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A Content Analysis of Dissertations on Business Topics: A Quantitative Study

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A Quantitative Study

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Abstract

Many students explore business topics in their dissertations because they are relevant research areas for future scholar-practitioners such as leaders, educators, researchers, and consultants. Nevertheless, there is limited scholarship on the content of dissertations from PhD and practitioner doctoral programs. Dissertation research methodology choices, page lengths, and research topics have not been studied extensively. Few studies have been conducted to explore the differences and similarities between researcher-oriented and practitioner-oriented dissertations. This study examined dissertations written on business topics in the recent ten years using content analysis to address these gaps. A sample of dissertations uploaded in the years 2010, 2015, and 2020 from an open-access academic database, *Digital Commons Network Business Commons* (2020), was used. This study found from the years 2015 to 2020, there was an increase in the number of qualitative dissertations compared to that of the year 2010. Mean page length of dissertations was longer for PhD programs compared to practitioner doctoral counterparts. Page lengths of quantitative dissertations were shorter than qualitative dissertations on average. In 2020, a new business research topic, Business Analytics, emerged. The Chi-Square tests of independence; the one-way ANOVA and the post-hoc Tukey HSD test; and the independent t-tests were used to analyze relationships for dissertation page lengths, methodology choice, and the publication year (2010, 2015, and 2020).

Keywords: business research topics, Chi-Square test of independence, content analysis, DBA (Doctor of Business Administration), EdD (Doctor of Education), dissertation, independent t-test, PhD, one-way ANOVA, page length, practitioner doctorate degree, research methodology choice.

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Chapter One: Introduction

There has been some research on the document content and form of dissertations in the field of education, but dissertations on business topics have not received the same attention (Banerjee & Morley, 2013; MacLennan et al., 2018). Ongoing discussions on the differences in the focus of research-oriented dissertations, typically culminating in PhD degrees, and practitioner-oriented dissertations, culminating in degrees such as the EdD (Doctor of Education), and their dissertation processes have taken place for over a century (Nelson & Coorough, 1994; Walker & Haley-Mize, 2012).

Traditionally, PhD programs focused on research excellence, and EdD, DBA (Doctor of Business Administration), and other practitioner doctoral programs prepared students as scholar-practitioners (Banerjee & Morley, 2013; MacLennan et al., 2018; Nelson & Coorough, 1994; Walker & Haley-Mize, 2012). Scholarly consensus exists that PhD and practitioner doctoral programs have become more similar than different (Banerjee & Morley, 2013; MacLennan et al., 2018; Nelson & Coorough, 1994; Sarros et al., 2005; Walker & Haley-Mize, 2012).

Nelson and Coorough (1994) created a foundational dissertation content analysis in the literature. The authors reported differences and similarities between PhD and EdD dissertations (Nelson & Coorough, 1994). Other authors since then have studied the trends in education dissertations on a smaller scale (Krueger, 2018; Lunde, 2017; Lunde et al., 2019; Walker & Haley-Mize, 2012). Following this development of dissertation content analysis, MacLennan et al. (2018) conducted PhD and DBA dissertation content analysis in the business field.

MacLennan et al. (2018) suggested further research in business dissertations, especially in DBA dissertations, because DBA and EdD degrees share many attributes. Both DBA and EdD

degrees were created at Harvard University because this institution decided not to offer PhD degrees from their professional schools (Harvard Business School, 2020; Harvard Graduate School of Education, 2020; MacLennan et al., 2018; Nelson & Coorough, 1994).

MacLennan et al. (2018) and Nelson and Coorough (1994) found that there are many similarities between practitioner doctorate degrees such as EdD, DBA, and other practitioner doctoral programs. They are generally intended for business and educational leaders who have significant industry, leadership, consulting, and teaching experience before entering their doctoral education programs (Banerjee & Morley, 2013; Johnson, 2005; Sarros et al., 2005).

Although this study explores the general differences and similarities between PhD and practitioner dissertations, it does not focus closely on specific and individual differences among various degrees (PhD, EdD, DBA, and other practitioner doctorate degrees such as Doctor of Information Systems (DIS), Doctor of Information Technology (DIT), Doctor of Public Health (DPH), Doctor of Psychology (PsyD), Doctor of Nurse Practitioner (DNP), and Doctor of Judicial Science (DJS) that are analyzed in this study) and their methodology choice, research rigor, and other dissertation research characteristics. Instead, this study intended to explore the trends in dissertations written on business topics over the last ten years. This is because regardless of degree program types, many students decide to conduct their research on business topics (such as educational leadership and management, effective teaching in business schools, or marketing of college programs) (Digital Commons Network Business Commons, 2020; ProQuest Dissertations and Theses, 2020).

Research Problem

PhD programs are geared toward the training of academic researchers. EdD, DBA, and other practitioner doctoral programs aim to develop practitioner leaders in various fields where business is a relevant research topic (Banerjee & Morley, 2013; MacLennan et al., 2018; Nelson & Coorough, 1994; Sarros et al., 2005; Walker & Haley-Mize, 2012). The lack of comprehensive understanding of trends in dissertations on business topics calls for further study to explore what and how students decide to study when they engage in their dissertation phases (Dunn & Kniess, 2019; MacLennan et al., 2018; Pansiri, 2009).

Studies suggest that PhD and practitioner doctoral training (EdD, DBA, and other practitioner doctorate degrees) gradually became more similar than different over time (Banerjee & Morley, 2013; Caboni & Proper, 2009; Cleary, 1992; Deering, 1998; Nelson & Coorough, 1994; Sarros et al., 2005; Walker & Haley-Mize, 2012), and DBA and EdD training share many characteristics (MacLennan et al., 2018). There is limited research in the literature to understand the differences and similarities between PhD and DBA business dissertations in current years (MacLennan et al., 2018).

Many dissertations from various degree types (PhD, EdD, DBA, and other practitioner doctorate degrees) focus on business topics as their research area (Digital Commons Network Business Commons, 2020; ProQuest Dissertations and Theses, 2020). More studies are needed to understand what and how current students are deciding to study for their dissertations (Banerjee & Morley, 2013; Caboni & Proper, 2009; Cleary, 1992; Deering, 1998; MacLennan et al., 2018; Nelson & Coorough, 1994; Sarros et al., 2005; Walker & Haley-Mize, 2012). There are many gaps as to what students decide to study, what research methodologies they use, and the extent to which they explore their dissertation topics (Banerjee & Morley, 2013; Caboni & Proper, 2009;

Cleary, 1992; Deering, 1998; Digital Commons Network Business Commons, 2020; MacLennan et al., 2018; Nelson & Coorough, 1994; Sarros et al., 2005; Walker & Haley-Mize, 2012).

Research Purpose

This study examined dissertations on business topics in recent years (from 2010 to 2020) to address the gaps in the dissertation content analysis literature (Banerjee & Morley, 2013; Caboni & Proper, 2009; Cleary, 1992; Deering, 1998; Digital Commons Network Business Commons, 2020; MacLennan et al., 2018; Nelson & Coorough, 1994; Sarros et al., 2005; Walker & Haley-Mize, 2012). This study assessed selected dissertations on various business topics through utilizing a dissertation database *Digital Commons Network Business Commons* (2020).

This study's objective was to discover the trend in students' methodology choice types (quantitative, qualitative, and mixed methodologies), page length of dissertations, and business topic selection to assess characteristics of dissertations created by students in the last ten years.

Research Questions

The primary research questions, which guided this study, were as follows:

RQ1: What are the trends in business topics chosen for dissertations over the last ten years?

RQ2: What are the research methodology choices (quantitative, qualitative, and mixed methodologies) of dissertations on business topics?

Null Hypothesis (H$_{01}$): There is no relationship between years (2010, 2015, and 2020) dissertations were completed and the methodologies selected (quantitative, qualitative, or mixed methodologies) by students who researched business topics.

Alternative Hypothesis (H$_{A1}$): There is a relationship between years (2010, 2015, and 2020) dissertations were completed and the methodologies selected (quantitative, qualitative, or mixed methodologies) by students who researched business topics.

RQ3: What is the relationship between dissertation page lengths and methodology choices for dissertations on business topics?

Null Hypothesis (H$_{02}$): The mean page lengths of dissertations on business topics and methodologies these students selected (quantitative, qualitative, or mixed methodologies) are the same in years (2010, 2015, or 2020).

Alternative Hypothesis (H$_{A2}$): The mean page lengths of dissertations on business topics and methodologies these students selected (quantitative, qualitative, or mixed methodologies) are different in years (2010, 2015, or 2020).

RQ4: Are there significant differences in business topics, methodologies, or page lengths when comparing PhD to practitioner dissertations (from EdD, DBA, and other practitioner doctorate degrees such as Doctor of Information Systems (DIS), Doctor of Information Technology (DIT), Doctor of Public Health (DPH), Doctor of Psychology (PsyD), Doctor of Nurse Practitioner (DNP), and Doctor of Judicial Science (DJS) and so on)?

Null Hypothesis (H$_{03}$): The mean page lengths of PhD and practitioner dissertations on business topics and methodologies these students selected (quantitative, qualitative, or mixed methodologies) are the same in years (2010, 2015, or 2020).

Alternative Hypothesis (H$_{A3}$): The mean page lengths of PhD and practitioner dissertations on business topics and methodologies these students selected (quantitative, qualitative, or mixed methodologies) are different in years (2010, 2015, or 2020).

Research Significance and Contribution

  This study contributes to the body of knowledge and practice by addressing the gaps in the dissertation content analysis literature (Banerjee & Morley, 2013; Caboni & Proper, 2009; Cleary, 1992; Deering, 1998; Digital Commons Network Business Commons, 2020; MacLennan et al., 2018; Nelson & Coorough, 1994; Sarros et al., 2005; Walker & Haley-Mize, 2012). The knowledge created from this study assists future students' understanding of what to expect while they attend various doctoral programs of their choice (Banerjee & Morley, 2013; Caboni & Proper, 2009; Cleary, 1992; Deering, 1998). Many students decide to research business topics in their dissertations (Digital Commons Network Business Commons, 2020; ProQuest Dissertations and Theses, 2020). By allowing prospective students to learn about what to expect during their future doctoral programs and their dissertation processes, students can make enrollment decisions that serve their career aspirations as researchers and scholar-practitioners (Banerjee & Morley, 2013; Caboni & Proper, 2009; Cleary, 1992; Deering, 1998).

  Administrators and educators of doctoral programs may benefit from the findings of this dissertation content study because they can better understand the trends and content analysis of dissertations on business topics in recent years (Banerjee & Morley, 2013; Caboni & Proper, 2009; Cleary, 1992; Deering, 1998; MacLennan et al., 2018; Nelson & Coorough, 1994; Sarros et al., 2005; Walker & Haley-Mize, 2012). Moreover, this study allows administrators and professors to make appropriate improvements to their doctoral program curriculum and dissertation requirements. By doing so, they will become more aware of what and how students in recent years are deciding to conduct their studies for their dissertation projects (Banerjee & Morley, 2013; Caboni & Proper,

2009; Cleary, 1992; Deering, 1998; MacLennan et al., 2018; Nelson & Coorough, 1994; Sarros et al., 2005; Walker & Haley-Mize, 2012). Additionally, this study can benefit faculty members who advise students on options for their dissertation research topic (Johnson, 2005; Olalere et al., 2014; Piotrowski & Guyette, 2014; Piotrowski, 2015).

Summary

There are many gaps to address in the dissertation content analysis literature. This study addresses in part this gap by examining the trends of current dissertations on business topics using an open access academic database, *Digital Commons Network Business Commons* (2020). This study analyzed the data collected from 2010, 2015, and 2020 to discover the trends in dissertations on business topics. The findings of this study can help future students select the appropriate doctoral programs for their identified purposes. The findings can also help university professors and administrators improve their doctoral program curriculum and dissertation processes to support students in their dissertation processes.

