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The Effects of Process Management on Stakeholder Performance: A Meta-Analysis

Donna Pulliam-Brown
Walden University

Walden University

College of Management and Technology

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Donna Pulliam-Brown

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Review Committee
Dr. David Bouvin, Committee Chairperson, Management Faculty
Dr. Godwin Igein, Committee Member, Management Faculty
Dr. Nikunja Swain, University Reviewer, Management Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
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Abstract

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MS, Drexel University, 2008

BS, DeVry University, 2006

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

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Abstract

In 2012, there were over 500,000 business management degrees conferred at the undergraduate and graduate level; however, the assessment of student performance has not kept pace with the growth of courses offered in both an online and traditional format. One of the objectives of teaching is to ensure that all students regardless of mode of instruction are receiving a quality education. The purpose of this meta-analysis was to measure the efficiency of learning in a business discipline by evaluating final course grades of 1,051 students. Ten traditional and 10 online course grades provided final student outcomes that were used to generate an effect size estimate. The research question focused on what knowledge related effect on student performance does both an online and a traditional format have in a business discipline utilizing Simonson's equivalency theory. This theoretical framework provided a context for understanding how information imparted in different environments may be equivalent in nature. This meta-analysis used effect size measurements to quantify the difference between online and traditional final grade assessments. The results indicated a low knowledge related effect size measurement on student performance outcomes that can be attributed to how online students compare to traditional students. This research has the potential to assist in the evaluation of distance education in business and other disciplines to determine its effect size results on student performance outcomes. This study contributes to social change by providing the ability for universities to manage student outcomes which can assist in improving the comparability between online and traditional business courses.

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Dedication

I dedicate this dissertation to my mother Blanche Bronstorph, who instilled the belief education is the key to success. I also dedicate this dissertation to my wife Christina Brown and my children Matthew Pulliam, Wyatt Brown, and Harper Brown. You all have withstood the effects of me being in a doctorate program with understanding and patience and I thank you for all your love and support.

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This process would have been a lot harder without the excellent guidance of my committee chairperson, Dr. David Bouvin, my committee member, Dr. Godwin Igein, and Dr. Swain, my university research reviewer. I am indebted to the three of you and thank you for your assistance throughout this process.

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Chapter 1: Introduction to the Study

Business management has become one of the most popular college majors in today's U.S. university system. In 2012 there were over 360,000 degrees conferred in business at the undergraduate level, and approximately 190,000 degrees conferred at the graduate level (U.S. Department of Education, 2013). Popularity in business management is evident in the high levels of degree completion recorded by the National Center for Education Statistics. In this study, I used procedures of process management to determine whether courses taken online were comparable to traditional classroom-based courses.

I undertook this examination of student learning outcomes because there seemed to be an absence of studies that have investigated the knowledge-related effect of delivery mode on student performance in a business management discipline. This research study may serve as a basis for assessment or re-assessment of business management courses offered traditionally and online. My research study results may thus have a positive effect on social change within the business education community. The study findings may be used by existing business programs offered both online and traditionally to evaluate what student learning outcomes communicate about the course, the instructor, and the policy and program requirements. To achieve performance excellence, higher education requires the management of the capabilities related to service performance and delivery of material (Asif & Searcy, 2014). Individual studies have shown delivery mode has no bearing on student performance outcomes, suggesting a neutral outcome.

In this chapter, I discuss the background of the study and provide a brief synopsis of the research literature and why this study was necessary. Next, I offer the problem statement, discuss the purpose of the study, and present the research questions. An explanation of theoretical propositions follows to show the theory that relates to the research study. This chapter concludes with a discussion of the assumptions, limitations, scope, and delimitation of the study.

Background of the Study

Student learning outcomes in online and traditional courses in different disciplines of business management are the topic of many individual research articles. Distance education has increased in recent years; however, research on managing student learning outcomes is not keeping pace (Dotterweich & Rochelle, 2012). For example, Black and Kassaye (2014) questioned whether student learning outcomes connected to student learning styles in a marketing course. This research contained an active and passive course design that was utilized to retrieve definitive research results regarding student performance. The authors concluded dynamic course designs are more efficient on student learning outcomes than traditional designs (Black & Kassaye, 2014). In this study knowledge outcomes were not evaluated based on assessment, but rather on the participation of the student, the experiential learning associated with the course, and the traditional design model. Haughton and Kelly (2015) evaluated delivery modes while assessing student performance in a statistics course. The authors found no significant difference at the completion of the course or in student satisfaction (Haughton & Kelly,

2015). In this study, student performance and satisfaction were evaluated without mention of how student learning outcomes connect to an assessment event.

Student learning outcomes are the expected results students are to acquire during a class. According to Wiechowski and Washburn (2014), student learning outcomes are significant considerations programs use to determine the strength of a degree program. Evaluation of learning outcomes occurs based on assessment events. Student learning outcomes are becoming increasingly important because they show what a student has retained and can apply to a real-world situation. The National Institute for Learning Outcomes (NILOA) has recognized assessments are usually utilized to affect policy change and practice in a discipline and at the program level (Kuh, Jankowski, Ikenberry & Kinzie, 2014). According to O'Mahony and Garavan (2012), the management of stakeholder performance can be used to improve schools and motivate teachers to improve their teaching and learning processes. By conducting a meta-analysis, I was able to gather evidence of how managing assessments can improve and benefit stakeholder performance.

Technology is vastly transforming our world. Distance education has increased, and research has shown there is no real difference between the online and face-to-face modes of instruction (Fonolahi, Khan, & Jokhan, 2014). Although individual research articles exist on both online and traditional formats in business, limited information is available on student learning outcomes in a business discipline. The research literature includes a substantial number of individual descriptive studies that have evaluated student performance outcomes in courses offered both traditionally and online in

business. However, there has not been a systematic review of multiple studies that assess traditional and online student learning results in a business management discipline. According to Tesone, Alexakis, and Platt (2003), business literature focuses on transitional approaches between traditional and online learning environments, overlooking performance outcomes. This meta-analysis research study was an attempt to close the gap between business management and educational literature.

Individual articles related to stakeholder performance outcomes offered in a dual format in business management are abundant in current research. Verhoeven and Rudchenko (2012) discussed student performance in microeconomics courses, comparing levels of student learning in a business course offered in a dual mode. Others have evaluated student performance and success factors in a business statistics course to determine the strength of internal and external academic resources in online versus on ground classes (Shotwell & Apigian, 2015). Black and Kassaye (2014) explored student learning styles and their impact on student outcomes in a marketing class. Haughton and Kelly (2015) investigated whether delivery mode matters while assessing student performance in an introductory statistics course. The article highlighted descriptive information that provided data relating to student performance; however, results were gained using a flipped hybrid environment to investigate student outcomes.

A study on managing student performance was needed because there was an absence of a systematic review of individual articles on assessment outcomes in a business discipline offered face-to-face and in an online format. This study was also needed because there has not been a study that combines or compares studies to

determine whether there was an increased, neutral, or decreased effect size result on managing student learning outcomes. Individual studies have concluded that mode of instruction in a business course does not influence student learning outcomes (Ary & Blune, 2011; Daymont, 2008; Schou, 2007). That is, these individual studies have indicated a neutral effect. If a decreased knowledge effect on mode of instruction existed, managing student performance would require the implementation of new processes to improve online instruction and student learning outcomes. However, if an increased effect on mode of instruction existed, stakeholder performance management should work to improve processes that are currently in place. I conducted this systematic review to assess the comparability of management courses offered in both an online and face-to-face format.

In managing student outcomes, efficiency became the main focus of online programs as opposed to comparing effective learning. The meta-analysis determined there was a low knowledge-related effect on mode of delivery. The results provide the business education community with the evidence needed to support the facilitation of new interventions in the online community. For example, data regarding student learning outcomes in business management offered online have limited empirical data results compared to traditional course offerings (Bishop, 2006). The phenomenon of online instruction is rapidly increasing; however, evaluation of its effectiveness based on assessment events in business management education needs new representation.

Problem Statement

Because assessments of student performance are falling behind the increase of business management online course offerings, discrepancies in student outcomes have been detected. Per Dotterweich and Rochelle (2012), research on factors leading to successful student outcomes has not kept pace with changes in the distance education community. The general problem I addressed in this study was the comparability of both online and traditional business student outcomes based on course delivery. The study was motivated by my discovery of an absence of a systematic review of multiple studies assessing student performance in business courses. According to Weichowski and Washburn (2006), systematic reviews can improve student performance in a degree program. A purposeful proof of the effectiveness of stakeholder management has the potential to enhance academic quality and university effectiveness (Kuh et al., 2014). Because there are discrepancies in student outcomes, business students may be missing out on efficiency of learning, something that may assist in making them more competitive in the business world.

Purpose of the Study

The purpose of this quantitative study was to investigate the magnitude of the knowledge-related effect estimate on mode of instruction of student performance in a business discipline. Studies that had measured the effectiveness of managing student performance were compared and combined to calculate and evaluate the average effect sizes and study characteristics (Bosco, Aguinis, Singh, Field, & Pierce, 2015). The

measures of analysis included the individual study results on student final course grades in one online and one traditional business management course.

The dependent and independent variables definitions are important in understanding the hypothesis and null hypothesis. Per Trochim, Donnelly, and Arora (2014), "the dependent variable is affected by the independent variable – the outcome. A course of action such as a program or treatment is exercised to manipulate the independent variable. For example, if studying the effects of a new program on student success, the program is the independent variable, and the measures of student success are the dependent variables" (p. 14). With this definition in mind, I defined the independent variables in this research study as the online program and final course grades. The effect on student performance in this study was the dependent variable.

Research Question and Hypotheses

I designed the following research question and associated hypotheses to guide my research:

RQ1: What knowledge effect on stakeholder performance does both an online and a traditional format have in a business discipline?

Ho1: An online and a traditional format will not have a significantly low, middle, or large effect on stakeholder performance outcomes in a business discipline.

Ha1: An online and a traditional format will have a significantly low, middle, or large effect on stakeholder performance in a business discipline.

Examining the knowledge outcomes to determine whether there was an increased, neutral, or decreased effect on stakeholder performance assisted in better understanding

the hypothesis. Student knowledge of the course was evaluated based on final grades. Final grades acted as the predictor variable and the effect size results on student performance outcomes acted as the dependent variable. The ability for universities to manage student outcomes can assist in the improvement of comparability of a business discipline that has become the popular major of students entering college.

Theoretical Foundation

Managing student learning outcomes in both traditional and online formats has been debated by researchers with differing conclusion. However, there was an absence of recent research that combined individual learning outcomes in a business management discipline. The Association to Advance Collegiate Schools of Business ([AACSB], 2013) frequently spends time evaluating core educational outcomes in higher education. Evaluating core educational outcomes in public universities and colleges are necessary for students to survive and thrive in the 21st century (Lui, 2009). Proper management of student performance in a business discipline insures continued success in business programs offered partially or completely online. I used equivalency theory as a theoretical framework because it provides a context for understanding how information imparted in different environments may be equivalent in nature.

Learning experiences should be delivered to every student whether instruction is provided onsite or via distant learning, with the expectation of equal outcomes. According to Simonson, Smaldino, and Zvacek (2014), for distance education to be successful, educational systems should be designed to produce equivalent learning experiences for both distant and local learners. Fundamentally, both traditional and

distant learners have different environments in which they learn. Equivalency theory holds that events that provide learning experiences should be equal in value for all students, but that the instructional experience of local and distance learners make take different formats.

The significance of each format has an equivalent value even though the distinct experiences are different. Equivalency theory assumes anything that transpires increases learning experiences such as what is observed, heard, or done (Simonson, 1999). The overall approach of equivalency theory are the core values translated the same as the traditional format. In managing student performance, procedures to support instructional methods need representation to enhance learning experiences and the outcome of students regardless of learning style. Because I found that there was a low comprehensive knowledge-related effect result on mode of instruction, there is an impetus for creating a better assessment of student learning outcomes in online business management programs.

Nature of the Study

This research study concentrated on the magnitude of the knowledge-related effect of student outcomes in a business management discipline offered in both a traditional and an online format. I focused this meta-analysis study on a subset based approach allowing for the measurement of student performance outcomes across multiple research studies. The meta-analysis design was selected to allow for the combination, synthesis, and evaluation of associations across multiple student outcome studies. Burns and Burns (2008) postulated that a meta-analysis is a quantitative tool used to compare and combine similar studies utilizing statistical decisions to measure the magnitude of an

effect across multiple studies. Because the goal of the meta-analysis was to synthesize, compare, and combine similar studies results, I identified key variables. The online program intervention was the independent variable in this research study, while the effect size results on student performance was the dependent variable.

The methodology I used to synthesize, compare, and combine study results included a literature review, a review of course criteria, and data collection and analysis. To determine effect size, I used studies I found in the literature review that included student learning outcomes in business courses offered in a dual format. The research design used in the particular studies were combined and identified as random and non-randomized studies. To determine the eligibility criteria for the study, I considered effect size, sample characteristics, time frame, publication type, and the study design. The sample characteristics included studies of student learning outcomes. Since there are different kinds of business management courses, identifying studies that provided final exam comparisons and student performance outcome data was required. Randomized and non-randomized final grade research studies were identified and included in this study. However, the studies must have reported findings in the same metric. Because of the necessity to combine study results with like data, I included studies using final exam grades or final course grade materials in this meta-analysis.

I calculated summary effect size estimates through combined studies that assess the effectiveness of the online intervention using StatsDirect (Version 2.7.2). The outcome variable that was managed and analyzed was the knowledge-related effect in student learning outcome results. Once an effect size was determined and analyzed, an

informed decision was made on how practitioners can proceed in managing student performance and assessing efficiency of learning.

Definitions

There are complexities in understanding the terminology associated with a meta-analysis and the knowledge-related effect in student learning outcomes. It was important to understand the definitions of the independent and dependent variables *student learning outcomes*, *business course*, and *meta-analysis*. The online program intervention was the independent variable. The definition of the intervention was a comparison between both online and traditional instructional approaches supporting the research question regarding delivery mode. Student learning outcomes were the dependent variable. The National Institute for Learning Outcomes Assessment (NILOA) defined *student learning outcomes* as "a statement that clearly states the expected knowledge, skills, attitudes, competencies, and habits of mind students are supposed to acquire when engaged at an institution of higher education" (Kuh & Ewell, 2010). A comparison of student performance in dual modes of instruction provided information for the management of student outcomes. For the purpose of this study, student learning outcomes are summative results that show what knowledge a student has acquired by the end of the course.

The study participants were students enrolled in either an online and a traditional course. Tests of the relationship between learning outcomes was conducted to determine statistical significance using final exam or course grades. According to Kuh and Ewell (2014), evidence of student learning outcomes can be evaluated through results of assessment activities. I used the outcome results to pinpoint areas where changes in

managing curriculum, policy, and best practices can commence, leading to improvements in institutional decision-making, course revision, planning, and program review.

