

to articles that were non-empirical (23.17%). Descriptive qualitative (18.29%) and case

study (13.41%) were the most popular empirical research designs across all journals.

Some of the research designs from my a priori coding list were not present in any of the

studies (i.e., quasi-experimental, longitudinal, scale development, meta-analysis,

descriptive quantitative, and critical). Rarely used research designs were true

experimental (1.22%), grounded theory (1.22%), ethnographic (2.44%),

phenomenological (2.44%), and action designs (2.44%). With respect to data sources,

questionnaires (26.72%), interviews (20.61%), documents (18.32%), and observations

(15.27%) had the greatest prevalence rates; focus groups (2.29%) and tests (2.29%) had

the lowest prevalence rates across the articles.

With respect to the mentor and protégé roles in higher education, faculty members

served as mentors most often (33.33%), whereas higher education students collectively

formed the protégés in over half of the articles (53.76%). In contrast, administrative

personnel and other higher education staff rarely served as mentors (2.00%) or protégés

(1.08%).

Finally, despite my desire to engage in manifest coding, which would have relied upon the authors' stated labels, I was often required to engage in latent coding (32.36%, n = 122), where I had to infer meaning based on the content in the articles. There was also some variance in the proportions of manifest versus latent coding in each coding category. The article type was seldom explicit, with labels used in only 15.85% of the articles, whereas the data sources were stated explicitly in 85.50% of the cases. The research tradition was split, with labels stated in approximately one third (35.37%) of the cases, and I was left to infer the research design in 40.24% of the articles (a research tradition code was not applicable in nearly one quarter of the articles, 23.17%). The research design category proved to be the most difficult to code, with six cases of disagreement ($n = 6$) and four instances of multiple labels ($n = 4$).

Unfortunately, the limited number of articles about mentoring in higher education in the three higher education journals rendered it impossible to make the detailed comparisons I had been hoping to undertake. However, readers should not overlook the importance of this seemingly simple finding. In some cases, knowing where particular areas of research are concentrated is just as important as knowing where this research is unlikely to be found.

Findings in the Context of Existing Literature

As previously noted, literature examining the methodological characteristics of articles about mentoring in higher education is scarce. This study represented an important first step in filling this gap in the literature. Taken together, the findings of this study provide a methodological profile of research about mentoring in higher education. As Bryman (2011) points out, studying the research methods used within a particular

field is an important step in understanding the types of research that are valued within a particular academic community. Based on the findings of this study, readers could begin to make inferences about the relative value or publishing potential of empirical versus review or expository articles about mentoring in higher education. Similarly, those looking to conduct research within a particular research tradition could examine the prevalence rates of those research traditions as determined in this study to help situate their proposed study within the existing landscape. However, as Bryman makes clear, the absence of a particular research method or research design does not immediately indicate that particular approach is undesirable, but rather it may provide an opportunity for researchers to make a contribution using an under-utilized design or complement the existing strategies with an often-overlook approach.

Given the number of higher education journals that could have been included in this study, *JHE*, *ResHE* and *RevHE* were selected based on their relative prestige, along with the possibility for drawing comparisons between the results of this study and the methodological characteristics discovered by Hutchinson and Lovell (2004). As previously noted, Hutchison and Lovell's study makes a valuable contribution to the sparse knowledge in this area.

When comparing the results found in this study to those obtained by Hutchinson and Lovell (2004), some similarities emerge. The number of empirical articles was nearly identical, with Hutchinson and Lovell reporting 77.6% and this study finding 76.83% of the total articles were empirical. In contrast, differences emerged in the prevalence of data sources between the two studies. In Hutchinson and Lovell's examination, surveys comprised over half of the data sources used, with 28.69% relying upon primary data

collection and 24.26% using secondary data, for a total of 52.95% of studies. Although questionnaires were the most prevalent data source in this study, the comparative prevalence rate was much lower, at approximately one quarter of the total sources (26.72%).

Comparing the prevalence rates for other data sources from Hutchinson and Lovell (2004) and this study also yield similar results. Documents were used with similar frequency (21.73% and 18.32%, respectively), as were interviews (16.46% and 20.61%, respectively). A contrast was found, however, between the prevalence of observational data. In this study, observations comprised 15.27% of the data sources, but only 5.06% of the articles in Hutchinson and Lovell's study.