Chapter Two: Literature Review

This section is designed to orient the study's research questions concerning the gaps in dissertation content analysis literature on business topics and related areas. In this section, the following areas of literature are reviewed: 1) dissertation content analysis research, 2) past discussions on the differences and similarities between EdD and PhD dissertations, and the programs that produce them, including 3) their dissertation methodology choice in education dissertations. Additionally, 4) the differences and similarities between DBA and PhD programs and their dissertations, and 5) similarities between DBA and EdD programs, and 6) the relationship between the page length and methodology choice are reviewed. Lastly, 7) research methodologies in business and 8) trends in business research topics are reviewed to assess the gaps in dissertation content analysis literature on business topics.

Dissertation Content Analysis

Content analysis is a research methodology used to categorize and identify trends in messages or communication, whether in documents, videos, images, or speech (Krippendorff, 2018; Neuendorf, 2016). The foundational content analysis of dissertations by EdD and PhD programs was conducted by Nelson and Coorough (1994), who assessed 1,007 PhD and 960 EdD dissertations from 1950 to 1990. Since then, content analysis of dissertations has been used to understand the current trends and emphasis within topic areas and disciplines. There are content analyses of dissertations in special education (Walker & Haley-Mize, 2012), faith-based universities' dissertation content analysis (Lunde et al., 2019; Lunde, 2017), and DBA and PhD dissertations in business (MacLennan et al., 2018).

Hallinger (2011) reviewed three decades worth of dissertations, which utilized the Principal Instructional Management Rating Scale (PIMRS) (Hallinger, 1990; Hallinger et al., 1996; Hallinger et al., 2010) as a survey instrument to assess principals' educational leadership and student learning. Hallinger (2011) reported the reviews by educational leadership and management scholars that were produced over the past five decades. About 25 years ago, the authors observed that school leadership scholars used instructional leadership as their primary perspective. The authors also noted that PIMRS was the most utilized instrument by school leadership researchers.

Hallinger (2011) found that more than 110 dissertations used the PIMRS instrument in the school leadership literature. The author reported that new scholars showed global interest in instructional leadership assessment using the PIMRS. The author's dissertation content analysis is limited to instructional leadership studies conducted between 1983 and 2010, which used the PIMRS instrument. This research aimed to explore and examine the methodological approaches and research process created in those instructional leadership studies.

Hallinger (2011) discovered that the interest in instructional leadership among researchers remained high during the period the author's dissertation content analysis was performed. The PIMRS has shown to be a proven valid, and reliable survey instrument. The author also reported that research methodology utilization showed improvements. The author reported that students' use of conceptual frameworks and methodologies used were overall inadequate for adding to the body of theoretical or practical knowledge in the field of instructional leadership.

Hallinger (2011) also critically evaluated those dissertations and reported that students' weak knowledge accumulation was revealed by the author's citation analysis, which found

limited citations of other scholars. The author lastly noted that the author's evaluation applied equally to both EdD and PhD dissertations regardless of the level of research university the studies were produced. The author concluded that this dissertation content analysis offered empirical evidence of trends in dissertation research quality assessed over the three decades to allow discussions over the objectives and doctoral programs' direction of the educational leadership dissertations.

EdD and PhD Dissertations

Nelson and Coorough (1994) studied PhD and EdD dissertation content to assess the difference between PhD and EdD training because PhD programs are said to create researchers and EdD programs are designed to produce practitioners. The authors compared PhD and EdD dissertations relative to their design and research methodologies. The authors surveyed PhD and EdD dissertations from 1950 to 1990, and their sample sizes consisted of 1,007 PhD and 960 EdD dissertations.

Nelson and Coorough (1994) found that PhD dissertations tend to use more sophisticated statistical analysis than EdD dissertations. Thus, the authors asserted that the findings from PhD dissertations are more generalizable than those of EdD dissertations. The authors also found EdD dissertations conducted quantitative survey studies more frequently than PhD dissertations, and EdD dissertation topics were often on educational administration. Both PhD and EdD dissertations focused on various qualitative topics and methodologies.

Walker and Haley-Mize (2012) conducted a content analysis of PhD and EdD dissertations in the special education concentration. The authors surveyed PhD and EdD dissertations from 1997 to 2010 in special education. Walker and Haley-Mize's (2012)

study assessed research design and other variables that Nelson and Coorough (1994) analyzed. The authors found some statistically significant differences between PhD and EdD dissertations in special education (Walker & Haley-Mize, 2012). The author also found that PhD dissertations used more sophisticated statistical analysis with theoretical frameworks than did EdD dissertations.

Augusto (2009) conducted case studies of EdD and PhD dissertations in educational leadership and administration. The authors reported that the field of educational leadership uses degree programs to prepare both scholars and practitioners (Augusto, 2009; McClintock, 2005). The author aimed to conduct dissertation content and case studies to understand how faculty describe the characteristics of quality dissertations (Augusto, 2009). Augusto's (2009) study examined differences and similarities between PhD and EdD dissertations.

Augusto (2009) reported that the author's study is primarily based on Lovitts' (2007) work regarding faculty perspectives on dissertations. Lovitts examined the quality of dissertations from the perspective of mentors who guide and evaluate students' dissertations (Augusto, 2009). This empirical work also found that faculty perceived the aim of dissertations as a process and a product and that dissertations should reflect the training students received to show their critical, analytical, and writing skills produced during their programs (Augusto, 2009).

Augusto (2009) found that both PhD and EdD dissertations can offer students a valuable learning opportunity, add to the literature in the field, and provide professional development. The author reported that though there are noteworthy differences between PhD and EdD dissertations, faculty described similar goals, expectations, and quality. The author found that both PhD and EdD faculty reported that they explicitly state the objectives and expectations of

dissertations. The author's findings agreed with the findings of the Carnegie Foundation for the Advancement of Teaching (2020) on research quality in students' dissertations on what an excellent dissertation entails versus an average dissertation (Augusto, 2009; Lovitts, 2007).

Melendez (2002) performed a dissertation content analysis on 192 higher education dissertations from 1977 to 1997. The author reported that the dissertations represented 14 doctoral programs. The author identified several differences in higher education dissertations. The author found that between 1977 and 1997 dissertations, the study noted an increase in female doctorate degree recipients, an increase in the use of the conceptual framework, a change in methodology used from quantitative to qualitative, and an increase in mean dissertation page length from 199 to 218 pages. Regarding the balance between theory and practice, the author reported that the integration of both theory and practice is encouraged in both 1977 and 1997 dissertations.

DBA and PhD Dissertations

The practitioner-focused Doctor of Business Administration (DBA) degree is Harvard University's primary business doctorate degree (Harvard Business School, 2020a; MacLennan et al., 2018). It was first created in 1953 by Harvard Business School to offer a degree other than the Doctor of Philosophy (PhD) degree, which has been only offered through the College of Arts and Sciences (Harvard Business School, 2020a). Similarly, Harvard University started to offer the practitioner-based Doctor of Education (EdD) degree in 1922 (Harvard Graduate School of Education, 2020a; Levine, 2007; MacLennan et al., 2018). Since then, many students earned EdD degrees from various programs in the U.S. (Krueger, 2018; Lunde et al., 2019; Lunde, 2017; Nelson &

Coorough, 1994; Walker & Haley-Mize, 2012). Currently, Harvard University offers research-focused PhD programs from Harvard Business School as well as Harvard Graduate School of Education in addition to the practitioner-based DBA and EdD programs (Harvard Business School, 2020a, 2020b; Harvard Graduate School of Education, 2020a, 2020b).

In the United States (U.S.), there are three accrediting bodies for business programs including the Association to Advance Collegiate Schools of Business (AACSB International, 2020), the Accreditation Council for Business Schools and Programs (ACBSP, 2020), and the International Accreditation Council for Business Education (IACBE, 2020). In theory, the curriculum of doctoral business programs in DBA and PhD should be noticeably different from each other; thus, the accrediting bodies would treat DBA and PhD programs differently, and the dissertations of DBA and PhD students should significantly differ also (MacLennan, et al., 2018). Yet, the authors reported that their study did not support this theory; MacLennan et al. (2016, 2018) found that the distinction between the two degrees, DBA program for applied practitioners and PhDs for academic researchers, does not produce a clear separation.

The authors then asked whether or not an essential difference could be found in their dissertation process, and they tested their question with 147 DBA and 151 PhD dissertations in business published from 2006 to 2016 (MacLennan et al., 2018). The authors found that the difference between DBA and PhD dissertations differ significantly by Carnegie classification (Carnegie Classification of Institutions of Higher Education, 2020; MacLennan et al., 2018), which means the majority of PhD programs belong to R1 and R2 classifications and DBA programs primarily belong to R3 and unclassified categories.

MacLennan et al. (2018) reported that DBA and PhD dissertations did not significantly differ in their research methodology, sample size, or research type (applied or basic). Thus, the

authors found that the DBA and PhD programs in business do not significantly differ in their curriculum or their dissertation process but only by the Carnegie classifications, which ranks the research activity levels of each program (Carnegie Classification of Institutions of Higher Education, 2020; MacLennan et al., 2018).

Based on the authors' findings, there is a clear distinction between DBA and PhD programs, as PhD programs tend to have higher research activity, and DBA programs have lower research activity; but there are exceptions to the rules as well (MacLennan et al., 2018). There are PhD programs with lower research activity (R3) and DBA programs with higher research activity (R1) (Carnegie Classification of Institutions of Higher Education, 2020; MacLennan et al., 2018).

Banerjee and Morley (2013) reported that professional doctorates in management had seen significant growth in two decades, particularly in Australia and the United Kingdom. The authors reviewed the development of professional doctorates in business education and the contributions of practitioner-based doctoral education, regarding the Doctor of Business Administration (DBA) degree. Professional doctoral programs are developed in response to the criticism on the relevance of PhD research and practice and the changing content and context of knowledge in the new global market.

Banerjee and Morley (2013) suggested that the expectations of what is involved in professional practice research need more understanding. The authors state that currently, there is no clear separation between PhD and DBA research. Though DBA is focused on practice, the DBA dissertations still tend to be assessed by their theoretical and empirical approaches. This is because there is no clear guidance on alternative methods to evaluate research.

Banerjee and Morley (2013) reported that there are more DBA programs that are coursework doctorates with limited research components than PhD counterparts. However, the literature suggests that a majority of DBAs are comparable to research degrees. A distinctly different concept of a practitioner-based research dissertation does not exist in the current time (Banerjee & Morley, 2013). EdD and DBA dissertations share more in terms of their scholar-practitioner-focused dissertations (Banerjee & Morley, 2013; Johnson, 2005; MacLennan et al., 2018; Nelson & Coorough, 1994; Sarros et al., 2005; Walker & Haley-Mize, 2012).

Multiple studies have concluded that EdD and DBA dissertations share more characteristics with each other than with their PhD counterparts (Banerjee & Morley, 2013; Johnson, 2005; MacLennan et al., 2016, 2018; Nelson & Coorough, 1994; Pina et al., 2016; Sarros et al., 2005; Walker & Haley-Mize, 2012). The educational leaders' research by Carnegie Project resulted in creating guidelines to reinforce the professional practice aspect of the EdD program (Carnegie Classification of Institutions of Higher Education, 2020; Perry, 2015). MacLennan et al. (2018) suggested it may be time for business program accrediting bodies (AACSB, ACBSP, and IACBE) to reevaluate DBA program curriculum and dissertation processes to strengthen the professional practice nature of DBA degrees.