Several individual research studies on various core business courses such as accounting, statistics, finance, economics, management, and marketing offered in both a traditional and online format exist; however, absent was a systematic review of student learning outcomes in a business management discipline. Business faculty teach statistics, finance, management, accounting, economics, and marketing. Business management majors, however, do not always require a marketing or economics course. For the purpose of this study, business management courses were primarily defined as different from social science by focusing on human organization in the genre of business and management which includes decision making and strategy (AACSB, 2013). Most business management disciplines require basic core courses such as management, accounting, finance, and statistics.

The purpose of a meta-analysis is to synthesize study results of multiple individual research studies. A meta-analysis combines multiple studies to make informed decisions and conclusions. For this study, a meta-analysis is "a statistical technique for combining the results from two or more studies, which addresses a similar hypothesis in a similar way" (Burns & Burns, 2010, p. 8). A meta-analysis contains a complete analysis of all pertinent studies that describe results of each study via a quantitative index of effect sizes (Kang, 2015). Kang has noted that "Meta-analysis presents the precise estimate of treatment effect via combining these estimates across studies. Furthermore, a meta-analysis looks for the presence, degree and cause of heterogeneity, and explores the

robustness of the main findings using statistical techniques" (p. 10). Table 1 shows the operational definitions associated with a business management course, meta-analysis, and student learning outcomes.

Table 1
Operational Definitions

Term	Definitions
Business Management Course	"Distinguished from social sciences by a focus on human organization, especially business and management, including decision making and strategy." (AACSB, 2013)
Meta-Analysis	"A statistical technique for combining the results from two or more studies, which addresses a similar hypothesis in a similar way; it includes the complete coverage of all relevant studies, and describes the results of each study via a quantitative index of effect size" (Kang, 2015)
Student Learning Outcomes	"A statement that clearly states the expected knowledge, skills, attitudes, competencies, and habits of mind students are expected to acquire at an institution of higher education" (Kuh et al., 2010)

Assumptions

When using a meta-analysis research design for a study, researchers make several inherent assumptions. Assumptions in a quantitative study are related to characteristics of data such as variable type, correlation trends, and distribution. Invalid results transpire if a violation occurs in a quantitative study. A meta-analysis is a technique aimed at synthesizing research. The results from this meta-analysis were aimed at gathering

exhaustive pertinent literature. I assumed that the studies I included used identical, or at least very similar, methodological approaches and sample characteristics. Additionally, I assumed a high degree of between-study homogeneity.

Scope, Delimitations, and Limitations

Meta-analysis research design has several inherent limitations. There may be a restriction in the selection of inclusive and exclusive measures for the studies selected. Because of the possible restrictions in the selection process, there may be deficiencies due to the availability of pragmatic data. Deficiencies in the literature lead to analytical methods used to perform the meta-analysis and the conclusions drawn regarding the effect size results. Lastly, the results of a meta-analysis are known to be simplified.

The purpose of this study was to investigate the knowledge-related effect results of student learning outcomes in business courses offered in both an online and a traditional format. In this meta-analysis, I omitted alternative theories that may explain the increase or decrease in knowledge due to the course format. For example, Allen and Seaman (2011) determined online learning to be equal to or in some cases superior to face-to-face learning. I did not seek to determine whether online learning is comparable to face-to-face learning. Given that this study was limited to student learning outcomes in business management courses, the overall results may not be generalized to other courses not defined as core business management courses.

Non-randomized controlled trials and study selection bias are delimiters to a meta-analysis. The quality of the data I obtained during the meta-analysis was a concern because it consists of non-randomized controlled trials. Studies' overall results did not

dictate inclusion of their data in my study; I included all data that meet inclusion criteria to help mitigate bias. In Chapter 3 I offer a detailed description of the exclusion and inclusion criteria used in this research study.

Significance of the Study

Significance to Theory

Many researchers have reported on student learning outcomes in both online and traditional courses in different disciplines of business education. Business management is a business discipline that includes the courses taken at the university level such as finance, marketing, statistics, management, and financial accounting. Varela, Cater, and Michel (2012) explored the challenges of online learning in management education. Wiechowski and Washburn (2014) performed a comparative study of course satisfaction and outcomes across different modalities in a statistics course. Ary and Brune (2011) focused on student learning results in a personal finance course. Several individual studies exist that have explored student learning outcomes in dual modes of instruction; however, there has been no systematic review of student learning outcomes in courses offered in both online and traditional formats in a business discipline. I sought to address this gap by presenting research literature that highlighted student outcomes in both an online and traditional format in a comparative analysis. To ensure efficiency of learning within business education courses, additional research on this topic was required to alleviate the bias that is associated with individual studies.

Significance to Practice

Current research has provided evidence that the problem is significant in the business education community. Bernard et al. (2004) showed that research on distance education in business disciplines has varying results which have led to limited overall conclusions. Moos and Azevedo (2009) have pointed out the lack of regard for literature reviews of online learning that originate from a business discipline. Arbaugh (2005) contended that the absence of research regarding online and traditional format in business disciplines has contributed to significant differences in the educational community. Sorting out these differences leads to increased knowledge and possible modifications in the business education community.

Significance to Social Change

Social change comes in the form of an important idea that impacts an environment, an individual, or a group. Transformation over time defines the essence of social change. Student learning outcomes led me to many conclusions about the student, about the modality of the course, and about the predictors, all of which led me to a conclusion regarding the hypothesis. By using quantitative data from individual resources to create a combined meta-analysis, I have added to the existing body of literature on student learning outcomes in a business management discipline. Providing this information contributes new language to this area of education. I assessed online interventions to determine whether there was a low, middle, or large knowledge effect on student performance outcomes. Social responsibility dictates a change in strategies to affect a group or community. In this research, I provided a systematic review that can

likely change the way practitioners view online programs and how management of business education unfolds in the future.

When there are several individual research articles on a single subject with varying conclusions, potential researcher bias is implied. To alleviate researcher bias, I conducted a meta-analysis to determine whether there was a statistical significant difference between business management learning outcomes in courses online and offered on campus. This research study filled a gap in business education research on the core courses taken at the university level. Students may benefit from this research in the form of enhanced learning and possible modification of business management courses.

Summary and Transition

In Chapter 1 outlined a summary of how student performance outcomes are an important entity in the business education community. A purposeful use of evidence of student performance outcomes has the potential to enhance academic quality and university management effectiveness. Learning outcomes are important in determining what students know and can do. However, research regarding factors leading to successful outcomes has not kept pace within the distance education community. I examined student learning outcomes to investigate the magnitude of the knowledge-related effect size results. In this study, I attempted to uncover whether new interventions need implementation when schools offer courses in business management online.

In the next chapter, I provide a literature review that includes the factors that impact the effectiveness of student learning outcomes in a business management discipline, and compare the effect results of course format on student learning outcomes

offered in both traditional and online formats. Further, I synthesize findings in the scholarly literature on financial accounting, statistics, finance, and management courses.

Chapter 2: Literature Review

I reviewed literature on the knowledge related effect of course format on student learning outcomes for courses offered both online and face-to-face. I used the problem statement, research question, and hypothesis to guide my literature review. In this chapter, I compared different scholarly points of view, and document the relationship of my study to previous research. This research review contains brief summaries of literature that I used to identify relevant aspects of the theory I used as this study's framework. I discuss my literature search strategy and theoretical foundation, review the pertinent literature, and offer a comprehensive summary and conclusion.

While research on online and onsite instruction is continuously subject to debate, the consensus is that there are no statistically significant differences between outcomes based on modes of instruction. In an equivalence in learning research study, Fonolahi, Khan, and Jokhan (2014) sought to determine whether students in an online mode fair as well as students in a face-to-face mode. The authors explored whether an undergraduate mathematics course offered in a dual mode produced any disparaging results in student outcomes. The results showed that students studying online achieved higher course marks but lower exam grades; however, total marks provided no significant statistical differences in instruction. Fonolahi et al. (2014) showed that students received different types of assessments; however, their learning experiences were the same, as expressed by similar total marks. Per Fonolahi et al. (2014), learning experiences differ in nature; however, various learning experiences can produce equivalent learning for both online

and traditional format students. This implied that learning experiences in different formats will never be identical, but that the experiences can be equivalent.

Learning outcomes in this study were evaluated to determine student success using student examinations. De Jong, Verstegen, Tan, and O'Connor (2013) conducted a research case study to compare classroom and asynchronous online learning in a statistics training course. The training course was part of a public health master's degree. The authors hypothesized that the online statistics module was an acceptable alternative for all participants (De Jong, Verstegen, Tan, & O'Connor, 2013). The findings showed that the online group was more independent in comparison to the face-to-face group. The face-to-face group also scored a bit higher on exams. The researchers determined that there were no meaningful differences between the online and onsite students.

Ten semesters of final grades from 267 onsite and 178 online students were evaluated to assess any statistical significances in this research study. Jones and Long (2013) conducted a study to determine whether equity in learning occurred in a mathematics course offered both online and onsite. Equity in learning, as defined by Simonson (1999), served as an abstract theory. De Jong et al. (2013) postulated that providing equivalent learning experiences produces equivalent educational outcomes. Experiences might be different but equivalent in nature (Simonson, 1999). Jones and Long (2013) directed a quantitative analysis to evaluate their equity in learning hypothesis. Based on the 10 semesters of final grades they analyzed, they found that there was a statistically significant difference between the grades of online and onsite students. The online students achieved higher grade percentages. With the initial three

semesters of grades removed, they found no significant differences between the mean scores of the two modes of instruction (Jones & Long, 2013). In conclusion, Jones and Long found that equity in learning exists, when evaluated by final course grades. While individual studies have suggested courses delivered online produce similar results to a traditional course, there seems to be an absence in the research literature of a systematic review of student learning outcomes in a business core course offered in an online and onsite format. Researchers have yet to determine the magnitude of the effect of a multiple-study intervention on student learning outcomes in business management courses. The purpose of this quantitative research study was thus to investigate the magnitude of knowledge-related effects on student learning outcomes in business courses offered both in an online and a traditional format.

Researchers have established the relevance and importance of student learning outcomes in onsite and online course delivery. Many researchers have used traditional courses as the control value and the online course as the treatment value; however, different predictors and performance indicators are utilized to assess student learning outcomes. In this study, I used both a traditional and an online course as the control and treatment values as well; however, I used final grades as the assessment event. Assessment events determine the individual outcomes of a course and determine whether a student has retained and gained knowledge from the subject.

The goal of this study was to assess the similarities and differences in student learning outcomes based on specific performance indications. Sussman and Dutter (2010) investigated similarities and differences in student learning outcomes in an onsite

and online public policy and administration course. The author's postulated that real-time comparative analysis of student performance would increase knowledge building (Sussman & Dutter, 2010). The predictors examined to evaluate performance in this study were numerical assessment scores based on a term paper and final course grades. The two aggregate indicators of student learning outcomes showed no difference between the two course formats. Sussman and Dutter examined multiple indicators of student performance to highlight the similarities and differences in student learning outcomes that occurred in an online and traditional setting. In so doing, they provided an alternative avenue to explore when comparing the dual modes of instruction for an undergraduate social science course. The authors determined that additional research studies were necessary on student performance outcomes.

In this study, 219 hybrids and 369 online students were enrolled in a managerial accounting course that was separated into two sections. Aly (2014) compared student performance outcomes in an online managerial accounting course in a hybrid classroom setting to a traditional course to assess student performance. Aly (2014) assessed other predictors such as the textbook, the instructor, the exams, and projects. These predictors were the same for both modes of instruction. Learning outcomes were assessed using the final exam, 12 weekly assignments, and the first and second major exams. The results showed, through an evaluation of mean scores, that learning outcomes displayed no significant differences bases on course format. Hybrid and completely online course formats delivered results similar to other studies exploring this course format. According to Aly (2014), course instruction and pedagogy should be the main focus in improving

the delivery of course material. The type of media delivery seemed insufficient compared to the method and practice of teaching. Per Aly (2014), stakeholder performance was not affected by course format.

Student learning outcomes are a key consideration when assessing the success of a degree program (Wiechowski & Washburn, 2014). Wiechowski and Washburn (2014) conducted a comparative study of course satisfaction and course outcomes across learning models. A total of 171 course surveys were evaluated to determine course satisfaction, and the researchers used the students' grade point averages (GPA) to assess performance outcomes. Online, blended, and face-to-face formats were correlated with the student's GPA. The data showed that no significant relationship existed between the student's GPA and the three modes of instruction. All three modes of the finance and economic course achieved the same performance outcomes.

Cheng (2009) sought out to determine the effect of web-based collaborative methods on an accounting course offered in technical education. The implementation of web-based collaborative learning served as a starting point for evaluating accounting-related curricula and teaching strategies (Cheng, 2009). Students in a first-year class in hotel management, and students in a recreation tourism program class were compared to evaluate any significant differences of confidence in problem-solving, avoidance style, and self-control via pre-post testing (Cheng, 2009). Collaborative learning was the theoretical construct used in this research study. According to Cheng (2009), collaborative learning was not confined to a traditional setting. The experimental group,

the hotel management students, were compared to the comparison group, the tourism program students, using the pre-posttest methodology.

There were 109 students from two classes, 54 in the hotel program and 55 in the tourism program. The hotel program served as the online experimental group while the tourism program was the traditional lecturing method comparison group. The research findings showed that the two programs demonstrated significant differences in problem solving, avoidance style, and self-control. According to Cheng (2009), web-based collaborative learning had the ability to facilitate class interactions, increase cohesiveness, and create a positive competitive atmosphere that increased creativity.

Two-thirds of the community concerned with the pursuit of education believes online learning is comparable or superior to face-to-face learning (Allen & Seaman, 2011); however, research on distance education is limited with differing results and varied overall conclusions in the business education community (Bernard et al., 2004). The lack of current research on both online and traditional formats in business education contributes to the formation of significant differences within the educational community (Arbaugh, 2005). By conducting a meta-analysis on student performance outcomes, I sought to rectify the significant differences found within the educational community.

Literature Search Strategy

I conducted the literature review using the online library databases of Walden University, The Association to Advance Collegiate Schools of Business (AACSB), and the National Institute for Learning Outcomes and Assessment (NILOA). My primary

goal for the literature review was to acquire an unbiased assembly of research studies about student learning outcomes and stakeholder management.

To access peer-reviewed articles, I used the following databases: Google Scholar, ProQuest Central, Academic Search Complete, ScienceDirect, ERIC, EBSCOhost, Education: a SAGE full-text database, Emerald Management, SAGE Premier, SAGE Stats, Education Research Complete, ED/IT Digital Library, Joanna Briggs Institute EBP, Oxford Education Bibliographies, Taylor and Francis Online, Teacher Reference Center, Education Research Studies, Business Source Complete, and ABI/INFORM Complete. I then created an organizational table to aid in summarizing the articles. Key search words included: *student learning outcomes, stakeholder management, business education, online and traditional formats, and final course grades*. I limited the searches to literature published between 2005 and 2015.