Understanding the methodological characteristics of published literature in the field can provide insight into the ways knowledge about mentoring relationships has been gleaned, and help to shape the ways future aspects of mentoring should be examined. Based on the descriptive data I collected in this study, it is not possible to surmise reasons for the patterns found within the mentoring in higher education literature; pursuing this matter represents a possible future contribution for individuals who wish to continue with this line of research.

Situating the findings of this study within the broader mentoring literature, these results provide previously missing empirical evidence to compare to some of the suggestions made by Johnson (2010). Based on the absence of stated search or exclusion criteria, it appears as though Johnson drew upon his extensive experience in the field to make a number of claims regarding the current status of mentoring literature. The results of the current study provide needed empirical evidence that simultaneously supports and

refutes specific aspects of Johnson's claims. For example, although Johnson said there were relatively few empirical studies of mentoring, as reported earlier, over 75% ($n = 63$) of the articles examined in this study were empirical in nature, highlighting a potential discrepancy between his experience with the mentoring in higher education literature and the actual literature published within several leading publications. It is also possible that this discrepancy could be explained by a change in the methodological profile since Johnson conducted his review in 2010. Although it is not possible to discern the exact reasons for this discrepancy, it is worth noting the difference between his assertion that there were few empirical articles examining mentoring in higher education and the results of this study. In contrast, the findings of this study seem to corroborate Johnson's assertion regarding a lack of experimental studies. In the current study, I identified just one true experimental study, which points to a greater need for this specific type of research.

Finally, it appears as though my experience of having to engage in considerable latent coding of published articles is not unique. Although I expected most researchers to explicitly state the features of their research, Hart and her colleagues (2009) shared a similar experience. They noted difficulty in coding articles because the methods were not described explicitly. This difficulty caused their research team to "reconsider details of our operational definitions, make interpretive judgments, or negotiate to a consensus" (p. 31). This parallels my experience in that many labels were not stated explicitly, and despite my attempts to create a very thorough and comprehensive codebook, I, too, questioned some of my decisions. The difficulty of the coding process points to a need for a greater focus on being explicit and forthcoming when detailing aspects related to

conducting research, as well as the importance of considering and reporting interrater reliability.

Future Recommendations

Based on the findings of this study, I offer three recommendations for future research. I also offer suggestions for practical implementation.

The first recommendation involves extending the current line of inquiry by investigating different characteristics of articles about mentoring in higher education. For example, researchers could conduct a similar content analysis, but focus on features such as the authors' geographical location, their institutional affiliation, gender, or academic rank. Alternatively, researchers could examine other methodological characteristics such as whether the voices of all members of the mentoring relationships are included or the philosophical perspectives from which the authors approach their studies of mentoring. Increasing the number of journals examined and extending the publication range would also provide additional insight into the findings gleaned in this study. Selecting journals with a greater number of articles related to mentoring in higher education could allow for comparisons between journals and discipline areas that I was unable to complete in this study. This information would be important because it would continue to build the methodological profile of particular journals and discipline areas. Having this knowledge could help all researchers when making decisions regarding their mentoring studies.

The second recommendation involves using different research designs or alternative data sources to explore related research questions. By adopting qualitative or mixed methods research traditions, or collecting data directly from authors and editors as opposed to (or in addition to) using published documents as the data source, future

research could extend this investigation of the nature of published research about mentoring in higher education. Adopting a qualitative approach that relied on interviews with authors or editors could lead to rich data that would help identify some of the motives behind the research choices made by these individuals. For example, perhaps researchers are using a limited number of research strategies because they are most familiar with those approaches or because they believe those are the only strategies that would be accepted for publication in their target journals.

Having more information of this nature would be helpful because if it were determined that researchers were not familiar with particular research designs, or if they felt their skills in a specific research tradition were deficient, higher education institutions, conference organizers, or publishing companies could offer workshops to address these needs. Similarly, if authors had concerns about the likelihood that articles using alternative methods would be accepted for publication, editors could propose a number of special issues where instead of focusing on a particular thematic area, the focus could be on using underemployed research designs or incorporate unique data sources to investigate the topic within the scope of the journal.

The third recommendation involves using more advanced statistical procedures. One criticism of content analysis and its related approaches is the simplicity of the statistical procedures involved (Elo & Kyngäs, 2008). Although dependent upon sufficient sample sizes to allow such comparisons, employing more advanced statistics, such as logistic regression or structural equation modelling, would allow researchers to simultaneously examine factors that may influence the methodological characteristics of research about mentoring in higher education.