Dissertation Methodology Choice

Limited studies are available on dissertation methodology choice and the factors that influence such methodology choice in students' dissertations (Lunde et al., 2019). A quantitative study is based on positivism and statistical analysis; a qualitative study is based on constructivism and interpretivism (Creswell & Creswell, 2018; Lunde et al., 2019). The mixed methodology incorporates quantitative and qualitative research components (Creswell &

Creswell, 2018; Lunde et al., 2019). The authors used educational leadership dissertations to predict student dissertation methodology choice (Lunde et al., 2019).

To understand the current trends in PhD and EdD dissertation methodology choice, Lunde et al. (2019) and Lunde (2017) studied 398 dissertations (both PhD and EdD) in the state of Virginia. The authors used the intersectionality theoretical framework and assessed whether biological gender, ethnicity, age of students, and religious affiliation could predict candidates' dissertation methodology choice (quantitative, qualitative, or mixed methodologies). The authors found that there was no statistically significant relationship among the variables the authors studied and the dissertation methodology choice (Lunde et al., 2019).

To further understand the current trends in PhD and EdD dissertation methodology choice, Krueger (2018) conducted a trend content analysis of dissertation methodology choice in Virginia in the field of education in 2007, 2012, and 2017. The author analyzed 130 dissertations in education (both PhD and EdD) from the *ProQuest Dissertations and Theses* (2020) database. The author found that from 2007 to 2017, more students sought EdD degrees, and fewer candidates pursued PhD degrees. This difference could be due to EdD programs generally taking shorter times (3 years) to complete than PhD programs (4 years or more).

Lunde et al. (2019), Lunde (2017), and Krueger's (2018) studies on education dissertation (both PhD and EdD) methodology choice in Virginia helps scholars understand the trends in recent PhD and EdD dissertation methodology choice in the U.S. These authors' findings can help future students who are considering pursuing PhD or EdD programs in education (Lunde et al., 2019; Lunde, 2017; Krueger, 2018). More

studies on PhD and EdD dissertation methodology choice in the U.S. is needed to understand whether Lunde et al. (2019), Lunde (2017), and Krueger's (2018) findings are generalizable to the U.S. PhD and EdD dissertation methodology choice.

Dissertation Page Length and Methodology Choice

Students frequently ask how many pages they need to write for their dissertations to complete their program. According to Randolph et al. (2014), there are limited studies on dissertation page length and methodology choice. Randolph et al. (2014) conducted a methodological review of the population of 8,663 dissertations with the topic of education published by the *ProQuest Dissertations and Theses* (2020) database in 2011.

Randolph et al. (2014) randomly selected 131 dissertations as their sample for this study with replacement. After eliminating dissertations that did not meet their selection criteria (dissertations that authors did not have access to the full text were eliminated), 107 dissertations remained to be evaluated. Those 107 dissertations originated from 73 universities. The authors assessed page lengths of each chapter and the total number of pages of those documents. The authors further analyzed dissertation methodology types (quantitative, qualitative, and mixed methodologies), candidate gender, and university program types (online or residential).

Randolph et al. (2014) reported the general characteristics of their sample dissertations in the field of education is illustrated in Table 1.

Table 1:

General Characteristics of Sample Dissertations in Education

Methodology Choice	Approximate %
Quantitative	53%
Qualitative	34%
Mixed Methodology	13%
Meta-Analysis	0%

Note: Summary data from Randolph et al. (2014).

The university setting where sample dissertations were produced consisted of about 82% traditional residential doctoral programs and about 18% primarily online universities (such as Argosy University, Capella University, Liberty University Online, University of Phoenix, and Walden University) (Randolph et al., 2014).

Randolph et al.'s (2014) report of descriptive statistics of the sample (for the entire sample, quantitative, qualitative, and mixed methodology) education dissertations are displayed in Table 2.

Table 2:

Page Length Descriptive Statistics of Sample Dissertations in Education

	Mean	Standard Deviation	Minimum	Maximum	Median
	(M)	(SD)	(Min)	(Max)	(Med)
Entire Sample	183	84	47	505	161
Quantitative	155	70	47	505	147
Qualitative	216	85	49	423	187
Mixed Methodology	212	97	106	484	210

Note: Summary data from Randolph et al. (2014).

Randolph et al. (2014) also found that median page mixed-methodology dissertations in education from online programs were 44 pages shorter on average than the residential doctoral programs in education. The authors found that in the field of

education, dissertations were authored by slightly more females (about 53%) than males (about

47%). The authors found statistically significant differences between candidate gender and

dissertation methodology choice, contrary to previous studies' findings.

Plowman and Smith (2011) reported that in the management field, female scholars tend

to publish about ten percent more qualitative studies than their male counterparts. Randolph et al.

(2014) examined Plowman and Smith's (2011) findings on gender and methodology choice.

Contrary to Plowman and Smith's (2011) findings, Randolph et al. (2014) reported that based on

their education dissertation content study, about one percent more males conducted qualitative

research than female authors. Randolph et al. (2014) suggested that the discrepancy between

their findings and Plowman and Smith's (2011) findings may be due to the difference in the field

of research. Plowman and Smith (2011) studied management and organization science, and

Randolph et al. (2014) examined the field of education.

Studies examining the page length and the methodology choice of dissertations in PhD

and EdD programs are limited (Randolph et al., 2014). Hence, Randolph et al.'s (2014) study

suggested there are still wide gaps in the literature. The authors suggested that more research is

needed to fill the gaps by studying dissertation methodology choice and dissertation page length.

The authors recommended that further study on the relationship between PhD and EdD

dissertation methodology choice in current years and their page lengths can be conducted to add

new knowledge in the body of the dissertation content analysis literature.

Research Methodologies in Business

Discussion on the divide between quantitative and qualitative methodologies in business

research has occurred since social science research began several decades ago (Antwi & Hamza,

2015; Onwuegbuzie, 2005). The authors found that in the 1980s, quantitative and qualitative

scholars each debated that their approach was better than their counterparts' approach and why. The authors' study concludes that both quantitative and qualitative methodologies offer unique findings from different paradigms and interpretative frameworks. Similarly, the authors found that mixed methodologies combine both methodologies with their strengths in business research.

Hanson and Grimmer (2007) reported that more business marketing studies use quantitative methodologies than qualitative. The authors found that quantitative methodologies were used because of their capacity to offer a generalizable trend of larger samples. The authors assessed that the justification for using qualitative methodologies was the ability to provide a deeper understanding of specific phenomena under study. According to the authors, which method to use for marketing research is critical for scholars. The authors reported that content analysis allows sampling of a large number of published articles to assess the explanation for the dominance of quantitative methodologies over qualitative or mixed methodologies.

McKim (2017) explored the perceived value of mixed methodology for graduate students. The author's study examined the effect of a passage's methodology on students' perceived value in the quantitative phase. The author found that the students viewed the mixed methodologies passage as more valuable than those passages on quantitative or qualitative only methodologies. The author found that students view mixed methodologies as rigorous research methods that can provide the complex and deeper meaning of the phenomenon. McKim's (2017) findings revealed that students value quantitative, qualitative, and mixed methodologies differently.

Birkinshaw et al. (2011) discussed the need to reevaluate the use of qualitative methodologies in global business research to study cases and phenomena up close and

grounded rather than from a quantitative approach with a distance to generalize trends and observations. Authors point out that in development in global business research, qualitative approaches have new opportunities because a more focused perspective brings advantages such as a higher level of recognition of qualitative studies among strategy management scholars.

Birkinshaw et al. (2011) argued that since global business research has focused on quantitative methodologies, there were missed opportunities that could have been approached by qualitative methodologies. According to the authors, because grounded and more detailed approaches by qualitative methodologies were neglected, knowledge exchange and technology transfer in the global business landscape has been misunderstood, misrepresented, or overlooked as contextual analysis appropriate to each situation was lacking.

Birkinshaw et al. (2011) stated that conceptual abstraction in global business research is prevalent. However, it can also create challenges in interpretation and application (Birkinshaw et al., 2011). For instance, in cross-cultural research, global business scholars reduced contextual differences such as *Kaizen* (continuous improvement) in the Japanese business context. However, when multiple individuals from multiple cultures attempt to transfer and co-create cross-cultural concepts, the aggregate constructs start to completely break down (Birkinshaw et al., 2011; Yamamoto et al., 2019a; Yamamoto & Lloyd, 2019b, 2019c).

According to Birkinshaw et al. (2011), though the generalizable theories used by quantitative approaches are useful in understanding market and economic trends, the up-close perspective of individual-level studies fills a void and creates a missing link between the quantitative and qualitative methodology divide. Qualitative methodologies can play a critical role in overcoming this missing link by offering a deeper understanding of the microscopic view of the interaction between culture and context in international business collaboration. Many

contextualized cultural phenomena can be studied with exploratory qualitative methodologies; however, scholars need to remember that exploratory research does not imply the absence of theory. Researchers still need to link their study designs to existing literature bodies and not merely produce solely descriptive work.

Krivokapic-Skoko and O'Neill (2011) reported that mixed methodologies are becoming increasingly popular because they provide quantitative and qualitative perspectives on what is under study. The authors suggest that mixed methods can transcend the divide between quantitative and qualitative distinction. They also note that mixed methods can be applied in a range of sophisticated approaches and designs to provide insight into the business and management research areas.

Krivokapic-Skoko & O'Neill (2011) then explained that mixed methodology in business research should be rigorous, replicable, and systematic. Finally, qualitative researchers are encouraged to explore innovative mixed methodologies such as case-oriented quantification, qualitatively driven mixed methods, Hermeneutic content analysis, qualitative comparative analysis, event structure analysis, and Q methodology in their business management research.

Student Research Topic Selection in Business

Olalere et al. (2014) observed the dissertation topic selection process of educational leadership students to understand how students are influenced to select their research topics. The authors used dynamic network analysis to study the interactions between task, attitude, resource, and knowledge, which led students to select their topic.

Olalere et al. (2014) used a purposeful sample of 20 students approaching their dissertation process selected from an advanced seminar course required for their candidacy.

Students were asked to answer 18 questions that were emailed to them as a survey questionnaire. The survey questions inquired about participants' demographics, network factors (relationship with other students and faculty, and so on), attitudes and beliefs, resources (coursework and faculty), and knowledge; this survey was conducted as part of their required research coursework.

The objective of Olalere et al.'s (2014) study was to evaluate the type of resources accessible to students and how faculty influences the research topic of students. The authors additionally examined the relationship between students' attitudes, beliefs, and knowledge in their dissertation topic selection.

The findings of Olalere et al. (2014) suggested that faculty members' research interests influence students' topic selection required doctoral program coursework, and network factors such as professional, life, and practical experiences. The authors' results revealed that faculty research interest on students' dissertation topic provides the most significant influence on students' research topic choice. The authors suggested their findings imply that students always have those faculty who influenced students to choose their research topics as chairs on their dissertation committees or as members due to faculty members' research expertise in the selected field.

Olalere et al. (2014) assessed that those faculty who influenced students to choose their topics act as an information and knowledge gatekeepers in their field as experts (Olalere et al., 2014; Schniederjans, 2007). Such exclusivity of knowledge residing in faculty experts indicates ideas and expertise that students cannot access elsewhere (Olalere et al., 2014). For this reason, the authors reported that students with specific research interests gravitate towards those faculty with exclusive knowledge, so they complete their dissertations.