Theoretical Foundation

Student learning outcomes in an online and traditional setting utilizes theories when exploring the effects of synchronous and asynchronous education. Equivalency and transactional distance theory are intrapersonal educational tools used when assessing online and traditional students. Equivalency theory determines whether efficiency of learning occurs during the course of a class. Transaction theory relates to the cognitive space between the instructor and student.

Equivalency theory is an instructional experience of local and distance learners that have studied in dual formats. The theory professes three key elements when discussing distance education. Equivalency theory assumes different types of learners are

capable of processing information from different environments with the events considered equivalent (Simonson, 1999). The value of each format has an equivalent value even though the distinct experiences are different. Lastly, distance education competes with traditional instruction if it is of high quality, easily attained, and recognizable to those in need (Simonson, 1999). The notion of different but equal is the basis of equivalency theory. The theory argues that if learning experiences are more equal, the most equivalent the educational outcomes for all learners. Learning experiences should be created with an equivalent value despite course delivery methods. According to Watkins and Schlosser (2000), equivalence was determined based on demonstrated student outcome accomplishments rather than time-based criteria. Equivalency theory is necessary to account for the different features of synchronous distance education (Bernard et al., 2004). Synchronous distance education refers to the virtual platform in which instruction commences.

Cognitive space between learners and instructors make up the premise of transactional distance theory. Moore (2013) believed transactional distance creates a space of misunderstanding between the interactions of instruction with the learner. The theory of transactional distance states, space between instructor and learners can produce potential misunderstandings; however, dialogue and pre-determined structure reduce the extent of transactional distance (Moore, 1993). Although the extent of transactional distance differs according to a program, the extent of dialogue and structure must be appropriately structured with the learning materials (Moore, 2013). Transactional distance is more than a geographic split of teachers and learners; it is a pedagogical

concept (Moore, 1993). For distance education to succeed, the separation between teacher and learner needs special teaching learner strategies, and the instructional techniques should be successful (Moore, 2008). When learning materials are properly structured, cognitive space does not result in misunderstandings between the instructor and the learners.

Equivalency theory and transactional distance theory support the research question and the investigation into the magnitude of knowledge related effect on student learning outcomes in a business discipline offered in dual modes. Because the research findings revealed a low effect size result on student performance outcomes, this study has provided motivation for developing additional tools for distance or online business education that reduces space between the instructor and the learner, and provides material that may be different but equivalent to campus base courses. Student learning outcomes reveal the strength of an educational program. Disregarded is online learning in a business discipline with limited and varying results (Moo & Azevedo, 2009). The study results also assisted in bringing business and educational literature closer together to alleviate disparages.

Literature based summaries of each study that describes, research variables, theoretical background, a description of the differing methodologies, and results, are organized to investigate outcomes in this literature review. Investigation of the outcomes assisted in the managing stakeholder performance. Managing stakeholder performance was the key to balanced performance within a core business course. In addition, stakeholder performance assisted in setting goals through metrics of achievement.

Process management dictated the culmination of planning and monitoring with the possibility of re-engineering a process for sustainability and improvement. To ensure an organization's strategic goals were aligned in their design and architect, management of processes needed evaluation. To conquer management of processes, evaluation of data took place to determine the need and course of action that will align processes with success. Based on the results of this study, it was determined process management should be implemented to reduce the low effect size result on student performance and increase efficiency of learning. Assessment of individual articles determined there was a need to critique stakeholder performance to reduce the ambiguity associated with the comparison of online and traditional course formats.

Literature Review

Individual research data exists on student performance outcomes in a business discipline offered online and face-to-face. Transitional approaches are focused upon in business literature leaving out student learning outcomes (Tesone, Alexakis, & Platt, 2003). The absence of this information contributed to the formation of significant differences in the business education community compared to the educational community. Evaluated are individual studies on student performance in a business course offered in dual modes of instruction; however, no current systematic research review that examines online instruction as an intervention in a business course exist. The purpose of this quantitative research study was to investigate the knowledge related effect on student learning outcomes in a core business course offered in dual modes of

instruction. Once investigated, implementation of managing student performance decisions can now be made based on the results.

Arbaugh et al. (2009) examined the extent research has progressed in the online and blended learning formats focused on business disciplines. According to Arbaugh et al. (2009), mode of instruction in business research reviews its educational publications; thereby omitting technology based journals that focused on mediated learning. Omitting technology based journals creates a bias in information regarding student learning outcomes and the comparability on the mode of instruction in business courses. Arbaugh et al. (2009) argued when researching your respective disciplines negative consequences can arise. Results are not populated to other journal types that reduce the advances in analytical approaches. Researching one discipline reduces theoretical perspectives and lastly, decisions based on business research has less evidence to use as a method or guide (Arbaugh et al., 2009). Comparison outcomes of online and traditional courses and studies that utilized predictors were the most common research themes discovered in this literature review. Each course in a business discipline revealed results to assist in evaluating predictors.

The management discipline, in this study, investigated 41 peer reviewed articles. The primary theme of the management discipline evaluated student perceptions and attitudes, and comparison studies of the mode of instruction. The accounting discipline evaluated 19 articles in an attempt to assess the state of research in the field. Topics of research addressed comparison studies and student learning outcomes. According to Arbaugh et al. (2009), research in the accounting discipline focused on the prediction of

learning effectiveness, conceptual models, and reviews. Research showed performance outcomes were comparable to those of classroom based. The marketing discipline evaluated 15 articles. The literature review on marketing broke into three sections, course overviews, classroom companion studies, and research studies that identified course outcomes in online learning (Arbaugh et al., 2009). Per Weber and Lennon (2007), delivery medium does not significantly predict learning outcomes. Results in the operational supply chain management discipline weighed in comparisons of online and classroom-based courses. Student learning outcomes primary predictors were based on students' GPA and instructor experience (Arbaugh et al., 2009). The finance discipline suffered limited data with Ary and Brune (2011) investigating student learning outcomes in a personal finance course finding no statistically significant difference in delivery format. The six studies were reviewed with the major findings examining behavioral and perceptual characteristics of students.

The six studies organized into technology-mediated education, experiences in teaching online, web-based financial tools, and simulations. Arbaugh et al. (2009) evaluation determined online courses produced higher student withdrawal rates and lower pass rates. Student learning outcomes were not the main focus of this research. The economics discipline reviewed five studies that contained a comparative view of the data. According to Arbaugh et al. (2009), three of the articles found student performance was better in classroom based learning than in the web based learning. Comparison study research was abundant within the business discipline; however, student learning outcomes and were not the main focus. This study complimented another meta-analysis

by Shachar and Neumann (2010) and the Department of Education (2009) in the debate over the comparability of distance education and student performance. Based on the results of this literature review, it was determined most articles focused on the comparability of modalities as opposed to how to manage the knowledge related effects of the results.

Shachar and Neumann (2010) guided a 20-year summative meta-analysis study to investigate academic performance differences between traditional and distance learning demonstrated by final course grades. In addition to student learning outcomes, Shachar and Neumann (2010) evaluated student attitude, satisfaction interactions of students, faculty, and faculty satisfaction. Shachar and Neumann (2010) performed a meta-analytic process executed in the study such as a domain research, criteria included in the study, search results, data extraction, and individual effect size. The modes of instruction served as the independent variable with the final grade scoring as a means of assessing learning and the impact on student learning outcomes. This study divided into four sections with three levels of education, the graduate, the undergraduate, and the non-degree student. Shachar and Neumann (2010) postulated 70% of the studies garnered a positive effect size indicating in each period, online students performed as well as traditional students. The four subsections were of unequal time periods and effect sizes within the 20-year analysis allowed a four meta-analytic iteration (Shachar & Neumann, 2010). Criteria included a period of 1990 to 2009 with each primary study involving a control or comparison group. Period I encompassed 1991 to 1998 gathering 38 effect sizes, period II, 1999 to 2000 with 33 effect sizes, period III, 2001 to 2002 with 29 effect

sizes, and lastly, period IV contained 25 effect sizes from 2003 to 2009. In total, five iterations and period comparison were conducted on all four sub-periods and then collectively as a whole.

Relevant studies were found exhausting electronic search engines, databases, and interlibrary data banks extracting data into a compiled master database. A meta-analytic approach was implemented embedded in the procedures, computations, and interpretation of results to insure unbiased assessment. Any study that exhibited methodological flaws were excluded from the study. Included were studies with one effect size computed for each unit of analysis coupled with the final course grade. Published and unpublished articles and study reports served as the source for variable references. Using StatsDirect (Version 2.7.2) spreadsheet as a master database allowed for the organization of relevant information and characteristics related to effect sizes and pertinent information on variables of interest.

Effect sizes measurements were calculated to determine the statistical significance of traditional and distance learning outcomes. 125 effect sizes evaluated a population that encompassed 20800 students, 11500 traditional and 9300 distance learning. Computation results of all periods revealed a statistical significant; however, results in the sub-periods yielded statistical significance for periods I, III, and IV. Period II yielded a small non-significant assessment. Overall, results of the study indicated student learning outcomes of online students demonstrated a statistically significant positive result. According to Shachar and Neumann (2010), online students have the capability of outperforming traditional students. This study coincidences with most research that

states there is no real significant difference between online and traditional modes of instruction in a business discipline. In this case, managing the outcomes would result in enhancing current practices to expand on the processes that are already in place.

The U.S. Department of Education (2009) established a similar study to evaluate distance education. Results determined no differences in student learning outcomes due to the mode of instruction existed. Shachar and Neumann (2010) determined higher learning outcomes in the online environment outweighed the face-to-face environment. The authors believe academic performance between the two modes of instruction will increase as time and technology advance (Shachar & Neumann, 2010). In conclusion, distance learners outperformed their counterparts with the findings revealing higher learning outcomes in the online environment.

Smith and Stephens (2010) handled a research study to investigate whether student performance in an online marketing education class was comparable to a traditional marketing class. The study takes the form of a replication study on comparing modes of instruction and satisfaction. Per Smith and Stephens (2010), online learning reduced the barriers of learning such as time and location. It was predicted the online percentage of students would continue to increase as the economy and on campus enrollment decreased (Smith & Stephens, 2010). The authors set out to determine whether quality in an online marketing course was comparable to a traditional course based on final grades and the student satisfaction survey.

According to Smith and Stephens (2010), evaluating the comparability of student performance offered traditionally and online yielded mixed results from past research.

Smith and Stephens (2010) postulated evaluation of performance outcomes and student satisfaction in online formats ensures the quality of course delivery. Based on the results, managing stakeholder performance can improve the quality of business courses offered in an online setting. In this research study, Smith and Stephens (2010) recruited a sample of 91 online and onsite students. The convenience sample consisted of 67 face-to-face students and 24 online students. This study was labeled as a convenience sample because one professor was able to facilitate both the online and traditional course. Final exam and course evaluations were gathered for each student as well as other predictors such as gender and class standing. The mean scores on the final exam were the sample data. An independent samples t-test estimated the data.

Several inherited assumptions exist in this study. It was assumed this study utilized final grades that were representatives of learning achievement. It was also assumed the online and campus students received the same academic materials and preparation. Lastly, it was assumed all students in the marketing course met the pre-requisite of the course. Limitations of the study are rooted in the sample size and time period. Smith and Stephens (2010) stated the sample size was small and the results were gathered over one fall semester which equated to two marketing courses in total. Because of this, different teaching methods and learning outcomes may result in different results if this study was repeated.

Results of the study revealed a statistically significant difference between the mean scores on the final exams from the online and traditional students; however, course evaluations revealed no significance difference in how online students and traditional

students feel about the marketing course. According to Smith and Stephens (2010), these findings contradicted present studies and are inconsistent with most cited research that states there is no significant differences between modes of instruction. Smith and Stephens (2010) insinuated the inconsistency might be due to other predictors such as demographics, age, and class standing. Overall the authors suggested conducting additional research on student satisfaction and how age and class standing can affect student learning outcomes.

Weber and Lennon (2007) established a study evaluating a multi-course comparison of traditional and web-based course delivery systems. In this study, technical issues, student satisfaction, and course satisfaction are the variables used to predict student learning performance. Other variables in this study included GPA, academic level, web based experience, and perceived knowledge. According to Weber and Lennon (2007), these predictors assisted in the evaluation of student learning outcomes. This study took place over a two-academic year period evaluating four sections of a principle of marketing course. The effectiveness of the study observed the final exam, the semester project, and the final grade in the course. In total, based on two studies, 66 traditional students and 51 online students were evaluated. This study took a different approach assessing GPA, academic level, web based experience, and perceived knowledge to predict stakeholder performance. Final course grades were key in determining the strength of modality; however, grades were not included in this study.

The level of technical skills constituted a challenging scenario for faculty. According to Weber and Lennon (2007), technical skills can be a predictor of success in

the course. The dependent variables, learning outcomes and course satisfaction in both studies revealed no significant differences across the four groups. The results indicated the online students performed just as well as students in the traditional course. Course satisfaction was evaluated using the Likert scale. Learning outcomes were evaluated using the mean scores of the final exam grades. The results indicated the online students performed just as well as students in the traditional course. Online students also returned a higher satisfaction rate than the traditional students.

Wagner et al. (2011) piloted a longitudinal research study to investigate student performance in a business application software course offered in an online and traditional format. Per Wagner et al. (2011), online growth at the college level was an attempt to circumvent the decline in economic and enrollment decreases. Examined are how students in an online business course faired against students in a traditional setting. The business application course was an introductory course that provided pre-requisite skills in word processing, spreadsheets, and database instruction. According to Wagner et al. (2011), most business disciplines started off with an introductory business course to ensure students can grasp spreadsheets, databases, and business information software. In this research study, student learning outcomes were evaluated in the business course to determine if there was a significant difference in learning outcomes. The purpose of this study was to provide a consensus on student performance in regards to the two methods of instruction; online and traditional. Performance was the measurement of a students' ability to fulfil the requirements defined in the course. Final percentage grades provided an indication of performance measure of student learning. The traditional course

represented the control value while the online course served as the intervention in which to measure performance. According to De Jong et al. (2013), comparable student outcomes equate to the effectiveness of learning. By calculating the mean differences of final grades at the end of the course, the authors were able to determine whether the mode of instruction provided equivalency of learning.