Having studies that use content analysis but also employ advanced statistics would help provide support and bolster against critics' assertions that content analysis is a simplistic method. Of course, attention should still be given to the congruence between the research questions and the resulting approaches used to investigate those questions. In this study, especially because it represents the first effort to examine the prevalence of methodological characteristics of mentoring in higher education, a descriptive quantitative study and related statistics are appropriate. In contrast, for topics that have an established research base, content analysis involving advanced statistics might be more appropriate.

Finally, I suggest these results may have practical value to researchers planning studies about mentoring in higher education. Knowing the types of articles published, along with aspects such as the research designs used and data sources gathered, researchers can either tailor their work to fit the current pattern of particular journals, or intentionally diverge from these existing patterns to show the ways their work can make a unique contribution, especially by using under-utilized research designs, data sources, or protégé and mentor groups. Similarly, research methods instructors and higher education programs can use this information to tailor course content so students are readily familiar with the most common article types, research designs, and data sources, while also ensuring that students are prepared adequately to implement under-utilized research approaches.

Personal Reflection

This experience has been a positive yet challenging one. I am appreciative of the opportunity I have had to build on my previous background examining mentoring in

higher education. My prior mentoring work was qualitative in nature, and undertaking this study has allowed me to strengthen my quantitative research skills. In doing so, I have become much more familiar with various methodological aspects of research in higher education.

The development of my knowledge related to research designs has been particularly salient. In order to develop and then apply my coding framework, I had to recognize and distinguish between various research designs. This required me to understand the key features of each design and how those designs differ from other similar yet distinct designs. Through this process, I have strengthened my understandings about ways to conduct and write research, which will be very useful to me as I embark on doctoral studies.

Finally, being new to the formal study of higher education, I was unfamiliar with various publishing opportunities that exist within this field. Conducting a study using published articles as my data source has allowed me to explore some of the top-tier journals within higher education. By focusing on these journals, I have presumably also been exposed to some of the leading scholars and most influential research articles. Once I have completed my interrater and intrarater reliability assessments, and have analyzed articles from a wider range of publishing outlets, I will be even more knowledgeable about where my future publications may fit. In addition, although this study certainly did not focus on the content aspect of the articles about mentoring in higher education, by examining these articles, I had the opportunity to informally review much of the current mentoring literature. I hope all of these benefits and outcomes will serve me well as I continue my educational pursuits.

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Appendix:

Coding Sheet for Mentoring in Higher Education Articles

Journal: JHE   RevHE   ResHE   M&T   IJEBCM

Year: _____   **Volume:** _____   **Issue:** _____

Authors: _____

Title: _____

Notes: _____

Article Type: **Agreement: 1   2   3   4   5   24   26**

1. Empirical	2. Literature review	3. Expository	4. Opinion
5. Historical review	24. Other	25. Undetermined	

Empirical Research Tradition: **Agreement: 1   2   3   4   5   24   26**

1. Qualitative	2. Quantitative	3. Mixed methods
24. Other	25. Undetermined	26. Not applicable

Research Design: **Agreement: 1   2   3   4   5   24   26**

1. True experimental	2. Quasi-experimental	3. Correlational	4. Longitudinal
5. Cross-sectional	6. Scale development or validation	7. Meta-analysis	8. Descriptive quantitative
9. Descriptive qualitative	10. Ethnographic	11. Narrative	12. Phenomenological
13. Action	14. Critical	15. Grounded theory	16. Case study
24. Other	25. Undetermined	26. Not applicable	

Data Collection: **Agreement: 1   2   3   4   5   24   26**

1. Interviews	2. Focus groups	3. Observation	4. Documents
5. Questionnaires	6. Meta-analysis	7. Tests	24. Other
25. Undetermined	26. Not applicable		

Mentor Role:

1. Faculty member	2. Graduate student	3. Undergraduate student	4. Teacher candidate
5. Other higher education student	6. Non-higher education student	7. Administration member	8. Staff member
9. Community teacher	24. Other	25. Undetermined	26. Not applicable

Protégé Role:

1. Faculty member	2. Graduate student	3. Undergraduate student	4. Teacher candidate
5. Other higher education student	6. Non-higher education student	7. Administration member	8. Staff member
9. Community teacher	24. Other	25. Undetermined	26. Not applicable

Agreement (coded above):

1. Explicitly stated	2. Inferred	3. Authors' label retained	4. Author's label replaced
5. Multiple labels provided	24. Other	26. Not applicable	