Students' prior coursework completed in their doctoral programs and their previous knowledge also influence their dissertation topic selection (Olalere et al., 2014). Olalere et al. (2014) found students' interest and professional experience played a significant role in influencing students' research topic selection. The authors suggested that this finding implies that although their faculty's research interests profoundly influence students, students' professional experience when selecting their dissertation topic is also a significant factor. The authors found that about 50% of students based their research topic selection on their personal interests. The authors additionally found that about 40% of students based on their research topic selection on their professional experiences. Olalere et al.'s (2014) research findings can have implications for students' dissertation chair and committee member selections.

Piotrowski (2015) and Piotrowski and Guyette (2014) studied students' research interests in business by conducting dissertation content analysis. From the dissertation content analysis literature, Piotrowski (2015) selected social media topics related to business research as an example of students' dissertation business topics. The author conducted a keyword search on the term, social media, and analyzed 662 studies found from *ProQuest Dissertations and Theses* (2020) database. Based on the content of the study's abstracts, the author explored the most studied topics within the domain of social media. The social media topics that graduate students showed the most interest in studying for their dissertations in business were K-12 educational applications, consumer behavior, brand management, healthcare management, crisis management, organizational performance, higher education, advertising, marketing, and social and political movements (Piotrowski, 2015).

As another example of dissertation business topic selection, Piotrowski and Guyette (2014) assessed the topics in business ethics that students decided to research for their dissertations out of many other business topics that they can choose to study. According to the authors, research on business ethics education during doctoral training is limited. Piotrowski and Guyette (2014) conducted a similar study about business ethics that Piotrowski (2015) performed on social media. The authors explored graduate students' research interests in business ethics by surveying dissertations in *ProQuest Dissertations and Theses* (2020) database. From 2003 to 2012, the authors found 263 dissertations on the business ethics domain: business instruction, corporate social responsibility, ethical climate, moral business education, and moral development (Piotrowski & Guyette, 2014).

Piotrowski and Guyette (2014) expressed concern about the shallowness of graduate students' business ethics topic selections. The authors found that ethically important topics like whistleblowing, Sarbanes-Oxley Act, and corporate scandals were not the main research topics; ethics issues such as outsourcing, workplace safety, tax evasion, employee abuse were rarely selected as students' dissertation topics. The authors reported that based on their dissertation content analysis on business ethics topics, students tend to focus on a narrow range of business ethics issues and ignore many business ethics concerns deserving of research (Piotrowski & Guyette, 2014).

Summary

This literature review provides documentation of prior studies focused on elements of dissertations and illustrates the gaps in dissertation content analysis research. Dissertation content analysis by Nelson and Coorough (1994) created a foundation in practitioner and research dissertation content analysis literature (EdD and PhD). Since then, other scholars have

conducted dissertation content analysis on various programs with various sample sizes and time frames. Nevertheless, there are many gaps in dissertations on business topics. This study adds to the dissertation content analysis literature by addressing some of these gaps.

Chapter Three: Methodology

Chapter Three illustrates how this research project was carried out so other scholars can replicate this study. This study used content analysis as the research approach to assess dissertations on business topics found in an open access research repository, *Digital Commons Network Business Commons* (2020).

Research Questions

The primary research questions, which guide this study, are as follows:

RQ1: What are the trends in business topics chosen for dissertations over the last ten years?

RQ2: What are the research methodology choices (quantitative, qualitative, and mixed methodologies) of dissertations on business topics?

Null Hypothesis (H_{01}): There is no relationship between years (2010, 2015, and 2020) dissertations were completed and the methodologies selected (quantitative, qualitative, or mixed methodologies) by students who researched business topics.

Alternative Hypothesis (H_{A1}): There is a relationship between years (2010, 2015, and 2020) dissertations were completed and the methodologies selected (quantitative, qualitative, or mixed methodologies) by students who researched business topics.

RQ3: What is the relationship between dissertation page lengths and methodology choices for dissertations on business topics?

Null Hypothesis (H_{02}): The mean page lengths of dissertations on business topics and methodologies these students selected (quantitative, qualitative, or mixed methodologies) are the same in years (2010, 2015, or 2020).

Alternative Hypothesis (H_{A2}): The mean page lengths of dissertations on business topics and methodologies these students selected (quantitative, qualitative, or mixed methodologies) are different in years (2010, 2015, or 2020).

RQ4: Are there significant differences in business topics, methodologies, or page lengths when comparing PhD to practitioner dissertations (from EdD, DBA, and other practitioner doctorate degrees such as Doctor of Information Systems (DIS), Doctor of Information Technology (DIT), Doctor of Public Health (DPH), Doctor of Psychology (PsyD), Doctor of Nurse Practitioner (DNP), and Doctor of Judicial Science (DJS) and so on)?

Null Hypothesis (H_{03}): The mean page lengths of PhD and practitioner dissertations on business topics and methodologies these students selected (quantitative, qualitative, or mixed methodologies) are the same in years (2010, 2015, or 2020).

Alternative Hypothesis (H_{A3}): The mean page lengths of PhD and practitioner dissertations on business topics and methodologies these students selected (quantitative, qualitative, or mixed methodologies) are different in years (2010, 2015, or 2020).

Research Design: Content Analysis

The research design and conceptual framework used in this study is the content (document) analysis of dissertations on business topics found in an open access dissertation database (Digital Commons Network Business Commons, 2020). Krippendorff (2018) and Neuendorf (2016) illustrate that content analysis is a systematic document research process. The authors state that content analysis is a replicable research process, and it can be approached quantitatively, qualitatively, or both. Similarly, the authors note that content analysis can be used to study various written materials such as articles, pictures, videos, and so on. The authors state

that content analysis can be used to study visible (such as pictures or countable messages) components of content as well as subtle content (such as implied meanings of content).

Krippendorff (2018) notes that content analysis is a conceptual framework, which is intended to serve three purposes: prescriptive, analytical, and methodological, where the prescriptive purpose guides the design of the content study. According to Krippendorff (2018), the analytical purpose enables the evaluation and comparison of documented dissertation content, and the methodological purpose allows applying the content analysis principles. The author explains that content analysis utilizes the body of text as the data for an analytical effort and to validate the evidence found in dissertations.

This study used content analysis of dissertations on business topics regardless of degree program types (PhD, EdD, DBA, and other practitioner doctorates) using an open access academic database, *Digital Commons Network Business Commons* (2020). Dissertations on business topics were selected randomly (without replacement) from the years 2010, 2015, and 2020 from an open-access academic database, *Digital Network Commons Business Commons* (2020).

Data Collection and Sampling

Data collection and sampling of this study used the following procedure:

1) Dissertation topics are determined by the dissertation database, *Digital Commons Network Business Commons'* (2020) "Discipline" link for dissertations published on various business research topics (Refer to Appendix A for one of the *Digital Commons Network Business Commons*' (2020) refinement types, "Discipline" detailed list).

2) Student dissertation topics in business were recorded for the years 2010, 2015, and 2020 by clicking on a given discipline type. For instance, "Business Analytics", is an example

of a discipline type in business research in *Digital Commons Network Business Commons* (2020).

3)   Student dissertation publication year was recorded from the "Publication Year" link in *Digital Commons Network Business Commons* (2020). For example, the year 2010, to record the year of a student's dissertation was published.

4)   Student dissertations were recorded from the "Publication Type" link in the *Digital Commons Network Business Commons* (2020) database, then click on the "Theses and Dissertations" link, and only recorded published doctoral dissertations (and not undergraduate Capstone projects or Master's Theses) into a spreadsheet one by one until all dissertations are recorded for all available *Digital Commons Network Business Commons'* (2020) disciplines in business for publication years 2010, 2015, and 2020.

5)   Student dissertation methodology choice was recorded from the *Digital Commons Network Business Commons* (2020) database. Their dissertation methodology choices are determined by evaluating the student dissertation abstracts and the methodology sections of their dissertations.

6)   Student dissertation page lengths were found in the *Digital Commons Network Business Commons* (2020) database. Their dissertation page length this study used was counted from the beginning of Chapter One of a student's dissertation to the last page of Chapter Five (or whichever chapter a given student stopped writing their text). This study did not count the front content (the title page, the table of contents, abstract, and other pages that come before Chapter One of a student's dissertation) or the content, which comes after Chapter Five (or whichever chapters that are the end of a student's research writing), such as the references and appendices.

7)   This study used the dissertation title page to ascertain its degree type (PhD, EdD, DBA, or other practitioner degrees).

8)   After all dissertations on business topics in 2010, 2015, and 2020 were recorded from *Digital Commons Network Business Commons* (2020), the random number generator is used to select 150 dissertations from each of the three years. One hundred fifty dissertations from each of the years 2010, 2015, and 2020 were selected because this is the largest common sample size of dissertations from those three years that can be reasonably selected from the *Digital Commons Network Business Commons* (2020) database. Random number generator by Stat Trek (2020) was used to generate a random sample without replacement to avoid double counting.

9)   Upon the approval by the George Fox University Institutional Review Board (IRB), the study collected the data from the *Digital Commons Network Business Commons* (2020) database for the data analysis using the procedure outlined above.

Data Analysis

Data analysis of this study used the following process:

1)   Descriptive statistics (medians, means, and standard deviations) of dissertation page lengths were calculated. This data analysis allowed the study to understand the general trends for the entire sample of dissertations as well as for dissertations with different methodology types (quantitative, qualitative, and mixed methodologies). The descriptive statistical data in this study was calculated by Microsoft Excel (2020).

2)   Since dissertation methodology choices and business topics are not numerical data, tabulations for these categories that were converted to percentages of the total number of dissertations in 2010, 2015, and 2020 were performed. This analysis process enabled the

study to assess the trends in current students' methodology choices as well as business

topic selections for their dissertation projects.

3) It is commonly assumed that quantitative dissertations are shorter and qualitative

dissertations are longer in page lengths (Randolph et al., 2014). The trends in dissertation

methodology choice and page length were evaluated. This process allowed the study to

evaluate the current relationship trend in students' methodology choices and page lengths

for their dissertations.

4) The trends in business topics over the ten years from 2010 to 2020 were assessed for the

entire sample dissertations from the years 2010, 2015, and 2020. This allowed the study

to assess what business topics students are deciding to study for their dissertations and

changes in trend over the recent ten years.

5) Differences or similarities between PhD and practitioner dissertations in methodology

choice, page length, and business topic were assessed. This enabled the study to evaluate

differences or similarities in general characteristics of dissertations produced by more

research-focused PhD students and scholar-practitioner-focused students.

6) Inferential statistical analysis (Chi-square test of independence, one-way ANOVA, post-

hoc Tukey HSD test, and independent unpaired t-test) were used to determine statistical

significance in a relationship between PhD and practitioner dissertation methodology

choice and completion years; between PhD and practitioner dissertations completed with

research methodologies (quantitative, qualitative, and mixed methodologies); page

lengths of dissertations and methodology selection (quantitative, qualitative, and mixed

methodologies); the years dissertations were completed in 2010, 2015, and 2020; and

various business research topics represented in the *Digital Commons Network Business*

Commons (2020) database as needed. The Chi-Square Test Calculator by Social Science

Statistics (2020), the one-way Analysis of Variance from Summary Data by StatPages

(2020), and the t-test calculator by GraphPad Software (2018) were used to perform the

Chi-Square test of independence; the one-way ANOVA and the post-hoc Tukey HSD test;

and the independent t-tests.

Definition of Terms

The definition of terms used in this study are as follows:

1) *Dissertation Content Analysis:* A systematic content research process of dissertations

(Krippendorff, 2018; Neuendorf, 2016).