Wagner et al. (2011) evaluated eleven online and nineteen traditional sections of a business application course over a period of nine years. To influence control, the content of the course material was developed and implemented by the same instructor. Collected were data for 624 students; however, 18 students were deleted due to withdrawal or resignation of the course. A sample size of 606 students remained in the final data set. In this study, Wagner et al. (2011) compared student learning outcomes for 171 online students to 435 traditional students. Other descriptive data included in this study was evaluating the gender of students and their overall effect on final grades. Males made up 48% of the sample and females generated 52%. On average, females scored slightly higher than males, however, no difference presented by gender was significant. Because of the slight difference between gender averages, the authors employed further investigation by conducting a two-way variance analysis between course delivery and gender. The results revealed a gender effect on student performance which explained the lower averages computed for male students in the online course.

Results of this study indicated there was no significant difference in student performance in the online and traditional business application courses. Wagner et al. (2011) concluded if you provide students with the tools needed to succeed in the course

such as materials, instructions, and notes, the mode of instruction is not a factor. Based on the independent t-test results, it was determined students enrolled in the business application course were able to be successful in both online and traditional formats.

Further study was suggested in this research study to explore online integrity. Online integrity assumes students are utilizing approved material to assist in the completion of a course. Because online students do not have direct management when completing course work and exams, there lies an opportunity to enlist many modes of assistance not necessarily granted to traditional students. However, because averages resulted in only a slight difference, it was not believed academic integrity was violated.

Ary and Brune (2011) headed a research study to investigate student performance in a personal finance course offered online and onsite. One professor taught both of the personal finance courses over the course of a semester. The purpose of this study was to determine whether final course grades or other predictors such as ACT scores and the average pre-course GPA affected student performance. The professor provided tutoring of major problems that would later assist in performance on the midterm and final exam. In addition to tutoring, a personal finance simulation, open book quizzes, and pertinent assignments were administered to both online and traditional personal finance students to foster learning. Both groups were offered a study session with 80% of the students attending. Both groups received a pre-and posttest, a midterm, and a final exam. Both traditional and online students took the pre-and posttest exams on campus. Ary and Brune (2011) postulated if exam frequency increased, traditional sections of the personal

finance course could possibly increase performance. Student performance was examined using final grade data comparing online and traditional performance outcomes.

In this study, 185 students, 94 traditional and 91 online, were recruited through a convenience sample. To compare learning outcomes, Ary and Brune (2011) calculated the averages of the pre-post testing for both modes of instruction. Results of the study indicated there was no significant difference in student performance in a personal finance course based on the mode of instruction. However, pre-course GPA and ACT scores can be used as possible predictors of student success (Ary & Brune, 2011). The final grade or post-test scores indicated the mode of instruction did not have a significant role in student learning outcomes.

Farinella (2007) spearheaded a research study to determine whether course format mattered in an introductory finance course. The investigation of students and the professor's performance in an online and traditional introductory finance course took place. Secondary research was assessed through the end of course student surveys. The survey results provided insight into how the professor was perceived in the course. Widespread implications exist in examining performance of students in online and traditional courses. The role of faculty in an online course was different than that of an onsite course. Faculty became facilitators monitoring electronic progress as opposed to being the main focus of instruction. Although the roles of an online instructor differed from an onsite instructor, teacher evaluation methods seem to remain the same. The purpose of this study was to determine do students in online finance courses perform as well as students in traditional finance courses. The same professor taught the course over

the length of two semesters. Per Farinella (2007), using the same professor to instruct both courses was an effort to control for variations in the data results. However, variations or predicators such as GPA, age, and gender manipulated or produced variations in results.

Data was collected from 136 students, 33 online and 103 traditional. The score, a production function, was used in conjunction with other predictors to calculate the final exam grade. In this study, the score represented the cumulative grade on the final exam for the course. The mean score on the final exam for students in the traditional course were significantly higher than those of the online course. This study found students enrolled in the introductory online portion of the finance course earned significantly less than traditional students. Results in this study were a direct contradiction to other studies that postulate there are no significant differences in mode of instruction. Ary and Brune (2011) concluded in their study, no significant difference occurred between an online and traditional personal finance course. However, this study reported similar results that state success in online finance courses was lower than success in traditional finance courses. Also, overall satisfaction for the professor was comparably low possibly reflecting the mean scores of the course. Determining the performance of students and professors provided insinuation to faculty, students, and university administration (Farinella, 2007). The authors suggested conducting additional research on student learning outcomes in finance. Based on current research, results on finance classes are scarce and require additional investigation to make an informed decision on student performance. As it

appears, managing stakeholder performance could improve the overall outcome of this finance course possible increasing the online scores and student performance.

Schou (2007) steered a research study to investigate whether learning outcomes in an online environment are comparable to traditionally taught students in an introductory business statistics course. Like many other researchers, Schou (2007) believes distance education will increase due to economic constraints. Student attitudes were the second hypothesis tested in this study. The statistics course was designed and taught by the same instructor who provided homework and lesson notes for both modes of instruction. Too, topics and time frame were kept the same for each mode of instruction. Data retrieval originated from the introductory business statistics course taught over a period of one term. Student learning fostering was provided by available tutoring and course instructional materials. All students had access to tutoring; however, tutoring was not mandatory.

This research study assumed students were over eager in passing the statistics course because it was administered in the summer. It was also assumed all students had passed the pre-requisite course, college algebra, with at least a C-. Because of this, students in the study are thought to have the same skill set entering the statistics course. After all assumptions were checked for accuracy, the authors were able to evaluate the first hypothesis estimating whether there was a difference in mean scores in the final examination of the traditional and online courses. The final exam in both course formats served as a determinate of student performance and course efficiency.

The second hypothesis sought to determine whether the mean of prior attitudes toward the online statistics course matched those of the overall mean of post attitudes based on an attitudes survey. At the beginning and end of the course, the students were given a pre-and posttest to evaluate initial and ending attitudes in reference to the introductory statistics course. Four subscales, affect, cognitive competence, value, and difficulty were included in the survey (Schou, 2007). Conducting a paired t-test, the authors were able to ascertain the students in the online section of the course had improved attitudes toward the instruction at the end of the statistics course.

Schou (2007) hypothesized there was no difference in learning outcomes between teaching modes offered traditionally and online in an introductory business statistics course. The final findings reported no significant differences in the mean scores which means efficiency of learning was evident in this statistics course. Managing stakeholder performance in this case would result in replicating procedures that have created success in the online business course. Stakeholder management aids in the decision-making process which will result in more efficient delivery and responsive services.

To determine the effectiveness of the online learning platform, Schou (2007) compared final exam scores in the traditional and online course to test for statistical significance. Through a convenience sample of 31 students, Schou (2007) evaluated 16 traditional and 15 online final exam grades. To evaluate the final exam scores of the business statistics courses, Schou (2007) used a two-sample t-test. The results showed no statistical significance in the mean scores of the final exam which indicated the mode of instruction did not have any importance in student performance outcomes.

Haughton and Kelly (2014) explored delivery modes and student performance in an introductory business statistics courses. Two groups from two semesters were used in the comparison. The treatment group completed the statistics course in a flipped hybrid environment while the comparison group completed their course in a traditional setting. According to Haughton and Kelly (2014), a flipped hybrid group reversed the sequence of traditional study. Students were first introduced to material online and then ventured to the classroom once a week to clarify points with the professor. More emphasis was directed to online activity with minimal time spent in a lecture based setting or the classroom.

The methodology utilized four outcome measures to determine the impact of a flipped hybrid class. The most common method of assessment was the final exam. The final exam allowed for the comparison of student performance between the traditional and hybrid sections of the course. In this study, the final exams used in the comparison presented identical results determining mode of delivery produced no significant differences (Haughton & Kelly, 2014). Letter grades were the second measure of assessment. The grades were based on course assignment coupled with tests and a midterm. The authors determined letter grades accounted for a lack of consistency across sections because different teachers taught the courses in the comparison experiment (Haughton & Kelly, 2014). The remaining measures of performance, student responses to two overall questions, were subjective. The attitudes of the students, after completing a final exam, may not provide a clear characteristic of the entire course but an attitude based on the difficulty of the final.

Students were randomly assigned to either a flipped hybrid or traditional course. 605 students participated in the study. 292 students were randomly assigned to the traditional section and 313 to the hybrid course. The only requirement for all 605 participants was the completion of a college level mathematics course. Two terms were evaluated where the hybrid course produced mean grades of 75.11 in the spring of 2013 and 68.49 in the fall 2013 semester. The traditional format of the two terms produced mean grades of 66.84 and 65. The standard deviation between the two terms were 8.26 and 3.20 respectfully. Students in the hybrid course performed better than the traditional course on the common final exam. There was a 10% level difference which was a statistical significant based on the final exam.

Through a simple means comparison, management of student performance reinforced current practices to ensure course efficacy. Because there was a significant difference between the hybrid and traditional introductory statistics courses, managing resources should focus on student performance. Addressing student outcomes was the best way to ensure a production of students who can implement what was learned into a real-world action. Through evaluation, courses are assessed based on final grade data where recommendations in managing the outcome can be made.

Daymont and Blau (2008) led a research study to investigate student performance outcomes in an undergraduate management course offered in an online and traditional format. The authors believed students choose online learning for convenience, their personality, or distance education coincides with their learning style. In addition, some students preferred written communication as opposed to lecture styled instruction.

Because of this, enrollment in online courses seems to be increasing, especially core courses offered in business. According to Arbaugh et al. (2009), management courses are the most researched in a business discipline. Management is a core business course that is part of all business curriculum and required by all business majors and minors.

Daymont and Blau (2008) postulated online formats succeeded in objective measures of performance, however, not better than students in a traditional course. In this study, Daymont and Blau (2008) recruited through a convenience sample of 245 online and traditional students. 181 traditional and 64 online students provided the data for this study. Seven sections of an undergraduate management and organizational course administered over the course of a year returned student samples. Listed was the course as part of the core business curriculum required for all business majors and business minors (Daymont & Blau, 2008). Two sections were online, and five sections transpired on campus. Similar to Wagner et al. (2011) the authors also investigated the role of gender on final grade results. Daymont and Blau (2008) discovered females outperformed males in the online sections of the course without posing a statistically significant difference. Gender differences are not always non-significant. Friday, Friday-Stroud, Green, and Hill (2006) managed a study on management courses and found gender played a statistically significant role in final course grades which is in contradiction of Wagner et al. (2011) and Daymont and Blau (2008). Because of the differences in results, further meta-analytical study on gender and online course performance may need additional investigation.

This research study was evaluated utilizing a variety of outcomes that include student satisfaction, student attitudes towards learning, and the student's academic performance. By evaluating the measures of the final course grades, the data alerted the researchers to effective or efficiency of learning based on two modes of instruction. Managing student performance was initiated if there was a decreased effect size result in the comparison of both the online and traditional instruction mode. Daymont and Blau (2008) hypothesized the final course grade of students in online sections would not be different from the final course grade of traditional sections of the course. Because Daymont and Blau (2008) believed the final grade was not completely objective, the average score on quizzes were evaluated as a second measure. Final grades in both the traditional and online section included overall grade and discussion forum. Using a series of regression analysis, the final grades for students in the online section were slightly higher than those in the traditional section. However, online and traditional students showed no significant difference in the mode of instruction. Average quiz scores were statistically significant for online students advancing a tad further than traditional students about the score.

Schwartz (2012) conducted a research study to investigate the effectiveness of an online financial accounting program against a traditional on-campus course. The accounting course divided into four sections covering intermediate accounting, income tax, cost/managerial, and auditing. The Standard Learning Outcome Assessment Test (SLOAT) was utilized to evaluate each section of the financial accounting courses to determine the effectiveness of the online mode of instruction. In this study, Schwartz

(2012) recruited through a data sample of 189 test for traditional students and 372 tests for online students in several sections of an accounting course. According to Schwartz (2012), the SLOAT test calculated the mean score achieved at the end of the course for each mode of instruction. The authors evaluated aggregated mean SLOAT scores for each section of the financial accounting courses. Combining all four sections showed a statistically significant difference between the online and traditional sections of the accounting course.

Four major subject areas were under the umbrella of the financial accounting course each with its own aggregated results. The four financial courses were Intermediate Accounting, Income Tax, Cost/Managerial Accounting, and Auditing. The intermediate accounting course retrieved 69 SLOAT scores administered by three different instructors for the onsite portion of the course and 194 SLOAT scores administered by six different professors in the online course. Performance in the online course was 2% higher than that of its counterpart. There was not enough evidence to reject the null hypothesis. The income tax class evaluated 20 students in the onsite class taught by two different instructors and 75 students taught by three different instructors. The mean scores revealed the online students scored 18% lower than the onsite students postulating a significance difference between the two modes of instruction. The cost/managerial course were administered to 45 onsite students and 54 online students. The onsite course was taught by three different instructions and the onsite class was taught by one instructor. The mean scores were comparable showing only a slight difference; however, not enough evidence to reject the null hypothesis. Lastly, the

auditing course had 55 onsite students taught by three different instructors and 49 students in the online class with two different instructors. Online students performed 3% lower than the mean of the onsite students like the other three financial accounting course included in this study again rejecting the null hypothesis.

Online scores were considerably lower than those of the onsite scores (Schwartz, 2012). When the author omitted the auditing course data from the overall evaluation, no significant differences existed. The mean score results were almost identical in calculation. These results indicated the auditing class needed to be taken onsite until equivalency of learning was evident. Managing stakeholder performance in an income tax course would benefit students in improving the efficiency of learning. Overall results indicated inconsistencies within the four sections with student learning outcomes in the online sections performing significantly lower than the traditional sections of the accounting course. This was due to the mean scores in the income tax section of the course.

Ledman (2014) performed a research study to compare student learning outcomes in a strategic management capstone course. The online and traditional formats were identical and taught by the same professor over a period of one academic year. Ledman (2014) replicated a study that was performed by Neuhauser (2002); however, this author investigated a principles of management course. To control for variations, the same professor taught both the online and onsite management capstone course. In addition, the same course materials were administered to both modes of instruction.

A sample size of 128 students participated in this study, 67 online and 61 onsite. The final course grades and tests were examined between the two modes of instruction to ascertain whether there was a significant difference between their mean scores. A t-test was used to compare the mean scores for the face-to-face and online classes. Results from test grades produced almost identical results while final course grades borderline on a significant difference. According to Ledman (2014), the p-value was quite high which indicated a statistical variance. The calculated data suggested there were differences between student learning outcomes and mode of instruction. It was suggested additional research commence that compared simultaneous course delivery in different management courses. Providing additional research in this area provided unbiased results when synchronous instruction existed.

A research study by Dotterweich and Rochelle (2012) examined student characteristics and performance in a business statistics course. The primary goal of this study was to investigate which characteristic in business statistics are linked to success based on mode of instruction. Because students shared similar GPA's, it was assumed their level of intelligence was comparable entering the business course. The authors postulated managing student success and assessing characteristics based on final grade averages identified competencies and course learning objectives. Traditional, online, and instruction television are the investigated three modes of instruction in this research study. For the purpose of this literature review, only traditional and online mean scores were collected and evaluated.