2) *Dissertation on Business Topics:* Dissertations on business topics found in an open access

dissertation database (Digital Commons Network Business Commons, 2020). The *Digital*

Commons Network Business Commons (2020) database is a collection of academic

business research repositories by researchers, scholar-practitioners, and students

(doctorate, master's, and undergraduate) from institutions around the world. This study

uses the *Digital Commons Network Business Commons* (2020) database's "Discipline"

refinement list as the business research topics selected in students' dissertation topics.

3) *Dissertation Page Length:* Page lengths of dissertations on business topics found in an

open access dissertation database (Digital Commons Network Business Commons,

2020). The dissertation page length this study uses is counted from the beginning of

Chapter One of a student's dissertation to the last page of Chapter Five (or whichever

chapter a given student stopped writing their text). This study does not count the front

content (the title page, the table of content, abstract, and other pages that comes before

the Chapter One of a student's dissertation) or the content, which comes after Chapter

Five (or whichever chapters that are the end of a student's research writing), such as the references and appendix ices.

4)   *Dissertation Research Methodology Choice:* Research methodologies (quantitative, qualitative, or mixed methodologies) selected by students and are documented in their dissertations on business topics in an open access dissertation database (Digital Commons Network Business Commons, 2020). The study assessed each student's dissertation methodology selection by evaluating their chapters on methodologies, then recorded a given student's chosen methodology for their dissertations.

Limitations and Delimitations

This study has some limitations and delimitations. The first limitation is its sample selection of dissertations on business topics from only one academic open-access database, *Digital Commons Network Business Commons* (2020). This study uses the *Digital Commons Network Business Commons* (2020) database because it offers a pre-selected business topic dissertations and theses category where other academic dissertations and theses databases did not (ProQuest Theses & Dissertations, 2020).

Moreover, the *Digital Commons Network Business Commons* (2020) database yields a more significant number of dissertations on business topics than other academic dissertations and theses databases (ProQuest Theses & Dissertations, 2020). Although this study is designed to use only the *Digital Commons Network Business Commons* (2020) database, using multiple academic dissertations and theses databases on business topics could lead to a larger sample of dissertations, which can lead to more generalizable results.

The second limitation is the sampling of dissertations from the *Digital Commons Network Business Commons* (2020) database over an interval of recent ten years; selecting only three years in 2010, 2015, and 2020 to determine the current trend over the most recent decade in dissertations on business topics limits the scope of the study. This study aimed to discover the trend of document content in dissertations on business topics completed by students from 2010 to 2020. Therefore, using a longer sampling time frame would yield a more extensive dissertation trend content analysis.

The first delimitation is a lack of equal representation by a count of all degree types (PhD, EdD, DBA, and other practitioner doctorates) in the sample dissertations collected. This is because there are significantly more PhD dissertations on business topics (regardless of which doctoral programs PhD degrees are earned) than EdD, DBA, and other scholar-practitioner degree dissertations on business topics available in the *Digital Commons Network Business Commons* (2020) database.

The second delimitation is an inability of this study's design to evaluate the extent to which business programs produce dissertations on business topics. Many dissertations on business topics that are not produced by business programs are included in this study's sample because students regardless of their degree program types or program types (PhD, EdD, DBA, other practitioner doctorate degrees in both business and non-business programs) study business topics for their dissertation projects (Digital Commons Network Business Commons, 2020; ProQuest Dissertations and Theses, 2020).

The third delamination is this study only evaluates dissertations that were written in the English language. There are numbers of dissertations written in languages other than English published by universities in countries where English is not their primary language in the *Digital*

Commons Network Business Commons (2020) database. However, dissertations written
in languages other than English are out of the scope of this study.

Summary

Chapter Three outlines the methodological approaches used to explore the current trends
in dissertation content on business topics. The *Digital Commons Network Business Commons*
(2020) open-access academic database was used to collect dissertations on business topics from
the years 2010, 2015, and 2020. Descriptive and inferential statistics results are analyzed and
reported in Chapter Four for further evaluation.

Chapter Four: Results

The aim of this study was to explore students' business research topic and methodology selection in their dissertations in recent ten years (using data collected in the years 2010, 2015, and 2020). This section includes a comprehensive report of the results yielded from the content analysis of data collected from the *Digital Commons Network Business Commons* (2020) open-access academic database. The results are reported relative to the research questions of this study.

Research Question 1

RQ1: What are the trends in business topics chosen for dissertations over the last ten years?

Research Question 1 (RQ1) was designed to explore the overall trends in dissertations on business topics in the last 10 years using content analysis. RQ1 guides this study; RQ2, RQ3, and RQ4 answer the detailed components of RQ1. Appendix B reports the number of business topics in dissertations from PhD and practitioner doctoral programs published in the *Digital Commons Network Business Commons* (2020) in the years 2010, 2015, and 2020.

Appendix B illustrates that in 2010, Business Administration, Management, and Operations; Marketing; and Human Resources Management were the most selected research topics by PhD students (Digital Commons Network Business Commons, 2020). Practitioner doctorate degree students represented less than 5% of the published dissertations in 2010. It is hard to discern which practitioner doctorate degree students tend to select in 2010 due to limited data available.

In 2015, both PhD and practitioner doctorate degree students selected Business Administration, Management, and Operations topics most frequently. Finance and Financial Management; and Marketing are also popular topics for their dissertations for PhD students.

Except for the Business Administration, Management, and Operations topic, the practitioner doctorate degree students do not show any patterns in topic selection in 2015 (Digital Commons Network Business Commons, 2020).

In 2020, Business Administration, Management, and Operations; and Organizational Behavior and Theory are two most frequently selected topics by both PhD and practitioner doctorate degree students for dissertations. For the first time, both PhD and practitioner doctorate degree students selected Business Analytics as a research topic in 2020 (Digital Commons Network Business Commons, 2020).

Research Question 2

RQ2: What are the research methodology choices (quantitative, qualitative, and mixed methodologies) of dissertations on business topics?

Null Hypothesis (H_{01}): There is no relationship between years (2010, 2015, and 2020) dissertations were completed and the methodologies selected (quantitative, qualitative, or mixed methodologies) by students who researched business topics.

Alternative Hypothesis (H_{A1}): There is a relationship between years (2010, 2015, and 2020) dissertations were completed and the methodologies selected (quantitative, qualitative, or mixed methodologies) by students who researched business topics.

Research Question 2 (RQ2) and Hypothesis 1 (H1) were designed to examine students' research methodology selections used for their dissertations written on business topics in the years 2010, 2015, and 2020. Table 3 below illustrates the frequencies (numbers and %) of quantitative, qualitative, and mixed methodologies selected for students' dissertations on business topics in 2010, 2015, and 2020 from the *Digital Commons Network Business Commons*

(2020) open-access academic database. Further, the result of the Chi-Square test of independence is reported.

Table 3 shows methodology selections for both students' PhD and practitioner doctorate degree dissertations published in the years 2010, 2015, and 2020 in the *Digital Commons Network Business Commons* (2020) open-access academic database. From 2010, 2015, to 2020, more students gradually selected to use qualitative methodologies and they elected to utilize quantitative and mixed methodologies less and less in the recent ten years.

Table 3:

Research Methodology Choice in Dissertations on Business Topics

Methodology	2010	2010	2015	2015	2020	2020
Quantitative	119	79.33%	103	68.67%	90	60.00%
Qualitative	22	14.67%	41	27.33%	58	38.67%
Mixed Methodology	9	6.00%	6	4.00%	2	1.33%
Total	150	100.00%	150	100.00%	150	100.00%

The Chi-Square test of independence of variables was used to examine whether the variable years (2010, 2015, and 2020) were independent of variable methodology choice by students in their dissertations (PhD and practitioner students (EdD, DBA, and other practitioner doctorate degrees). The Chi-Square statistic for this test was 24.49. The p-value was < 0.001. The result was statistically significant at $p < 0.05$. The Chi-Square test of independence showed that there was a statistically significant association between years (2010, 2015, and 2020) and methodology choice (quantitative, qualitative, or mixed methodology) [X^2 (4, $N = 450$) = 24.493, $p < 0.001$]. As a result, the null hypothesis: There is no relationship between the years

dissertations were completed, and the type of methodology selected (H_{01}) was rejected at a probability of Type I error of less than 0.05. This result suggests that there was a statistically significant association between the years students completed their dissertations in 2010, 2015, or 2020 and their dissertation methodology selections (quantitative, qualitative, or mixed methodologies).

Research Question 3

RQ3: What is the relationship between dissertation page lengths and methodology choices for dissertations on business topics?

Null Hypothesis (H_{02}): The mean page lengths of dissertations on business topics and methodologies these students selected (quantitative, qualitative, or mixed methodologies) are the same in years (2010, 2015, or 2020).

Alternative Hypothesis (H_{A2}): The mean page lengths of dissertations on business topics and methodologies these students selected (quantitative, qualitative, or mixed methodologies) are different in years (2010, 2015, or 2020).

Research Question 3 (RQ3) was designed to examine the relationship between the dissertation page lengths and the students' research methodology selections used for their dissertations written on business topics. Tables 4 to 8 below illustrate the relationship between the dissertation page lengths and the methodology selection in dissertations on business topics in 2010, 2015, and 2020 from the *Digital Commons Network Business Commons* (2020) open-access academic database using descriptive statistics. The hypothesis (H2) was designed to test whether the mean page lengths of dissertations on business topics and methodologies these students selected (quantitative, qualitative, and mixed methodologies) are different in years (2010, 2015, and 2020).

Table 4 shows the mean and standard deviation of page lengths of both students' PhD and practitioner doctoral dissertations published in the years 2010, 2015, and 2020 in the *Digital Commons Network Business Commons* (2020) open-access academic database. Except for the mixed methodology in 2020, students are overall writing less and less for their dissertations over the recent ten years. Standard deviations of dissertation page lengths over the years became narrower in the recent ten years.

Table 4:

Means and Standard Deviations for Page Length and Methodology Choice in Dissertations on Business Topics

Methodology	2010		2015		2020		Means by Methodology
	M	**SD**	**M**	**SD**	**M**	**SD**	
Quantitative	120.89	54.53	114.59	46.98	110.05	44.42	115.68
Qualitative	180.55	65.69	138.86	51.90	129.16	41.75	141.79
Mixed Methodology	192.22	100.14	147.00	59.10	182.50	21.92	175.12
Means/SDs by Year	136.93	65.56	123.21	49.63	120.41	43.69	

One-way ANOVA was used to examine whether the mean page lengths of dissertations on business topics and methodologies these students selected (quantitative, qualitative, and mixed methodologies) are different in years (2010, 2015, and 2020). The results of the one-way ANOVA test (and the Post-hoc Tukey HSD test when the one-way ANOVA result was statistically significant) are as follows:

1)   The result of the one-way ANOVA test for the difference of means [$F_{(2, 309)} = 1.276$, p = 0.281] indicates that there is no statistically significant difference in the mean page length of the quantitative dissertations on business topics from the years 2010, 2015, and 2020. As a result, we do not reject the null hypothesis that there is no difference in the

mean page length of quantitative dissertations on business topics in the years 2010, 2015, and 2020.

2)   The result of the one-way ANOVA test for the difference of means [$F_{(2, 118)} = 8.453$, $p < 0.001$] indicates that there is a statistically significant difference in the mean page length of the qualitative dissertations on business topics from the years 2010, 2015, and 2020. As a result, the null hypothesis that there is no difference in the mean page length of qualitative dissertations on business topics in the year 2010, 2015, or 2020 was rejected at a probability of a Type I error of less than .05. To further assess which mean page length of qualitative dissertations on business topics in years 2010, 2015, and 2020 are statistically different, a post-hoc Tukey HSD test was performed. Post-hoc Tukey HSD test revealed statistical significance between the mean page lengths of 2010 and 2020 qualitative dissertations ($p < 0.001$).

3)   The result of the one-way ANOVA test for the difference of means [$F_{(2, 14)} = 0.534$, $p = 0.598$] indicates that there is no statistically significant difference in the mean page length of the mixed methodology dissertations on business topics from the years 2010, 2015, or 2020. As a result, we do not reject the null hypothesis that there is no difference in the mean page length of mixed methodology dissertations on business topics in the year 2010, 2015, or 2020.

Table 5:

Median Page Length and Methodology Choice in Dissertations on Business Topics

Methodology	2010	2015	2020	Medians by Methodology
Quantitative	114	111	101	113
Qualitative	167	128.5	131	136
Mixed Methodology	177.5	101	182.5	185
Medians by Year	121.5	114.5	115	

Table 5 shows the median page lengths of both students' PhD and practitioner doctorate degree dissertations published in the years 2010, 2015, and 2020 in the *Digital Commons Network Business Commons* (2020) open-access academic database. Except for the qualitative and mixed methodology in 2020, students are overall writing less and less for their dissertations over the recent ten years.

Table 6:

Range of Page Length and Methodology Choice in Dissertation on Business Topics

Methodology	2010	2015	2020
Quantitative	38 - 314	30 - 209	40 - 218
Qualitative	77 - 426	43 - 354	48 - 246
Mixed Methodology	87 - 313	103 - 209	167 - 198

Table 6 shows the range of maximum and minimum page lengths of students' PhD and practitioner doctorate degree dissertations published in the years 2010, 2015, and 2020 in the *Digital Commons Network Business Commons* (2020) open-access academic database. In recent ten years, the maximum page length of dissertations has decreased. Minimum page lengths of dissertations do not show noticeable variability in the recent ten years.

Research Question 4

RQ4: Are there significant differences in business topics, methodologies, or page lengths when comparing PhD to practitioner dissertations (from EdD, DBA, and other practitioner doctorate degrees such as Doctor of Information Systems (DIS), Doctor of Information Technology (DIT), Doctor of Public Health (DPH), Doctor of Psychology (PsyD), Doctor of Nurse Practitioner (DNP), and Doctor of Judicial Science (DJS) and so on)?

Null Hypothesis (H$_{03}$): The mean page lengths of PhD and practitioner dissertations on business topics and methodologies these students selected (quantitative, qualitative, or mixed methodologies) are the same in years (2010, 2015, or 2020).

Alternative Hypothesis (H$_{A3}$): The mean page lengths of PhD and practitioner dissertations on business topics and methodologies these students selected (quantitative, qualitative, or mixed methodologies) are different in years (2010, 2015, or 2020).

Research Question 4 (RQ4) was designed to examine the differences between the PhD dissertations and practitioner dissertations on business topics. Tables 7 to 10 below contrast the differences between PhD and practitioner dissertation on business topics in 2010, 2015, or 2020 from the *Digital Commons Network Business Commons* (2020) open-access academic database. Hypothesis 3 was designed to test whether there was a statistically significant difference between PhD and practitioner dissertation page lengths (of all methodologies) in the years 2010, 2015, or 2020. Independent t-tests were performed for each of the three years.

Table 7:

Degree Type and Methodology Choice in Dissertations on Business Topics

Methodology	2010 PhD	2010 PhD	2010 Practitioner	2010 Practitioner
Quantitative	115	79.31%	4	80.00%
Qualitative	22	15.17%	0	0.00%
Mixed Methodology	8	5.52%	1	20.00%
Total	145	100.00%	5	100.00%
Methodology	2015 PhD	2015 PhD	2015 Practitioner	2015 Practitioner
Quantitative	79	76.70%	24	51.06%
Qualitative	20	19.42%	21	44.68%
Mixed Methodology	4	3.88%	2	4.26%
Total	103	100.00%	47	100.00%
Methodology	2020 PhD	2020 PhD	2020 Practitioner	2020 Practitioner
Quantitative	75	72.12%	15	32.61%
Qualitative	28	26.92%	30	65.22%
Mixed Methodology	1	0.96%	1	2.17%
Total	104	100.00%	46	100.00%

Table 7 shows that in 2010, students uploading dissertations in this database were almost exclusively pursuing PhD degrees, and only about 3% of students earned practitioner doctorate degrees. In 2015 and 2020, about 30% of students sought practitioner doctorate degrees and about 70% pursued PhD degrees. It shows that more students both in PhD and practitioner doctoral programs used qualitative methodologies in 2015 and 2020. In 2010, about 80% of students elected to use quantitative methodologies.

Table 8:

Degree Type, Means and Standard Deviations for Page Length, and Methodology

Choice in Dissertations on Business Topics

Methodology	2010 PhD		2010 Practitioner	
	M	SD	M	SD
Quantitative	124.12	55.26	113.50	19.40
Qualitative	184.59	83.77	NA	NA
Mixed Methodology	201.38	85.33	119.00	NA
Means by Methodologies	137.70		114.60	
Methodology	2015 PhD		2015 Practitioner	
	M	SD	M	SD
Quantitative	113.36	40.67	124.32	64.90
Qualitative	161.68	58.54	117.76	36.61
Mixed Methodology	156.40	60.85	100.00	NA
Means by Methodologies	124.28		119.00	
Methodology	2020 PhD		2020 Practitioner	
	M	SD	M	SD
Quantitative	111.74	44.99	108.79	42.78
Qualitative	146.00	40.00	119.48	33.48
Mixed Methodology	198.00	NA	167.00	NA
Means by Methodologies	121.12		118.26	

Table 8 illustrates the means and standard deviations of PhD and practitioner

dissertations for their page lengths and methodology selections. PhD students have

written more than practitioner doctorate degree students in their dissertations in years

2010, 2015, and 2020, with the exception of quantitative methodology dissertations in

2015. The standard deviations of page lengths of PhD and practitioner doctorate degree

dissertations show that qualitative dissertations tend to show higher standard deviations

than quantitative dissertations, but not always. Mixed methodology dissertation standard deviations are always higher than quantitative dissertations. There is no clear pattern in standard deviations of dissertation page length between PhD and practitioner doctorate degrees in recent ten years.

The independent t-tests were performed for PhD and practitioner dissertations on their page lengths and methodology selections (quantitative, qualitative, and mixed methodologies) in the years 2010, 2015, and 2020 to examine whether there were differences between PhD and practitioner dissertations. The results of independent t-tests were performed as follows (p-values are two-tailed for all independent t-tests):

1) In 2010, no statistically significant difference was found between the page lengths and methodology selection for quantitative methodologies of PhD ($M = 113.50$, $SD = 55.26$) and practitioner doctoral ($M = 124.12$, $SD = 19.40$) dissertations ($t (117) = 0.382$, $p = 0.703$).

2) In 2010, PhD and practitioner dissertation page lengths and methodology selection for qualitative and mixed methodologies were unable to be examined due to limited numbers of practitioner doctoral qualitative and mixed methodology dissertations in 2010.

3) In 2015, no statistically significant difference was found between the page lengths and methodology selection for quantitative methodologies of PhD ($M = 113.36$, $SD = 40.67$) and practitioner doctoral ($M = 124.32$, $SD = 64.90$) dissertations ($t (101) = 0.994$, $p = 0.322$).

4) In 2015, a large statistically significant difference was found between the page lengths and methodology selection for qualitative methodologies of PhD ($M = 161.68$, $SD = $

58.54) and practitioner doctoral (M = 117.76, SD = 36.61) dissertations (t (39) = 2.896, p = 0.006).

5) In 2015, no independent t-test was performed between the page lengths and mixed methodologies dissertations of PhD and practitioner students due to the limited number of such dissertations.

6) In 2020, no statistically significant difference was found between the page lengths and methodology selection for quantitative methodologies of PhD (M = 111.74, SD = 44.99) and practitioner doctoral (M = 108.79, SD = 42.79) dissertations (t (88) = 0.234, p = 0.816).

7) In 2020, a large statistically significant difference was found between the page lengths and methodology selection for qualitative methodologies of PhD (M = 146.00, SD = 40.00) and practitioner doctoral (M = 119.48, SD = 33.48) dissertations (t (56) = 2.745, p = 0.008).

8) In 2020, no independent t-test was performed between the page lengths and mixed methodologies dissertations of PhD and practitioner students due to the limited number of such dissertations.

Table 9:

Degree Type, Median Page Length, and Methodology Choice in Dissertations on Business

Topics

Methodology	2010 PhD	2010 Practitioner	2015 PhD	2015 Practitioner	2020 PhD	2020 Practitioner
Quantitative	114	114.5	112	113.5	101.5	97
Qualitative	170.5	N/A	150	101	138	108
Mixed Methodology	213	119	195	100	198	167
Medians by Methodologies	122	119	116.5	100.5	116	108

Table 9 shows the median dissertation page lengths for PhD and practitioner doctorate

degree students. Except for quantitative dissertations, PhD students' median dissertation page

lengths are more than practitioner doctorate degree students in the recent ten years.

Table 10:

Degree Type, Page Length Range, and Methodology Choice in Dissertations on Business

Topics

Methodology	2010 PhD	2010 Practitioner	2015 PhD	2015 Practitioner	2020 PhD	2020 Practitioner
Quantitative	38 - 314	93 - 132	30 - 217	54 - 360	39 - 218	60 - 206
Qualitative	77 - 426	NA	99 - 354	61 - 187	70 - 246	68 - 186
Mixed Methodology	87 - 313	119	80 - 209	100	198	167

Table 10 shows the page length ranges of PhD and practitioner dissertations in 2010,

2015, and 2020. Overall, the minimum page length of dissertations for PhD students is lower

than practitioner doctorate degree students in recent ten years. It shows that with the exception of

2015, maximum dissertation page length is higher for PhD students and practitioner doctorate

degree students in the recent ten years.

Summary

Chapter Four summarized the results from the data analysis. This section summarizes the results in the order of the study's research questions (RQ1 to RQ4).

Summary of RQ1 Results:

Throughout 2010 to 2020, Business Administration, Management, and Operations; Human Resources Management; Organizational Behavior and Theory; Finance and Financial Management; and Marketing are the top five selected research topics by both PhD and practitioner doctoral students. Business Analytics is the new research topic, which emerged in 2020 (Digital Commons Network Business Commons, 2020). Business Analytics as a research topic is a companion to the top five most selected business research topics as well as the rest of business topics. (Baker, 2019; Claudia, 2019; Khatri & Samuel, 2019; Linzey, 2019; Marler & Boudreau, 2017; Ozimek, 2010; Pinga, 2015; Wedel & Kannan, 2016).

In 2020, a new business research topic, Business Analytics, emerged in the *Digital Commons Network Business Commons* (2020) open-access academic database. According to the results, a small number of PhD and practitioner doctoral students decided to research Business Analytics for their dissertations in 2020. With technological advancement in recent years, it is expected that more scholars and students will research Business Analytics as their topics (Aydiner et al., 2019; Chang et al., 2019; Conboy et al., 2020; Hsinchun et al., 2012; Iacobucci et al., 2019).

In 2010, almost all students (about 97%) graduated with PhD dissertations, and only about 3% of students published practitioner dissertations in the *Digital Commons Network Business Commons* (2020). This trend was disrupted in 2015 and 2020, with

more students graduating with practitioner dissertations (above 30% for both 2015 and 2020).

PhD dissertations are still the majority consisting of less than 70% in 2015 and 2020. The results

of this study shows that more students are now choosing to pursue practitioner doctorate degrees

such as EdD, DBA, and other variations (such as Doctor of Information Systems (DIS), Doctor

of Information Technology (DIT), Doctor of Public Health (DPH), Doctor of Psychology

(PsyD), Doctor of Nurse Practitioner (DNP), and Doctor of Judicial Science (DJS) and so on)

than ever over recent the ten years. This finding also concurs with Krueger's study (2018).