Although the courses were instructed by different professors, courses were taught in a comparable manner. All courses utilized the same terminal course objectives and course material. StatsDirect (Version 2.7.2) software was used for data manipulation in all classes, as well as ensuring all students calculated problems by hand showing all work. Only the online students utilized online homework; however, the material and homework questions were the same as the other two modes of instruction. To evaluate student success and characteristics, data was extracted from each mode of instruction. In total, the sample size equated to 162 students with 57 students enrolled in the traditional format, 59 in the online format, and 48 in the instruction television delivery format. 116 are the total students enrolled in the online and traditional mode. Other predictors used in this study were GPA, age, earned hours, and repeated course takers. These predictors served as the independent variable while the final grades in this study was the dependent variable. Ordinary Least Square (OLS) regression was utilized to seek out factors that affected the dependent variable.

The basis behind each predictor assisted in determining which characteristics influenced performance. Numerical and categorical values were enlisted to generate quantitative results. According to Dotterweich and Rochelle (2012), students with a higher GPA prior to the start of a course were more likely to attempt an online course. It was also predicted these students would perform better based on final grades. It was stated, older students pursued online courses probably because of the convenience and flexibility virtual courses offer (Dotterweich & Rochelle, 2012). Gender, repeat course takers, and previous online course takers made up the categorical variables of this

research study. Gender used as a characteristic vary by subject matter; however, female students in this course seems to perform better than their male counterparts. If students did not pass business statistics with a C, the student was required to repeat the course. Lastly, students whom have taken an online course in the past were more apt to continue the same format.

To evaluate student characteristics in each mode of instruction, an analysis using Analysis of Variance for quantitative data and a Chi-square Test used for categorical data took place. Based on GPA, no significant difference existed. Based on the mean GPA for the three groups of students, no significant difference existed. A t-test was performed to evaluate the age variable because of the variances examined in the average age groups. Gender did not produce a statistically significant difference; however, more females were found in the online sections of the course as opposed to the traditional setting. Results revealed, based on the final grade average, the difference between the mean scores provided no significant difference between the three modes of instruction.

Dotterweich and Rochelle (2012) suggested conducting additional research into a student's prior experience in nontraditional courses. Examining the proportion of traditional and online students with prior instructional television learning should be conducted to ascertain a better understanding of which students choose certain modes of instruction. This will assist in managing the advisement and enrollment process of new students. Stakeholder management in education helps streamline policy and program processes. Implementation of stakeholder management processes ensure success and enhancement to basic procedures.

The above studies demonstrate the rationale for the selection of the control and treatment group. The control group (traditional course) was the utilized standard to compare and contrast the treatment group (online course). In each of the research studies conducted, the relationship between the independent and dependent variables were similar. For instance, in each of the studies, the researchers investigated the final course or exam grades between the online and traditional courses to evaluate student performance. Each of the studies also had a common dependent variable that consisted of a mean difference between modes of instruction. To investigate the magnitude of the effect, the study results from each research study, a meta-analysis was conducted.

Summary and Conclusions

It appeared performance of students in online courses vary across disciplines, and introductory finance and accounting may not be a fruitful venue for online courses. However, other business disciplines such as management, marketing, business information, and statistics showed there was no difference in student performance outcomes based on the mode of instruction. Schwartz (2012) found that as a whole, online students performed considerably lower than traditional students when evaluating the four sections of the accounting course. The introductory finance course produced negative results for the online students with traditional students performing 21% better in the course (Farinella, 2007). Schou (2007); Smith and Stephens (2010); Wagner et al. (2011) conducted research studies within a business discipline all with results that stated there are no significant differences in student performance based on the mode of instruction. Ary and Brune (2011) compared 185 students in a personal finance course

and the results were indicated through an OLS regression study. The findings concluded there was no significant difference based on the delivery format.

Based on current literature, limited data existed on student performance outcomes in a business management discipline offered in the modes of distance learning and traditional learning. Business literature focused on transitional approaches overlooking student learning outcomes (Tesone et al., 2003). Significant differences occurred in the educational and business community that can cause a disparity in information. Currently, there was no research review that examined distance learning and onsite instruction in a business discipline. Individual research studies on stakeholder performance in a business discipline are plentiful; however, absent was a systematic review that examined student learning outcomes in a face-to-face and onsite mode of instruction.

The absence of this information contributed to the formation of significant differences in the educational and business research community. A relevant meta-analysis transpired to understand the social change significance and magnitude of the effect of the results. Since current research study findings have indicated the mode of instruction was not a factor on student performance, it was important to quantify the magnitude of the knowledge related effect of multiple study interventions. If a large knowledge related effect arises, administrators and policy makers will have enough data to make a positive social change. A large knowledge related effect could lead to social change by affecting policy and how managing student performance outcomes can reduce disparages in learning outcomes. Managing the results of a knowledge effect will affect how online course serve the student population in future business courses.

This study filled a gap in the literature by providing a systematic review of multiple studies assessing the magnitude of the knowledge related effect of stakeholder performance learning outcomes based on modality. The study will remedy the potential bias that exists within the current research literature by the lack of combining the studies to magnify results. In the event, a decrease effect occurred, managing stakeholder performance in an online business discipline or course should be initiated to increase performance of students and improve the online course component. If an increased effect exists, steps should commence that increase the efficiency of learning in a traditional course. Managing the effects of stakeholder performance involves first assessing the state of business management in an educational setting. Secondly, once an effect size provides definitive data, a plan can commerce in how to best manage those effects that either provide an increase or decrease knowledge related effect. Based on the results of this study, it was found that a low effect exists determining an implementation of process management was needed to reduce this effect and increase efficiency of learning in both the online and traditional formats of learning.

The following chapter provides a review of the research design and rationale, research methodology, and the recruitment and sampling procedures. Also, reviewed in the next section was the data analysis plan, threats to validity, ethical procedures, and dissemination of findings.

Chapter 3: Research Method

The purpose of this quantitative research study was to investigate the magnitude of the knowledge-related effect measurements on stakeholder performance outcomes in a business management discipline. I used a meta-analysis to explore student performance data gathered from core business courses offered in both traditional and online formats. This chapter includes discussions of the methodology and research design, and explanations of the sampling and sampling procedures, and data collection and analysis, and a description of the study recruitment procedures. In addition, outlined in this chapter are ethical considerations associated with the research study data.

Research Design and Rationale

It is important to reiterate the hypothesis, research question, and variables to understand the research design and rationale of the study. To examine whether there was an identical, increased, or decreased effect when combining studies, I evaluated student performance in both an online and traditional format. The results were an indication of how online core courses in business fair against their traditional counterparts.

The central question I addressed in this research study addressed was:

RQ1: What knowledge effect on stakeholder performance does both an online and a traditional format have in a business discipline?

The associated hypothesis and null hypothesis was:

Ho1: An online and a traditional format will not have a significantly low, middle or large effect on stakeholder performance outcomes in a business discipline.

Ha1: An online and a traditional format will have a significantly low, middle or large effect on stakeholder performance in a business discipline.

The independent variable in this research study was the online program and the final course grades. The dependent variable was the effect result on student performance outcomes. A meta-analysis was the research design I used in this research study. Burns and Burns (2008) postulated that a meta-analysis is an objective and quantitative method for combining and comparing previous studies on a topic, and creating and observing an overall finding. The effect size was the difference between the means for the independent variable (final course grades) and the mean for the control group (traditional course format), divided by the pooled standard deviation (Schwartz, 2012). Using the results of the meta-analysis will allow for an interpretative decision on how to implement process management to improve the comparability on student outcomes offered in both an online and a traditional format.

In the process of a meta-analysis, two to hundreds of research studies are needed to gather an inference to the research question. A meta-analytical approach included identifying relevant variables, locating pertinent research, and then observing a theme to conduct the analysis (Burns & Burns, 2008). Included in this meta-analysis were characteristics such as selecting studies, calculating effect sizes, and interpreting their meanings. Since the research question was looking to address whether a large, medium or small knowledge-related effect result exists when combining research studies that measure the effectiveness of student learning outcomes, this meta-analysis produced a summary estimate effect.

This research design was important to my goal of advancing information in the business education community. According to Wolf (1987), systematic reviews eliminate biases found in individual research studies. Systematic reviews may assist in managing student learning outcomes which can improve policy and procedures made by the provost and administrators within colleges and universities. O'Mahony and Garavan (2012) insisted consistent auditing of performance was imperative in the implementation of quality management systems. To accomplish this, the system requires a sustained effort and continuous leadership. Focusing on a division with an incremental approach in managing student outcomes, rather than implementing a wide approach, results in success (O'Mahony & Garavan, 2012). Conducting this systematic review was an incremental approach to identifying the success of online core business management courses.

The goal of this meta-analysis was to investigate the magnitude of the knowledge-related effect estimate on student learning outcomes of courses offered in a dual instructional mode. The choice to use a meta-analysis was justified because of the need for a systematic review to synthesize and combine data to provide a magnified view of the data. Because there was an absence of data on student learning outcomes for courses offered online and traditionally in a business discipline, business education programs might have used out of date information in decision making.

Methodology

Identifying and defining the target population is a central step in determining the appropriate research methodology. The target population of this research study included student performance outcomes generated from online and traditional business disciplines.

I used student performance outcome data from many individual studies; it was thus important to define which student outcomes would be a part of this meta-analysis research study. Student learning outcomes were significant considerations for practitioners in determining the strength of a degree program. Understanding the knowledge-related effect results of the course delivery format may increase administrators' ability to predict how well students might perform in a business core course in the future.

Population

To determine the knowledge related effect measurements on student performance, I evaluated effect sizes combined from approximately 20,000 participant studies. The results were based on the mean differences between the online and traditional course final grades. The participant studies consisted of individual archival data. If the data met the inclusion criteria, mean course grades, standard deviation, number of students, and provided these results for both online and traditional courses, I included them as part of the population. The online interventions provided insight as to whether there was a small, medium, or large knowledge effect.

Sampling and Sampling Procedures

The goal of this research study was to obtain an unbiased collection of peer-reviewed studies by which a conclusion reached based on evidence determine the necessary steps to improve the comparability of modes of instruction. During sampling, I reviewed the peer-reviewed literature to determine the feasibility of performing a meta-analytical study. I selected relevant studies for the review to conduct the meta-analysis. I

determined relevancy by combining similar studies and determining if the studies were a representative of a literature sample. Burns and Burns (2008) stated stronger effects were found in journal articles which contributes to unbiased representation.

I used the following methodology to define data eligibility: the time-frame of publication, search criteria, subjects, and the target number of articles to identify study samples in the meta-analysis. My key strategy was to identify an explicit set of inclusion and exclusion criteria. Criteria provided a foundation for the study by guiding what research data to include or exclude. The criteria defined the population that I used to uphold the rules of transparency and make conclusions. The criteria for this inclusion sample encompassed various definitions of constructs of interest including data eligibility, the time-frame of publication, search criteria, subjects, and the target number of articles.

Sample characteristics included research studies that assessed student learning outcomes based on final grades of the course. Since there are student learning outcomes based on other predictors, identifying studies that investigated student learning outcomes offered traditionally and online in a business discipline dictated inclusion in this research study. Final grade results were evaluated to determine the effect estimates on student learning outcomes. This research study contains data that evaluated final grades to investigate student learning outcomes. I used data from articles published articles from 2005–2015 to provide a broad range of peer-reviewed literature.

I completed a power analysis to ascertain the number of articles that should be compared and combined in this meta-analysis. The level of achieved power was 1. The

power analysis revealed a confidence level of 95%, with a student learning population of 22,338, concluding a sample size of 210 participants, 105 online students and 105 onsite students (The Survey System, 2013). This sample size approximately equated to 10-50 peer-reviewed articles as the initial the target.

I used a search of the following databases to identify the study samples: Google Scholar, ProQuest Central, Academic Search Complete, ScienceDirect, ERIC, EBSCOhost, Education: a SAGE full-text database, Emerald Management, SAGE Premier, SAGE Stats, Education Research Complete, ED/IT Digital Library, Joanna Briggs Institute EBP, Oxford Education Bibliographies, Taylor and Francis Online, Teacher Reference Center, Education Research Studies, Business Source Complete, and ABI/INFORM Complete.

After gathering the peer-reviewed data, the next step was to narrow the research to a relevant sample of articles. I assembled a total sample size of at least 210 participants using searches for keywords such as *student performance outcome, student learning outcomes, stakeholder management, final exam comparisons, online and traditional instruction, business disciplines,* and *randomized and non-randomized final course grades.*

Archival Data

To secure necessary permission for retrieval of study information, I used the following procedure: (a) the online library of Walden University provided a database of peer-reviewed information, (b) a username and password I obtained from the university allowed for access to the online library and databases of Walden University.

I retrieved information from the following databases after signing into the online library of Walden University: Google Scholar, ProQuest Central, Academic Search Complete, ScienceDirect, ERIC, EBSCOhost, Education: a SAGE full-text database, Emerald Management, SAGE Premier, SAGE Stats, Education Research Complete, ED/IT Digital Library, Joanna Briggs Institute EBP, Oxford Education Bibliographies, Taylor and Francis Online, Teacher Reference Center, Education Research Studies, Business Source Complete, and ABI/INFORM Complete.

Instrumentation and Operationalization of Constructs

I used several data collection tools in this meta-analysis. The data collection tools used calculated scores, and assessed reliability and validity of the student data. Raw data was available, and I have included a detailed description of data that comprise each variable in the study. My primary goal for this meta-analysis was to make inferences and generate possible results from across multiple studies. It was necessary to collect and analyze appropriately to synthesize research information properly. The relevant study characteristics were coded to begin data collection and analysis of multiple studies. This process assisted in predicting the variation of effect sizes.

I created a coding form (Appendix A) to identify the variables in each selected research study for the meta-analysis. The coding form was adapted as an example from the Applied Meta-Analysis for Social Sciences Research Text (Card, 2012). The coding manual (Appendix B) also was modeled after the Applied Meta-Analysis for Social Science Research Text (Card, 2012). The coding form provided a detailed account of the collection of instructions informing how data reported in research studies were quantified

for inclusion in the meta-analysis. The coding manual provided guidance for me to transfer data from the research study to coding interface, ensuring consistency across multiple articles.

Data Analysis Plan

The following data analysis plan in this research study was an explanation of descriptive and inferential exploration, statements of hypothesis related to each research question, description of parametric, non-parametric, or analytical tools used, and an explanation of the data collection processes. The difference between the mean for the treatment group (online format) and the control group (onsite format) was evaluated to determine effect size to estimate the summary effects using variables from multiple studies. The StatsDirect (Version 2.7.2) software was facilitate using the Summary Effect Calculator (Appendix C). This software assisted in estimating the summary effects used in this variable based models.