Summary of RQ2 and Hypothesis1 Results:

This study shows that in 2010, students selected quantitative research methodology most

of the time (about 80%) to complete their dissertations, and only used qualitative methodologies

about 1% for their dissertations. However, in 2015, students used qualitative methodologies

about 30% of the time, and about 70% used quantitative methodologies for their dissertations. To

continue the trend in using qualitative methodologies, in 2020, about 40% of students selected

qualitative methodologies, and about 60% of students chose quantitative methodologies to

research for their dissertation projects. Mixed methodologies were used the least in all years and

did not appear to become popular in the future dissertations.

There were statistically significant results from the Chi-Square test for independence of

variables used to test the association between dissertation completion years in 2010, 2015, and

2020 and students' methodology selections (quantitative, qualitative, and mixed methodologies).

These are significant at $[X^2 (4, N = 450) = 24.493, p < 0.001]$. This result indicates that students

selected statistically significantly different research methodologies in the years 2010, 2015, and

2020. Students have selected to use qualitative methodologies more frequently and quantitative

methodologies less frequently in 2015 and 2020 than in 2010.

Summary of RQ3 and Hypothesis 2 Results:

Qualitative dissertations in the years 2010, 2015, or 2020 show statistical significance when comparing the means of the dissertation page length of methodology choice (quantitative, qualitative, and mixed methodologies) using the one-way ANOVA. For 2010 qualitative dissertations, 2015 qualitative dissertation, and 2020 qualitative dissertations, $[F (2, 118) = 8.029, p = 0.001]$. As $p < 0.05$, the study rejects the null hypothesis that there is no statistically significant difference between the mean page lengths of dissertations on business topics and methodologies these students selected (qualitative methodologies) are different in years (2010, 2015, and 2020). The one-way ANOVA showed that a statistically significant mean page lengths difference of dissertations on business topics and methodologies these students selected (qualitative methodologies) in years (2010, 2015, or 2020) exist $[F (2, 118) = 8.029, p < 0.001]$. The post-hoc Tukey HSD test revealed statistically significant differences between 2010 qualitative dissertations and 2015 qualitative dissertations [Tukey HSD = 45.981, p = 0.004]; Between 2010 qualitative dissertations and 2020 qualitative dissertations [Tukey HSD = 52.160, p < 0.001].

Summary of RQ4 and Hypothesis 3 Results:

A statistically significant difference was found between PhD and practitioner dissertation page lengths and qualitative methodology in 2020 $[t (56) = 2.745, p = 0.008]$. Also, in 2015, a statistically significant difference was found between the page lengths and methodology selection for qualitative methodologies of PhD and practitioner dissertations $[t (39) = 2.896, p = 0.006]$. Differences in all other combinations of page lengths and methodology selections in 2010, 2015, or 2020 were not statistically

significant. In 2020 and 2015, PhD students who conducted qualitative dissertations wrote significantly more than practitioner students who used qualitative methodologies for their dissertations.

In Chapter Five, the study expands on the interpretation of results: The implications for the practice of administrators and faculty, and implications for future doctoral students are presented. Lastly, future research based on the results from Chapter Four are discussed in Chapter Five.

Chapter Five: Discussion

This study was designed to discover students' research topics and methodology choices in dissertations on business research topics. Chapter Five examines the implications for administrators, faculty, and prospective students based on the results reported in Chapter Four. The study then makes suggestions for future research based on the findings.

Interpretation of Results

Interpretation of RQ1 Results:

It is expected that scholars and students who continue to study these mainstream business topics will study data-driven analytics as part of their research (Conboy et al., 2020; Soldić-Aleksić et al., 2020). Business Analytics can be applied to Business Administration, Management, and Operations; Human Resources Management; Organizational Behavior and Theory; Finance and Financial Management; and Marketing. Management Analytics, Human Resources Analytics, Human Resources Information Systems, Financial Analytics, and Marketing Analytics are becoming more popular topics in business research (Claudia, 2019; Khatri & Samuel, 2019; Linzey, 2019; Pinga Pinga, 2015; Baker, 2019; Marler & Boudreau, 2017; Ozimek, 2010; Wedel & Kannan, 2016).

Interpretation of RQ2, RQ3, and RQ4 and Hypothesis 1, Hypothesis 2, and Hypothesis 3
Results:

Qualitative methodologies offer a deep and meaningful understanding of selected participants, while quantitative methodologies offer more shallow tendencies of larger samples (Creswell & Creswell, 2018; Creswell & Poth, 2017). Mixed methodologies combine both aspects of qualitative and quantitative paradigms and produce both deep and personalized understanding of participants while gaining broader and more generalizable trends using statistical analysis (Bhattacherjee, 2012; Creswell & Creswell, 2018). As more students chose to use qualitative methodologies in their dissertations in 2015 and 2020, this trend to select qualitative methodologies for business research in dissertations are expected to continue.

The dissertation page length and methodology choice results showed that students write longer in qualitative methodology dissertations compared to quantitative dissertations. Students tend to write the longest for mixed methodology dissertations compared to both qualitative and quantitative dissertations. This result may be explained by the fact that qualitative research tends to require more documentation than quantitative studies (Bhattacherjee, 2012; Creswell & Creswell, 2018; Creswell & Poth, 2017).

In qualitative research, scholars often interview multiple participants and document and code the interview responses to find common themes (Creswell & Poth, 2017; Creswell & Creswell, 2018). In quantitative research, scholars collect numeric data from surveys, databases, and other sources, then perform statistical analysis, which tend to require less documentation than qualitative research counterparts (Bhattacherjee, 2012; Creswell & Creswell, 2018). Mixed methodology studies combine both aspects of

qualitative and quantitative research, so naturally, the documentation is the longest of all methodologies (Antwi & Hamza, 2015; Creswell & Creswell, 2018).

The results indicate that students in PhD programs also tend to write more than practitioner doctoral programs in their dissertations. This may be because PhD degrees are more research-focused than practitioner doctoral programs. Both faculty and students at R1 and R2 institutions may expect that dissertations to be exceptionally well-researched, thorough, and well-documented compared to other online doctoral programs and R3 institutions that are not as focused on research excellence because their focus is practitioner scholarship development (Scott, 2016).

Implications for Doctoral Program Administrators and Faculty

Administrators and faculty who develop the dissertation process for students can benefit from this study's findings. Administrators and faculty should understand that students are interested in studying both traditional business topics such as Business Administration, Management, and Operations; Human Resources Management; Organizational Behavior, and Theory; Finance and Financial Management; and Marketing (Digital Commons Network Business Commons, 2020), but they are also developing interest in Business Analytics as an emerging research topic.

Business Analytics as an Emerging Business Research Topic

Administrators and faculty need to respond to developing scholar and student interest in researching business analytics by recommending prospective students who enter doctoral programs take business analytics or data analytics coursework prior to starting their doctoral education. While students take doctoral coursework, they could take additional business analytics coursework to prepare them for dissertation projects involving data-driven business

analytics in various business administration, operations, human resources, finance, or marketing research topics of students' choice.

Administrators and faculty can also suggest prospective students and current doctoral students take additional business analytics or data analytics training on their own. There are various online and self-paced data analysis courses and books written on data analytics. For instance, students can learn advanced Microsoft Excel (Microsoft, 2020), SPSS (IBM, 2020), R (The R Foundation, 2020), Python (Python Software Foundation, 2020) software as a preparation for their doctoral education or while they are taking doctoral coursework so students have sufficient data analysis and data visualization skills and knowledge to complete their dissertations on business analytic research topics that are linked to mainstream business research topics such as business administration, operations, human resources, finance, or marketing and so on.

Qualitative Research Methodologies

Although students are still interested in using quantitative methodologies in their dissertations, more students are now interested in using qualitative methodologies for their dissertation than ever since 2015. Administrators and faculty who educate students and advise dissertations need to be proficient in qualitative methodologies to lead students to complete their dissertations successfully (Hill & Conceição, 2020; Krivokapic-Skoko & O'Neill, 2011; Lim et al., 2019; Vickers, 2016).

Traditionally, most students used quantitative methodologies for their dissertations. Now, about 30 to 40% of students choose to use qualitative methodologies for their dissertations. To address this shift in students' growing preference to choose qualitative methodologies for dissertation projects, administrators and faculty can design

a doctoral program curriculum to include additional advanced qualitative research methodology coursework for those students who conduct qualitative dissertations. From early on in students' doctoral program stages, students can practice using qualitative research skills in scholarship projects in their courses with faculty's guidance. Doing so will better prepare students to use qualitative methodologies in their dissertation phases.

Additionally, students need excellent writing skills to successfully complete qualitative dissertations (Creswell & Poth, 2017; Creswell & Creswell, 2018). Students who plan to conduct qualitative dissertations can prepare themselves by developing strong writing skills before and during their doctoral coursework.

Practitioner Doctoral Programs

Sizeable numbers of students are now choosing to study in practitioner doctoral programs as opposed to PhD programs. Administrators and faculty may consider adding practitioner doctoral program in addition to PhD programs if their institutions only offer PhD degrees. Those who already offer practitioner doctoral programs can expect that students will continue to seek practitioner doctorate degrees to develop professionally while remaining in their established professions.

Administrators and faculty should take prospective students' professional experience into account when designing their PhD or practitioner doctoral programs and their dissertation processes. Students who have professional work experience can benefit from practitioner doctoral programs and use this additional education to seek promotion or higher-level leadership roles in their fields.

The trend of increasing practitioner doctorate degree seekers may be due to the popularization of online doctoral education (Krueger, 2018). Traditionally students needed to

relocate physically to pursue research-oriented PhD degrees at R1 or R2 institutions. Doing so requires students to give up their existing or established careers, live away from family and friends, and face the uncertainty of possibly not completing PhD programs that they initially started.

Practitioner doctoral programs tend to be shorter than PhD programs to complete (Krueger, 2018). The fact that practitioner doctorate degrees are shorter to accomplish may be one reason students with work and family responsibilities tend to choose practitioner doctoral education and not R1 or R2 PhD programs (Flaherty, 2019; Krueger, 2018; Scott, 2016). Admission counselors may recommend practitioner doctoral programs to students who are interested in completing their doctoral education quickly while gaining relevant practitioner-focused scholarship skills.

Implications for Prospective Doctoral Candidates

Prospective students can be helped from the findings of this study. Future students will benefit from conducting thorough research of their doctoral programs of interest. Prospective students need to understand doctoral programs' requirements and demands on their already busy lives if they are working professionals with family responsibilities. Future students need to assess whether the new doctoral program requires them to relocate, require in-person residencies, or permit online and virtual residency attendance (Flaherty, 2019; Krueger, 2018; Scott, 2016). Future students also need to be aware that they will conduct qualitative or quantitative dissertations and to reflect on their future research interests and how the doctoral degree might help their careers in the future (Dunn & Kniess, 2019; Flaherty, 2019; Krueger, 2018; Scott, 2016).

Preparation for Doctoral Research

Students interested in pursuing business research topics for dissertations because business administration, management, leadership, finance, or marketing topics are relevant areas for their careers can start to research their prospective doctoral programs and speak to admission counselors, administrators, faculty, and students in those programs. Through conducting informational or informal interviews with future doctoral programs even before applying to doctoral programs will help students solidify their research interests in business topics for their future dissertations.

As future students learn about what they wish to research for their dissertations on business topics, they can continue to seek guidance from administrators, faculty, and students of their prospective doctoral programs to better prepare themselves for doctoral coursework that they may soon start to enroll in. As business analytics, data analysis, and statistical skills are used more in business research in various topics such as business administration, human resources, finance, and marketing, future students can continue to develop their knowledge and skills in their research interest areas before they enter doctoral programs and prepare for successful completion of their dissertation projects. Prospective students can read and take courses on business analytics, data analysis, and qualitative research skills before they enter doctoral programs.

Since there is growing interest in more qualitative dissertation research than ever, future students can conduct qualitative scholarship projects before they enter doctoral programs. Future students may seek guidance from doctoral program faculty on qualitative research opportunities. Future students may not be ready to design qualitative research on their own, but they can still participate in qualitative scholarship projects with existing faculty and doctoral students to

become better prepared for their future doctoral coursework and qualitative dissertations they may work on.

It is useful for future students to ask themselves whether entering a doctoral program, completing the required coursework, and the dissertation process is the right choice for them by reviewing the findings of this study. Doctoral education is rigorous and demanding; It is not for everyone who is not ready or not motivated enough to complete this arduous journey (Dunn & Kniess, 2019; Etmanski, 2019; Flaherty, 2019; Scott, 2016).

Future Research

This study has some limitations, and future studies can examine them to further address the gaps in dissertation content analysis literature. First, future scholars can use multiple academic databases and not just one database to collect dissertation data for analysis to offer more comprehensive results. Future researchers can collect data from the past ten years, but from the past 20 years, to understand the changes in dissertation research trends more thoroughly.

Second, this study only considered dissertations that were written in the English language. Future scholars who are proficient in multiple languages can study dissertations written in English and other languages such as Spanish.

Third, this study only investigated whether students selected quantitative, qualitative, or mixed methodologies for their dissertations and did not examine specific methodology selections such as sequential equation modeling or phenomenology, and so on. Future researchers may choose to study which specific research methodologies

students are electing to use for their dissertations to gain a more detailed understanding of student methodology choice.

Fourth, this study examined the relationship between dissertation page length and methodology choice but did not study if specific methodologies such as regression, ANOVA, or case study may yield longer or shorter page lengths in dissertations. Future scholars can investigate whether these specific methodologies may produce certain page length in dissertations.

Fifth, this study was unable to compare PhD and practitioner dissertations in equal numbers because there were far more PhD dissertations than practitioner dissertations in the samples. Future researchers may collect equal and large enough samples of both PhD and practitioner dissertations for better comparability of the two sample groups.

Sixth, this study used solely *Digital Commons Network Business Commons* (2020) to analyze 35 business research topics studied by students in their dissertations. Future studies may use multiple business research databases to examine what business topics students select to research for their dissertations.

Seventh, it is not understood why more students are electing to use qualitative methodologies for their dissertations rather than quantitative methodologies. Future research can examine why many more students in PhD and practitioner doctoral programs choose to use qualitative methodologies for their dissertations by designing qualitative studies. Through in-depth interviews with student participants, scholars may discover why more students than ever are selecting to use qualitative methodologies over quantitative counterparts. This trend may be due to students' shift in research interests or access quantitative research data to carry out quantitative dissertations.

Eighth, business research topics are relevant for not only business program students, but also to many other students who are studying various subjects such as leadership, administration, information management, and many others. Many students choose dissertation projects that are relevant to their future career goals and aspirations. Future scholars can design a qualitative study and interview students to explore why and how students choose business-related dissertation topics even though they are not business students themselves.

Ninth, a statistically significant difference was found between PhD and practitioner dissertation page lengths and qualitative methodology in 2020 ($p = 0.008$). In 2020, PhD students who conducted qualitative dissertations wrote significantly more than practitioner doctoral students who used qualitative methodologies for their dissertations. Future research could explore why PhD students write significantly longer qualitative dissertations than practitioner doctoral students by designing a qualitative study.

Tenth, this research project does not rate the quality of dissertations used in the *Digital Commons Network Business Commons* (2020) database. According to Piotrowski and Guyette (2014) graduate students' business ethics topic selections were shallow and superficial. The authors reported based on their findings that ethically significant topics such as whistleblowing, Sarbanes-Oxley Act, and corporate scandals were not selected by students for their study. The authors also found that problems such as ethical outsourcing, workplace safety, tax evasion, employee abuse were seldom chosen as students' dissertation topics. Thus, future scholars may investigate why students tend to focus on a narrow range of business ethics issues and ignore many business ethics concerns deserving of more research.

Eleventh, future scholars may examine whether online-only doctoral program students write significantly less than residential and/or hybrid (combination of online and residential) doctoral program students in their dissertations in recent years. Randolph et al. (2014) reported that online programs dissertations were 44 pages shorter on average than the residential doctoral programs in education. Future scholars may research this matter and confirm if it is still the case.

Twelfth, this study did not have large enough sample size to determine which business dissertation topics selected by students used business (data) analytics more frequently than other topics. Future studies may design to utilize larger sample of dissertations in current years to find which business topics or disciplines (management, marketing, or finance and so on) students tend to choose to research about business analytics more frequently.

Thirteenth, this study did not explore possible research options students may have when they did not select their dissertation chairs' research interests and expertise for their dissertation topics. Future scholars may design a qualitative study and interview students who did not select their chairs' research interest areas for their dissertation research topics.

Conclusion

This study contributes to future students and existing administrators and faculty understanding of the trends in dissertations conducted on business research topics. Business research topics are diverse and are applicable to many disciplines and not just to business programs. This study found dissertations from leadership and public administration, education, healthcare, engineering, music, natural and physical sciences, and other social sciences (psychology, economics, social studies, and liberal arts) that are on business research topics represented in the *Digital Commons Network Business Commons* (2020).

More research in dissertation content analysis focusing on business topics is needed to address the dissertation content analysis literature gaps. Future scholars are encouraged to use future research suggestions to continue to examine dissertations from the past and present to inform those that need to understand the trends in dissertation research on business topics. Future students and current administrators and faculty need this new knowledge to plan their future doctoral journeys and better serve future candidates to become competent business research scholars.

There are many more open-access research outlets than ever before. Thus, future scholars have an excellent opportunity to conduct a content analysis on dissertations on business topics as well as other research areas. Many existing dissertation content analysis literature gaps need to be addressed by future scholars, so that university administrators, faculty, and students can understand the trends in current dissertation research topics, methodologies, and page length characteristics to continue to thrive in today's dynamic online as well as residential doctoral programs.

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Appendix A: Digital Commons Network Business Commons (2020) Research Topics

1. Accounting
2. Advertising and Promotion Management
3. Agribusiness
4. Arts Management
5. Business Administration, Management, and Operations
6. Business and Corporate Communications
7. Business Intelligence
8. Business Law, Public Responsibility, and Ethics
9. Corporate Finance
10. E-Commerce
11. Entrepreneurial and Small Business Operations
12. Fashion Business
13. Finance and Financial Management
14. Hospitality Administration and Management
15. Human Resources Management
16. Insurance
17. International Business
18. Labor Relations
19. Management Information Systems
20. Management Sciences and Quantitative Methods
21. Marketing
22. Nonprofit Administration and Management
23. Operations and Supply Chain Management
24. Organizational Behavior and Theory
25. Other Business
26. Portfolio and Security Analysis
27. Real Estate
28. Recreation Business
29. Sales and Merchandising
30. Sports Management
31. Strategic Management Policy
32. Taxation
33. Technology and Innovation
34. Tourism and Travel
35. Business Analytics

Appendix B: Degree Type and Business Topics in Dissertations

Business Research Topics	2010	2010 PhD	2010 Practitioner
Accounting	9	9	0
Advertising and Promotion Management	1	1	0
Agribusiness	0	0	0
Arts Management	0	0	0
Business Administration, Management, and Operations	29	29	0
Business and Corporate Communications	2	1	1
Business Intelligence	0	0	0
Business Law, Public Responsibility, and Ethics	2	2	0
Corporate Finance	1	1	0
E-Commerce	0	0	0
Entrepreneurial and Small Business Operations	3	3	0
Fashion Business	7	7	0
Finance and Financial Management	10	10	0
Hospitality Administration and Management	4	4	0
Human Resources Management	13	13	0
Insurance	3	3	0
International Business	6	6	0
Labor Relations	0	0	0
Management Information Systems	6	6	0
Management Sciences and Quantitative Methods	12	12	0
Marketing	16	14	2
Nonprofit Administration and Management	0	0	0
Operations and Supply Chain Management	0	0	0
Organizational Behavior and Theory	7	6	1
Other Business	3	3	0
Portfolio and Security Analysis	1	1	0
Real Estate	3	3	0
Recreation Business	1	1	0
Sales and Merchandising	0	0	0
Sports Management	1	0	1
Strategic Management Policy	6	6	0
Taxation	0	0	0
Technology and Innovation	4	4	0
Tourism and Travel	0	0	0
Business Analytics	0	0	0
Total	150	145	5

Business Research Topics	2015	2015 PhD	2015 Practitioner
Accounting	5	4	1
Advertising and Promotion Management	4	3	1
Agribusiness	0	0	0
Arts Management	1	1	0
Business Administration, Management, and Operations	64	41	23
Business and Corporate Communications	3	0	3
Business Intelligence	4	1	3
Business Law, Public Responsibility, and Ethics	2	0	2
Corporate Finance	0	0	0
E-Commerce	2	2	0
Entrepreneurial and Small Business Operations	2	2	0
Fashion Business	0	0	0
Finance and Financial Management	15	12	3
Hospitality Administration and Management	2	2	0
Human Resources Management	5	2	3
Insurance	0	0	0
International Business	1	1	0
Labor Relations	0	0	0
Management Information Systems	2	2	0
Management Sciences and Quantitative Methods	4	4	0
Marketing	12	10	2
Nonprofit Administration and Management	2	2	0
Operations and Supply Chain Management	2	0	2
Organizational Behavior and Theory	10	9	1
Other Business	1	0	1
Portfolio and Security Analysis	1	1	0
Real Estate	0	0	0
Recreation Business	2	2	0
Sales and Merchandising	0	0	0
Sports Management	0	0	0
Strategic Management Policy	1	0	1
Taxation	0	0	0
Technology and Innovation	3	2	1
Tourism and Travel	0	0	0
Business Analytics	0	0	0
Total	150	103	47

Business Research Topics	2020	2020 PhD	2020 Practitioner
Accounting	7	0	7
Advertising and Promotion Management	0	0	0
Agribusiness	0	0	0
Arts Management	2	2	0
Business Administration, Management, and Operations	23	16	7
Business and Corporate Communications	1	0	1
Business Intelligence	0	0	0
Business Law, Public Responsibility, and Ethics	2	1	1
Corporate Finance	10	9	1
E-Commerce	0	0	0
Entrepreneurial and Small Business Operations	8	4	4
Fashion Business	0	0	0
Finance and Financial Management	8	7	1
Hospitality Administration and Management	1	1	0
Human Resources Management	8	4	4
Insurance	3	3	0
International Business	0	0	0
Labor Relations	1	0	1
Management Information Systems	1	1	0
Management Sciences and Quantitative Methods	2	2	0
Marketing	8	7	1
Nonprofit Administration and Management	4	2	2
Operations and Supply Chain Management	2	1	1
Organizational Behavior and Theory	39	28	11
Other Business	2	1	1
Portfolio and Security Analysis	1	1	0
Real Estate	1	1	0
Recreation Business	0	0	0
Sales and Merchandising	0	0	0
Sports Management	4	3	1
Strategic Management Policy	1	1	0
Taxation	1	1	0
Technology and Innovation	6	5	1
Tourism and Travel	1	1	0
Business Analytics	3	2	1
Total	150	104	46