Some studies were a better representation of an overall population; because of this, it was necessary to identify the research studies that included more weight when aggregating data results across multiple studies. The weighting of the research studies was based on effect size estimates to understand the results of the meta-analysis. These effect size estimates related to standard errors. Standard errors are based on the standard deviation and sample size. The standard error indicates the uncertainty around the mean.

The Q-statistic was calculated to ensure the rates of even occurrence results are accurate. The Q-statistic also determined whether the null hypotheses was true. According to Kulinskaye and Dollinger (2015), a standard test of homogeneity or Q

statistic was referred to a chi-square distribution with k – 1, degrees of freedom. K is equal to the number of research studies. A data cleaning process was performed to guarantee the inclusion of the proper data into the StatsDirect (Version 2.7.2) software program. The software was used to receive a summary effect estimate. The data cleaning process compared how the data from each individual study was inputted into the calculator. According to Basu (2000a), the cleaning process compares the published input instructions to how the data from each study data sets calculates into the Summary Effect Calculator. The values reflected an appropriate summary effect estimate using the published input instructions of the Summary Effect Calculator.

The central question seeks to determine whether student learning instructed in an online and traditional format have a low, middle or large effect on stakeholder performance in a business discipline. One hypothesis was embedded within the central research question coupled with a null hypothesis:

1. Hypothesis: The Summary Rate Difference within the meta-analysis will produce an increased effect, where the Summary Rate difference will be greater than 0 based on stakeholder performance outcomes.
2. Null Hypothesis: The Summary Rate Difference within the meta-analysis will not produce an increased effect, where the Summary Rate difference will not be greater than 0 based on stakeholder performance outcomes.

The statistical test retrieved summary effect sizes to test the hypothesis. Calculated were the effect size measurements from each individual research study. These differences were recorded and converted to a scale of magnitude using the Summary

Effect Calculator. The results were investigated to determine whether the treatment group (online format) had an identical effect to the control group (onsite format) which produced a rate difference of 0. Rate difference was less than 0 signifying a low effect.

Threats to Validity

Internal validity reflects the extent to which a conclusion is based on in a research study. Internal validity assures inferences made regarding cause and effect with the less chance of confounding. Confounding refers to the extent in which a research study minimizes systematic error. To assure internal validity, randomized control, and non-randomized final course grades determined by inclusive criteria. The degree of research study homogeneity was relatively high; therefore, the selected studies were suitable to be included in the meta-analysis. In the end, calculations and analysis such as effect size and odds ratios was used to determine the maximum control of reducing confounding.

An effect size is a difference between the mean for the treatment group and the mean for the control group divided by the pooled standard deviation (Schwartz, 2012). According to Burns and Burns (2008), when conducting a meta-analysis, the effect size was compared across studies to provide a useful effect size in which results from various studies can be transformed, compared or combined. From the effect sizes, inferences were made that determined whether the hypothesis was rejected or failed to reject. These results come in the form of an increased, decreased, or neutral effect based on the means differences in scores.

The study results that were evaluated are from non-randomized final course grades. It was important to utilize effect sizes that were useful for meta-analysis of single

variables. Single variables, per Card (2012), are used with only one variable being changed from baseline to treatment conditions. There are three types of information regarding single variables: (1) the standard deviation was a continuous variable (2) the mean level of individuals was a continuous variable, and (3) the proportion of information falling into a category of a categorical variable (Card, 2012). This research study focused on obtaining an approximated calculation of mean, effect sizes, and Cohen's Q to evaluate student performance learning outcomes.

Ethical Procedures

This section addressed ethical procedures, synthesis, and data retrieval. Ethical procedures highlighted the comparison of business courses that received different types of instruction, traditional and online formats. The facilitation of protecting human participants and accompanying data must be adjusted to reach the business community. Students, academics, and professionals are the three sectors addressed in the ethical development and decision-making within the business education community (Borkowski & Ugras, 1998). In this meta-analysis, empirical data from 2005-2015 was retrieved that included descriptive materials such as gender, age, and business course information. The retrieval method applied in this study led to summary statements of secondary information establishing connections among the data.

The following describes some of the guidelines adhered to in communicating informed consent for individuals in an education program:

1. “Education researchers conducting research obtain and document written or oral consent from research participants or their legally authorized representatives.
2. Education researchers may seek waivers of consent when (1) the research involves no more than minimal risk for research participants, and (2) the research could not practicably be carried out were informed consent to be required.
3. Education researchers may conduct research in public places or use publicly available information about individuals (e.g., naturalistic observations in public places, analysis of public records, or archival research) without obtaining consent. If, under such circumstances, education researchers have any doubt whatsoever about the need for informed consent.
4. In undertaking research with vulnerable populations (e.g., children, youth, special needs students, recent immigrant populations), education researchers take special care to ensure that the voluntary nature of the research was understood and that consent or assent was not coerced.
5. Education researchers are conversant with and conform to applicable state and federal regulations and, where applicable, institutional review board requirements for obtaining informed consent for research” (AERA, 2011).

Dissemination of Findings

Once the analysis of the research findings commenced, it was necessary to share the outcome results within the business education community and any organization that provided instruction to students seeking a degree in business. For example, the National Institution of Learning Outcomes Assessment continuously call for publications of research studies on student performance on their website. Publication in journals and dissemination of findings at different conferences are also avenues to communicate the effects of process management on stakeholder performance.

The following is a plan that outlines the disseminating findings:

1. Publication in Journals – Study findings will be published in journals that serve the business education community. Publication allows peers and leaders in the business management field to assess the acceptance of the research study. This research study, if accepted, contributes to the existing body of knowledge allowing access by educational personnel that make decisions. The following is a list of journals that publish research on student learning outcomes: Online Journal of Distance Learning Administration, Journal of Business Education, and Journal of Education for Business, and the Academy of Educational Leadership Journal.
2. Dissemination to Accreditation Agencies – The Association to Advance Collegiate Schools of Business (AACSB) and The Accreditation Council for Business Schools and Programs (ACBSP) are accreditation agencies that focus on high standards of achievements regarding business schools around

the world. If accepted, the information will be distributed to the Department of Education Business Programs responsible for the improvement of the academic teaching of the business curriculum.

3. Walden University Residency Sessions – Presentation of research study findings at the residency session to faculty and students. By providing this information, awareness will increase regarding the possible student performance outcomes when taking certain business course online.

Summary

Student performance outcomes are significant considerations when determining the strength of a degree program. Tesone et al. (2003) stated student performance outcomes in business literature focused primarily on transitional approaches as opposed to learning outcomes. Final course grades were utilized to determine the effect on student performance outcomes. Chapter 3 focused on presenting a research methodology to synthesize study results on student performance outcomes offered in an online and traditional format business course. The online program intervention was the independent variable, and the effect on the stakeholder performance was the dependent variable. The traditional course served as the control variable while the online course served as the treatment variable that was the difference between the means. Scales evaluated from non-randomized research results (final course grades), where effect size measurements were calculated using StatsDirect (Version 2.7.2) software. StatsDirect (Version 2.7.2) also provided a magnitude of a single summary scale.

The next chapter provided the process by which data was generated. Research findings were presented, and how data collection instruments and analysis were assessed. A synopsis of statistical findings, organized by the hypothesis and research questions, contained results that emerged from the synthesis of the main hypothesis. Results illustrated by tables and figures were also displayed in the next chapter. Lastly, univariate analysis, assumptions, and meta-analysis results are exhibited.

Chapter 4: Results

Introduction

The purpose of this quantitative research study was to examine the knowledge-related effect of student performance outcomes in a business discipline offered in both an online and a traditional format. I considered the final grades of students in online courses to determine whether distance-learning and traditional courses can benefit from process management. Process management is a key factor in evaluating business programs. Process management defines and evaluates processes while identifying opportunities for improvement. Processing the effects of stakeholder performance determines the efficiency of learning in an online and traditional program. In this research study, I combined effect sizes to determine the magnitude of a knowledge-related effect on student performance as it relates to the modality of instruction.

The primary research question was: What knowledge effect on stakeholder performance does an online and traditional format have in a business discipline? Within the central research question was one hypothesis that had one corresponding null hypothesis.

The null hypothesis (Ho) for the primary research question stated an online and traditional format would not have a significantly low, medium, or large effect on student performance in a business discipline.

The alternative hypothesis (Ha) for the primary research question stated an online and a traditional format would have a significantly low, middle or large effect on student performance in a business discipline.

In Chapter 4, I discuss results of the study including a report on archival data collection. I present the results from the data as calculated by a summary effects calculator. I discuss my evaluation of descriptive demographic statistics, assumptions about the investigation of effect sizes, and any unexpected findings from the data. In closing, I summarize the results as they relate to the research question and hypotheses.

Data Collection

Data collection for this research study involved a process that recognized relevant articles, selected applicable articles, and abstracted data from the appropriate group of studies to obtain significant data. Participants in the archival data completed either an online or traditional course of study that produced final grades. The final course grades served as a means of comparing student performance to determine whether online courses produced similar results to traditional courses. A positive comparison signified efficiency of learning, while a negative statistical outcome signified the potential need for the implementation of process management. Since a low, medium, or large effect existed, I found evidence of the need implement process management to increase comparability across course formats. Because I evaluated previously published research articles, there were no discrepancies in data collection that needed a description in this research paper.

Demographics of the combined studies produced age and GPA statistics that could indicate a lack of diversity between participants from individual studies. These demographic discoveries might limit the generalizability of any findings. However, the purpose of this study was to examine the knowledge-related effect size results of student

performance on mode of instruction and the impact the results have on social change. Although demographic findings are only presented in this study, I recommend evaluation of their effect on student performance in future studies.

Identification: Relevant Articles

I used a search of Walden University's online library database to identify relevant articles that focused on the topic of effects on process management of stakeholder performance. The search took place over a 4-month period, during which I identified 85 scholarly peer-reviewed articles using the keywords: *business management, traditional and online formats,* and *final course and exam grades.* Based on the inclusive material, I reduced the 85 articles to 10 articles that provided mean course grades, standard deviation, number of students, and some demographic information.

I used the following online library databases to search for and access these articles: Google Scholar, ProQuest Central, Academic Search Complete, Science Direct, ERIC, EBSCOhost, Education: a SAGE full-text database, Emerald Management, SAGE Premier, SAGE Stats, Education Research Complete, ED/IT Digital Library, Joanna Briggs Institute EBP, Oxford Education Bibliographies, Taylor and Francis Online, Teacher Reference Center, Education Research Studies, Business Source Complete, ABI/INFORM Complete, Database of Abstracts of Reviews of Effects (DARE), and Cochrane Database of Systematic.

Identification: Applicable Articles

All research studies that met the inclusion criteria were selected from the relevant search results (business management courses, randomized control, nonrandomized and

final course grades, published in peer-reviewed journals from 2005–2015) and included in the data abstraction process. I identified ten studies through the relevancy process that was selected for the data abstraction and meta-analysis **(**Appendix E). The ten journal articles provided the necessary basis to calculate the effect sizes and fixed rate from the individual studies. For this study, effect size represented the final course grades of the online course format minus the final course grades of the traditional course format divided by the pooled standard deviation. I selected the ten journal articles in part because of the opportunity to calculate the inclusive materials such as the number of students, mean final course grades, and the standard deviation. All studies within this meta-analysis utilized final courses grades as an assessment event and evidence of the efficiency of learning.

Data Abstraction

The use of a coding form facilitated the data abstraction. The coding form was the instrument I used to assist in the collection and synthesis of data, and the identification of variables in each study selected for the meta-analysis (Appendix A). The coding form was adapted from an example provided by Card (2012). I also used a coding manual for instructions about how data is reported in comprehensively quantified research papers (Appendix B). The coding manual was another instrument adopted form from *Applied Meta-Analysis for Social Science Research* (Card, 2012). The use of these instruments was a key resource in the organization of data.

Data Collection: Discrepancies

During the data collection process, no discrepancies came about when comparing the initial plan with the scheme I implemented. The original data collection plan included a process that identified relevant articles, selected pertinent articles, and articles abstracted from the correct set of studies to obtain applicable information. Per Little and Rubin (2014), data that contains standard deviations, mean scores, and the number of participants are ideal and provide conditions for a less biased result and interpretation. Excluded from this research study were articles that exhibited the absence of the inclusive material.

Study Results

Descriptive Sample Characteristics

The sample population was drawn from data which served as the main descriptive characteristic. This data included studies that regarded both traditional and online instruction rooted in a business management discipline, and studies that provided final grade assessment. Also, eight of the 10 studies provided demographic information similar to that which I have recommended for exploration in future research. Although there were similarities in the sample population's descriptive characteristics, I examined the ten studies to ensure that descriptive characteristics existed.

Huh, Jin, Lee, and Yoo (2010) examined systematic differences of effects in student performance measured by final grades in online and offline courses in an accounting course. A 3-year period of data was investigated using univariate analysis

and regression models. The study measured student performance, and Hun et al. (2010) offered the following descriptive characteristics in the online student population:

> 54 online learners with ages ranging from 21 to 39 (*M* = 30.20, *SD* = 8.381). The GPA of the online students ranged from 2.56 to 3.645 (*M* = 3.016, *SD* = 0.539). 40 female students accounted for 74% of the online course while 14 male students accounted for 26% of the course (p. 82).

Hun et al. (2010) also described the following sample characteristics in the offline student population:

> 37 offline learners with ages ranging from 19 to 34 (*M* = 26.62, *SD* = 6.958). The GPA of the offline students ranged from 2.77 to 3.62 (*M* = 3.195, *SD* = 4.25). 22 female students accounted for 59.46% of the traditional course while 19 females accounted for 51.3% (p. 83).

According to Hun et al. (2010), the empirical results based on stakeholder performances between online and offline learners displayed no significant differences in test scores. However, the researchers found that the demographics might indicate that student performances may play a role in the success of the course. Separating grades and demographics between male and female students also returned results that affected final test scores.

Varela et al. (2012) explored the impact of teaching approaches in management education. The study results were extracted from a southern regional university. Compared in this study were online versus classroom student performances using the

courses final exam average. The following sample characteristics existed in the student performance population:

> 60 traditional students participated in a management education course with ages ranging from 19.59 to 29.18 (M = 24.07, SD = 5.11). The GPA of the traditional section of the course had a range of 2.25 to 3.27 (M = 2.76, SD = .51). 72 online students enrolled in the distance portion of the management education course were in ages ranging from 18.82 to 35.48 (M = 27.15, SD = 8.33). The GPA of the online courses ranged from 2.41 to 3.45 (M = 2.93, SD = .52) (p. 410).

According to Varela et al. (2012), the difference in exam scores only varied by two percentage points, signifying no statistical differences between the online and traditional courses. Comparisons within this study determined students in the traditional course had a higher-grade point average and were lower than those of the online course. Students in the online course, about age, were two years older than the students in the traditional course.

Scherrer (2011) presented a quantitative study comparing hybrid, online, and traditional student performances. The researcher evaluated final course grade percentages for four sections of an undergraduate statistics course. One section was hybrid, one section was traditional, and two sections were online, labeled online I and online II. For the purpose of this meta-analysis, I extracted Scherrrer's data from only traditional and online courses. Scherrer (2011) provided the following descriptive characteristics:

> At baseline, the traditional sections and two online sections of the course had a combined total of 58 students. 20 students were enrolled in the traditional course, 15 students were enrolled in the online I course, and 23 students were enrolled in the online II course. The results of the research study were spread across a spring and fall semester. The mean GPA for the traditional course was 2.9. The online I course had a GPA of 2.74. The age of the traditional course ranged from under 25 years old to over 40 years of age. 81% of the students in the traditional course were younger than 23 years old. 13% were between the ages of 25-39 while 6% were 40 years of age and over (p 108).

Scherrer (2011) used major, grade percentage, and the distance to the campus as possible predictors of student performance in the course. The online I course shared the same age range; however, the bulk of the students were in the 25-39-year-old age bracket. The online II course shared a concentration of under 25 students with a percentage of 52%. A multiple linear regression was used to analyze the demographics data to assess student performance. According to Scherrer (2011), differences in student performances were related to some of the student demographics as opposed to course delivery methods. The traditional course compared to the first online course returned a p-value of .029. The comparison for the second online course returned a p-value of 0.00. Both p-values signified there was no evidence against the null hypothesis. This means based on the results, the author failed to reject the null hypothesis.

Research by Farinella (2007) explored stakeholder performances in an introductory finance course. The purpose of this study was to examine performances of

students and professors in an online and traditional course. According to Farinella (2007), the results provided widespread implications in the management of university administrators, faculty, and students. The following sample characteristics of the student population were described:

> The study participants age ranged between 21 to 24 years old (*M* = 23.17, *SD* = 1.85) while the online course reported an age range of 21 to 31 years old (*M* = 25.58, *SD* = 6.58). Among these participants, the reported cumulative GPA for both the traditional course ranged from 2.2 to 3.2 (CGPA = 2.73, SD = .49) with the online course producing a range of 2.3 to 3.5 (CGPA = 2.92, SD = .62). There were 103 traditional students investigated that generated a mean course score of 64.26. 33 online students generated a mean course score of 46.97 (p. 43).

In reviewing the results of the final course grades, online students enrolled in the introductory finance course scored significantly lower than the students in the traditional course. Statistical significant differences occurred in the mean scores which might indicate finance is not a subject within the management discipline that should be taken online. Based on the results, efficiency of learning was not taking place.

Campbell, Floyd, and Sheridan (2011) investigated student performance and attitudes towards courses taught online and onsite in an accounting course. The researchers assessed student performance to determine the degree to which students retained and learned the course material. The study measured the mean test scores between an online and traditional financial accounting course in which Campbell et al. (2011) described the following sample characteristics of the onsite student population:

> 120 students took the final exam (M = 53.87, SD = 14.97). The respondents were comprised of 38 male students and 49 female students (p. 48).

Campbell et al. (2011) also described the following sample characteristics of the online student population:

> 14 students took the final exam (M = 86.06, SD = 15.33). The respondents were comprised of 3 male students and 11 female students. 134 students took the final exam; however, only 101 students participated in completing the course and the instructor evaluation (p. 48).

After calculating the mean scores of the onsite and online financial accounting course, the results determined the online students outperformed the onsite students providing a significantly higher student outcome rate. Efficiency of learning was evident in the online component; however, the onsite component was not experiencing the same results. This course would benefit from the implementation of process management to even the comparability of student performance.

Assessment of online and traditional classroom modalities was explored in this research study. Spivey and McMillan (2014) investigated student efforts and performance using testing procedures in a finance course. Student effort was measured using the universities Blackboard course management system. Student performance was examined utilizing test grades from the online and traditional components of the course. The results returned the following descriptive statistics:

> At baseline, the two modes of instruction returned a mean cumulative GPA (CGPA) of 3.03 with a standard deviation of .61. In the traditional course the

> CGPA was 3.07 with a standard deviation of .51. The online course had a CGPA of 2.92 with a standard deviation of .71. 174 student outcomes were assessed to determine the statistical significance in their performance. The mean course grade for the 174 students returned an average of 74.36 with a standard deviation of 10.45. The traditional course had 126 students with an average of 73.92 while the online course had 48 students with a mean score of 74.51 (p. 451).

A significant correlation between testing and GPA existed (Spivey & McMillan, 2014). The authors also determined students with higher GPA's displayed more of an effort in the course. However, the findings suggested that neither course grades nor effort had a statistical significant correlation. Overall, there was no significant differences between mean course scores of the traditional and online modes of instruction.

Gibson (2008) steered a comparison analysis of student outcomes in an MBA management course. The course was offered traditionally and online. The research study took the form of a quantitative investigation aimed at evaluating student outcomes on final grades and student satisfaction. Three courses were instructed by the same Professor in the examination of the MBA management course. Two classes were held in a university approved facility in Orlando while the other class took place completely online. The two traditional courses were combined in the analysis while the online class was used as a comparison. The following descriptive characteristics were extracted:

> At baseline, 38 students were enrolled in the MBA course. 14 classroom students participated in the study which generated a mean score (M = 89.7, SD = 4.95) while 24 students made up the online portion of the investigation (M = 89.6, SD =

> 1.65). The authors made the distinction between the mean final exam scores stating traditional students outperformed online students by 1% (p. 5).

The final observation determined the two formats were comparable with no statistical significance in student performance outcomes. This observation constitutes efficiency of learning in the comparison of online to traditional course format.

Dotterweich and Rochelle (2012) explored an instructional television (ITV), online, and traditional course delivery to determine success factors in a business statistics course. Although the authors utilized the ITV modality in this analysis, only traditional and online final grade results were explored and extracted. The researchers analyzed multiple sections of a statistics course constructed from 2004 – 2008. Data was obtained through faculty records of student performance. Dotterweich and Rochelle (2012) described the following sampling characteristics of the online and traditional community:

> At baseline, 162 students were recorded, 57 in the traditional course, 59 in the online course, and 48 in the ITV course. The participants age in the traditional course ranged from 19 to 27 years (M = 23.16, SD = 3.70). The participants mean age of the online course ranged from 19 to 33 years (M = 25.81, SD = 6.83). Females made up 46% of the traditional course while 61% of females were enrolled in the online course. The mean GPA for the traditional course was 2.82 with a standard deviation of 0.57. The online course had a GPA of 2.92 with a standard deviation of 0.46. The mean score of the final course grades for the traditional class was 79.13 with a standard deviation of 11.27. The average final

> course grades of the online course were 77.66 with a standard deviation of 10.9 (p.131).

All final course grades were used as an assessment of student performance. Final grade analysis determined online students were more likely to repeat the statistics course than traditional students. This analysis indicates there was a significant difference in the efficiency of learning between the two modes of instruction. Implementing process management would increase the efficiency of learning in the distant instructional component.

Larson and Sung (2009) directed a three-way comparison of traditional, blended, and online course formats in a management. Also, the authors measured student satisfaction, learning effectiveness, and faculty satisfaction. The primary purpose of the research article was to determine if there was a significant difference in student success in an introductory management information systems course. For the purpose of this meta-analysis, only the traditional and online course format data was extracted. Larson and Sung (2009) reported the following descriptive statistics:

> 168 students participated in the three delivery modes of the management course; however, only 85 students were evaluated that make up the online and traditional modes of instruction investigated for this research study. 65 students participated in the traditional class, and 22 students participated in the online class. Stakeholder performance was measured using final grades along with predictors such as age and ethnicity to determine learning efficiency. The traditional course returned a mean score of 84.21 with a standard deviation of 1.05. The online

> course returned an average score of 84.20 with a standard deviation of 1.91 (p.37).

The results of this study indicated there was no significant differences between the traditional and online modes of instruction. According to Larson and Sung (2009), these findings are consistent with other studies that compare online and traditional courses and return no statistical difference. These statistical findings cannot be generalized to all situations; however, the results support the validity of the online course delivery and presents efficiency of learning.

Ruth and Conners (2010) led a study at a small Midwestern university on distance and non-distance learning. Students were enrolled in a Management 101 - Introduction to Business course. Compared in this research study was learning outcomes based on student performances. The author's goal in this study was to compare contributing factors of success in a traditional classroom setting to a distance learning course. The Management 101 results are the only results that was extracted for this meta-analysis. The authors provided the following descriptive information:

> At baseline, 85 students were enrolled across four different Management 101 courses. Two courses were taught in a distance learning setting, and two were taught in a traditional setting. 44 students were enrolled in the distance learning course, and 41 students were enrolled in the traditional classroom. The traditional course returned a mean score of 2.18 with a standard deviation of 1.281. The online course had an average score of 2.71 with a standard deviation of 1.101 (p.53).

According to Ruth and Conners (2010), the final mean scores of the Management 101 class contradicts results of other distant learning research studies. Students in the online course garnered a significantly higher mean score than the traditional course. The results of this study indicated the efficiency of learning had been met. However, because this study contradicts most studies that state there is no difference between online and traditional course instruction, it was important to conduct a systematic review to determine if this was an isolated incident. Systematic reviews provide this evidence in producing quantitative results of pertinent individual data. This study also provided evaluative properties that required process management implementation. The results clearly suggest traditional instruction needs or requires management exploration.

Sample and External Validity

External validity seeks to determine whether the study results can be generalized to a population. Because it was impossible to measure an entire population, measurements from a sample are extracted for evaluation. This study focuses on a subset of the targeted population. The between-study homogeneity of this research was relatively high. The selected studies were all suitable for inclusion in the meta-analysis. Please see the previous section in Chapter 3 for the inclusion components of each research study.

Univariate Analysis

Univariate analysis presented one variable in which descriptive and summary data was described. The basic univariate analysis included a summary of study participant percentages that were part of the student performance population and the percentage that

final course grades were extracted. The univariate analysis concluded 1,051 of students all resulted in a summary effect size. The traditional and online participants were calculated in the summary effect sizes and Cohen's Q study results. Covariates due to the consistency of final course grades do not exist in this study.

Assumptions

Assumptions in a quantitative study are concerned with characteristics of data which refer to a variable type, correlation trends, and distribution. The results from the meta-analysis are aimed at exhausting pertinent literature. It can be assumed that studies within the meta-analysis have identical or at least the same methodological approaches and sample characteristics. Additionally, a high degree of between-study identity of all research in the meta-analysis was assumed.

Meta-Analysis Results

The summary descriptive characteristics and statistics of the study population were defined in this meta-analysis. Final course grades were measured using the mean scores of traditional and online participants. The summary descriptive characteristics of the research study population shared similar information about the reported mean age and mean GPA of the students (Table 2). The majority of these research articles shared this similar information. These descriptive characteristics were used as predictors in individual studies as an alternative to evaluating student performance outcomes. 643 student participants in the traditional course generated a mean age of 20.509 and an average GPA of 2.55. 408 student participants in the online course returned a mean age of 22.009 and a mean GPA of 2.89. The 1,051 students in the meta-analysis did not

present consistent demographic information such as gender, race, GPA, or college level of completion.

The descriptive summary statistics for this meta-analysis identified mean scores of final course grades along with standard deviations and number of participants (Table 3). The final course grades were the data used to conduct the meta-analysis. The statistics for this meta-analysis included data from online (treatment) and traditional (control) events that were defined and used to evaluate student performance. Effect size measurements and pooled standard deviation provided a calculated summary pooled effect. All summary descriptive characteristics was calculated using the meta-analysis calculator provided by StatsDirect (Version 2.7.2)

Table 2

Summary Descriptive Features of the Meta-Analysis Study (Eight Studies Included)

Study	Mean Age		Mean GPA	
	Online	Traditional	Online	Traditional
1	30.204	26.622	3.106	3.195
2	25.53	23.17	2.92	2.73
3	34.10	33.33	2.7	2.9
4	------	------	2.92	3.07
5	27.15	24.07	2.93	2.76
6	25.81	23.16	2.92	2.82
7	27.16	25.13	2.74	2.90
8	28.13	29.10	-----	2.90

Using the StatsDirect (Version 2.7.2) summary effect calculator, the effect sizes was generated and compared to determine an interpretation that answers the research question of whether traditional and online courses have a positive or adverse effect on stakeholder learning performance. The answer to the research question also determined whether the efficiency of learning was evident in online courses. Table 4 lists the combined effect sizes of each archival study in the meta-analysis. Based on the results, process management will modify online course delivery with suggestions on how to improve stakeholder performance and efficiency of learning.

Table 3

Summary descriptive statistics of the meta-analysis population (all ten studies included)

Study	Traditional (Control)			Online (Treatment)		
	n	Mean Grade	St. Dev.	n	Mean Grade	St. Dev.
1	37	74.784	12.937	54	70.009	12.944
2	60	78.10	9.32	72	75.42	8.87
3	20	82.0	11.8	38	67.8	16.0
4	103	64.26	13.57	33	46.97	16.10
5	120	53.875	14.974	14	86.0625	15.338
6	128	74.54	10.36	48	73.91	10.56
7	14	89.7	4.95	24	88.7	1.65
8	57	79.13	11.27	59	77.66	10.9
9	41	2.18	1.281	44	2.71	1.101

10	63	84.21	1.05	22	84.20	1.91	

The meta-analysis effect size calculator returned effect sizes with a pooled effect size d+ and a result for non-combinability of studies (Cochran's Q) (Appendix D). Each result gave insight as to whether the online course was comparable to the traditional course and signified whether the efficiency of learning in student performance was taking place. Of the 10 studies, only two studies appeared to return a statistical difference between online and traditional modes of instruction.

Table 4

Effect size measurement results on mode of instruction meta-analysis

Study	Effect Sizes
Study #1	-0.37
Study #2	-0.30
Study #3	-1.01
Study #4	-1.22
Study #5	2.14
Study #6	-0.06
Study #7	-0.31
Study #8	-0.13
Study #9	0.44
Study #10	-0.01
Summary Effect Size (d+)	-0.147368
Cochran Q	94.479422
I^2 (inconsistency)	90.5%

The d+ pooled estimate was an average effect size that used a weighted average based on variance. The summary effect size of the individual studies was multiplied by the weight

of the individual summary. According to Cohen (1977), effect sizes of 0.2, 0.5, and 0.8 represent a minimal, moderate, and meaningful effect respectfully. The difference between the two events can be considered statistically significant at the 95% confidence level if the difference was greater than 1.96 multiplied by the standard error. In this study, the summary effect size of (-0.147368, 95% CI [-0.284 - -0.0103], SE = 0.01) was calculated.

Cochran's Q tested the heterogeneity which referred to the variation in study outcomes between research studies. Cochran's Q is a classical measure of a weighted sum of squared differences between individual study effects and the pooled effect across studies. Q has a low power as a comprehensive test of heterogeneity. The I^2 statistics is a description of the percentage variation across studies due to heterogeneity as opposed to chance. I^2 is the intuitive expression of the inconsistency of study results.

The statistical findings were arranged by research question and hypothesis. The research question for this study was: what effect does both an online and a traditional course have on student performance? The null hypothesis stated the meta-analysis would not produce an increased effect size measurement, where summary rate differences would be greater than 0. The effect size returned a value less than zero which signified the difference between online and traditional learning was minimal. The Cochran's Q signified $p < 0.0001$ which determined the proportion of final course grades are statistically different, and $I^2 = 90\%$ represented substantial heterogeneity. Based on these results, we reject the null hypothesis because of the minimal significance between the experimental and control groups.

Summary

This research study questioned, does both an online and a traditional mode of instruction have a knowledge related effect size result on stakeholder performance. To determine whether a small, medium, or large related effect existed, data collection of relevant and applicable data was identified for statistical observation. A search was conducted over a four-month period to identify relevant and applicable articles that focused on this topic. 85 scholarly peer-reviewed articles were identified using keywords: student performance outcome, online and traditional instruction, stakeholder management, and final grade comparisons.

Descriptive sample characteristics attempted to identify traits that were shared across journal articles. All studies that met the inclusive criteria of the study were selected from the relevant search results (mean final course grades, standard deviations, and several student participants published in scholarly journals from 2005 – 2016). The selection of relevant studies occurred over a 7-day period, and the determination to select 10 studies was due to the necessity to calculate effect sizes, summarize sample characteristics, and evaluate statistics from individual studies.

Based on the calculation of the summary rate difference (-0.147368, 95% CI [-0.284 – 0.0103], SE = 0.01) and Cochran's Q (94.479422), online and traditional instruction had a low effect result between the experimental and control group on student performance. Thus, the null hypothesis was rejected, and the alternative hypothesis was accepted. Interpretation of the research study findings, limitations, recommendations for process management, and social change implications was described in Chapter 5.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this systematic research study was to examine the magnitude of the knowledge-related effect that online and traditional formats of instruction have on student performance outcomes. This study took the form of a meta-analysis in which I investigated whether there was a small, medium, or large effect size result on student learning outcomes. In order to measure the effect size on mode of instruction across multiple individual studies, a meta-analysis was piloted that utilized a fixed effect model. The rationale for utilizing a meta-analysis design stemmed from my goal to compare, combine, synthesize, and assess associations of variables across multiple studies. As Card (2012) has noted, a meta-analysis seeks to provide an evaluation mechanism across multiple studies. In this study, I combined data from individual articles based on inclusive criteria, and assessed the data determine their statistical significance.

The main finding from the meta-analysis was that the traditional courses, when compared to the online courses, had a small knowledge-related effect size measurement based on mode of instruction between the two groups. The study showed a fixed effect size of -0.147368, 95% CI [-0.284 - 0.0103], SE = 0.01, which indicated a small statistical significance of events that can be attributed to the modality of instruction. According to Cohen (1977), because the variance between the two rates was smaller than 1.96 multiplied by the SE, a small or minimal difference exist. This study also showed Cochran's Q of 94.479422 and I^2 (inconsistency) of 90%. I used Cochran's Q to assess whether results observed were compatible by chance alone. If Cochran's Q was

significant (usually $p<0.1$), there was evidence of heterogeneity. In this study, Cochran's Q returned a $p <0.0001$ (Appendix D), which indicates its insignificance. I^2 is an index that does not depend upon the number of studies involved, the choice of outcome data, or the choice of treatment such as effect size. I used I^2 to quantify the impact of heterogeneity and assess inconsistency. According to IntHout, Ioannaids, Borin, and Goeman (2015), inconsistency of 50% - 90% indicates that there may be a substantial amount of heterogeneity. However, thresholds for interpretation can be misleading.

Interpretation of Findings

This study filled the gap in literature by providing a systematic review and meta-analysis of multiple studies to assess the effects of process management on student performance. The absence of a systematic review based on student performance in dual modes of instruction has led to discrepancies in the literature. By combining data from 10 individual peer reviewed studies that met specific inclusive criteria, my meta-analysis findings provided an estimate of suggested effect size measurement on mode of instruction. The summary confidence interval and statistical significance were also confirmed by the small SE that I calculated. Another benefit of performing a systematic study was that it is more efficient to communicate the results as a summary sample than it would have been to describe findings for each individual study. In addition, because the included studies met methodological criteria, this meta-analysis can be considered to have a high level of evidence.

Process management is a system that ensures continued improvement in an organization's business practices. According to the Online Business Dictionary, process

management defines, establishes responsibilities, and evaluates the performance of an organization followed by the suggestion of improvement. Some organizations undergo continuous review to make regular minor adjustments. A systematic review is a process of evaluating the performance of an organization to determine whether enhancement or improvement is needed. Processes are underlined as assets of an organization, similar to important information. If processes are assessed properly, the payoff is in terms of enhanced performance of the organization.

Literature on student performance in a business discipline has shown, in most instances, that mode of instruction does not have any bearing on student outcomes. However, some data has shown online learning to be superior to traditional learning. These discrepancies may lead to inaccurate assumptions regarding online and traditional course modes. Smith and Stephens (2010) investigated student performance and its comparability in online and traditional courses. The authors postulated that traditional and online outcomes return mixed results. The found that it was important to evaluate student performance outcomes to ensure quality of course delivery (Smith & Stephens, 2010). The return of mixed results contributed to a lack of a definitive answer as to whether the mode of instruction had a positive or negative effect on student outcomes and performance. Schwartz (2012) evaluated multiple accounting courses to determine the effect result on student performance. Intermediate accounting, income tax, cost/managerial, and auditing were the four courses evaluated. Together the courses outcomes showed no significant difference due to course mode. Although minimal, students in the online course did not perform as well as the traditional students, especially

in the auditing course. This accounting program could benefit from process management in the evaluation of the online program to ensure that efficiency of learning has occurred. Overall, the result showed no significant difference based on mode of delivery. Campbell et al. (2011) revealed unusual results with online courses performing significantly higher than the traditional course. These results were contradictory to most individual results that show that mode of instruction has no bearing on student performance (Campbell et al., 2011). Based on these results, traditional instructions need evaluation to determine a course of action to improve student performance.

In the literature review, I found that overall results of online and traditional courses are the same in most of the individual research articles. No significant differences existed based on mode of instruction; however, there were some anomalies in the outcome of some individual research studies. Conducting a systematic review assisted in addressing these anomalies to retrieve a consistent answer as to whether learning outcomes in a business discipline are affected by the mode of instruction in a small, medium, or large capacity. The low knowledge related effect size measurement outcome on mode of instruction determined that process management, an ensemble of planning and monitoring of a business process, can contribute to ensure efficiency of learning in slightly modifying procedures. Systems thinking teaches us to examine processes by determining what we want the outcome to look like, and then to work backwards to the present to achieve this state (Haines, 2016). According to Senge (2014), in order to change a system after evaluation, an organization needs to redesign the infrastructure by applying theories, methods, and tools to increase its knowledge on how

operations proceed. If these processes are followed, an organization can gradually evolve a new type of system to progress the organization and control the desired outcome.

This meta-analysis has identified the need for implementing process management procedures to increase efficiency of learning in a distance program to be more comparable to traditional instruction. Equivalency theory (Simonson, 1999) provided a framework for distance education highlighting that one should not expect one learner to learn the same as another. Equivalency of learning is important in this theory because it directly affects the distance education field of practice. According to Simonson (1999), equivalency theory holds that distance education, when compared to traditional education, is not identical but is equivalent. In addition to distance education being comparable to traditional education, the learning experiences should mimic each other as well. Students do not learn in the same ways; therefore, the experiences of distant learners and traditional learners should be equivalent but not identical. To ensure efficiency of learning is provided to distant learners, an evaluation such as a systematic review may be used to assess outcomes based on modes of instruction. The more equivalent the experience of traditional and online learners, the more similar the learning outcomes.

The study findings confirmed and supported the importance of the theoretical framework for this research. I gathered data from each of the 10 studies and abstracted them to increase information on overall student performance. Equivalency theory seeks to restructure education; however, the experience of the online student must be complete, satisfying, and an acceptable approach for the learner. Distance education systems must

be designed to allow equivalent learning experiences for both distant and local students. Constant evaluation to determine the effect size measurement on student performance should take place to ensure equivalency and efficiency of learning. This systematic review provided evidence that equivalency of learning in business programs was occurring, based on the low effect size results the modes of instruction had on student performances.

According to the statistical results, a low effect measurement on student performance allowed for the rejection of the null hypothesis based on modes on instruction. When the results call for the rejection of the hypothesis, results are accepted that states an online and a traditional format will have a significantly low, medium, or large effect measurement on mode of instruction in a business discipline. A low effect result signified that the learning environments, based on mode of instruction, were equivalent in student learning experiences with very minor differences.

Limitations of the Study

Many limitations exist during conducting a systematic review. Search, selection, and publication bias are a few of these limitations, in addition to specific inclusion criteria. Within a meta-analysis, search bias can be present. I spent a considerable amount of time searching for individual peer-reviewed articles; however, I may have missed articles when determining which research studies to include in this systematic review. To reduce the possibility of search bias, researchers must incorporate a search strategy which includes specific keywords. I used carefully selected keywords in the search for the necessary studies to be used in this meta-analysis.

Selection bias exist when studies are selected for inclusion in a meta-analysis without inclusion and exclusion criteria being defined. Inclusion criteria included mean differences, sample size, standard deviations, year of study, performance outcomes, and so on. For this research study, I set specific inclusion and exclusion criteria (see Chapter 3). Although specific inclusion criteria were defined during the process of the systematic review, limitations in this research may nonetheless exist. Publication bias existed because many of the research databases included studies that were published within that database. A representative, unbiased collection of studies was my goal in the literature review. The literature review conducted using Walden University library's online resources, and I selected relevant studies from over 25 databases. Because of this limitation to these databases, publication search and selection bias may have existed.

Regarding publication bias, research studies without any statistically significant outcomes probably had less of a chance than those published with statistically significant data. Recently published systematic reviews were found to have a substantial proportion of large systematic reviews (Rothstein, Sutton, & Borenstein, 2006). Higher probability of inclusion for statistically significant results on the estimates was unknown because of a lack of data about the exact nature of the studies (Kicinski, 2013). Although this bias was a significant limitation of this meta-analysis, these biases are frequent in large meta-analytical studies (Kicinski, 2013). Because the system review was relatively small to medium, the effect size result of this analysis was miniscule.

Recommendations

Based on the study results and reflecting on the implementation of process management, there are several recommendations for future research. Practical recommendations are based on the low effect impact mode of instruction has on student performance in a business discipline. Process management in this study focused on the effect measurement on student performance offered in a traditional and online component. To further the evaluation of process management, it is recommended to focus on the implementation of methods to reduce the low effects result on student performance. According to Jeston and Nelis (2014), there is an implementation phase in which the evaluating process improvements are brought to life. Steps to an implementation phase include determining the benefits of management that incorporate a process architecture, establishing cooperative measurements, and then refining and optimizing processes (Jeston & Nelis, 2014). To reduce the low effect size result on student performance, it is recommended to follow the implementation phase of process management.

This research study was a quantitative study that used data variables to determine the effects of process management on student outcomes. It is recommended to explore a qualitative component evaluating live participants utilizing course observation and attitude. Qualitative research is designed to evaluate a population's range of behavior. According to Neuman and Robson (2012), qualitative research is used to gain an insight into underlying reasons and motivations to a situation. Using participants and observing a population provides a different angle of student performance that includes how

participants feel about the course they are enrolled and the faculty that teach the course. Conducting a qualitative study is a recommended approach in which live participants can provide feedback on their course experience.

In addition, this study focused primarily on courses used to obtain a business or management degree. The results determined mode of instruction had a low effect measurement on student performance of students in a business discipline. This study should be expanded to disciplines outside of a business to examine efficiency of learning in other fields of study. Because business literature focuses on transitional approaches between modes of instruction as opposed to student performance outcomes, it was imperative to communicate these results to bridge the gap between business literature and business education. Examining literature in other disciplines should be evaluated to explore the communication between its literature and education.

Hybrid and blended learning should be explored and compared to online instruction to evaluate student performance and efficiency of learning. Courses with an online component have been evaluated to determine the strength of a program based on mode of instruction. Hybrid and blended courses are forms of online instruction that contain traditional components. According to Means, Toyana, Murphy, and Baki (2013), there is little difference between hybrid and blended learning. Conducting a research study on alternative modes of instruction that include online and traditional components reduces the gap in disparages of information.

This study focused on stakeholder performance in a business discipline offered in traditional and online instruction. To increase exposure of online instruction, blended

and hybrid delivery need examination to evaluate efficiency of learning. Further research would address hybrid course offerings and student performance outcomes based on the comparison to traditional and online instruction. The results could determine which mode of instruction provides the highest level of learning efficiency.

Lastly, it is recommended to explore how demographics and sample size relate to this research study. Many researchers use demographics such as gender, ethnicity, GPA, and age to investigate student performance and play a role in the success or failure of student outcomes. According to Derrick, Rovai, Ponton, Confessore, and Carr (2007), white students and students with higher educational attainment are more self-directed in their learning skills. Xu and Jagger (2014) stated men, younger students, and ethnic students need additional support to perform at the same level of efficiency. Including demographics into this study would increase its validity and provide another avenue to explore in process management.

Larger sample sizes increase the validity of a study and provides concrete results that are proven through analysis. Non-random samples reduce external validity of a study. Sample size normally depends on the requirements of the study and the size of the population. Per Clark and Linzer (2015), larger sample sizes provide more information and reduces uncertainty; when the size is increased, the variance is lowered. It is recommended to investigate the change in results based on the sample size being increased.

Several recommendations can be made to further this study by including different aspects to investigate and explore. Process management can be implemented to reduce

the low effect result on student performance. A qualitative approach could take an evaluation approach to determine the population's range of behavior. Alternative discipline research can ascertain whether there are similar results outside of the business discipline. Demographics add an additional aspect to the study where students are placed into categories of gender, age, and ethnicity. Lastly, increasing sample size reduces bias based on the lowered percentage of variance. Future studies could also proceed in the direction of more experimental control when testing the support of equivalency theory as it applies to online versus traditional learning.

Implications

The potential impact for positive social change at the appropriate student level may be significant. As the meta-analysis concluded a relatively low knowledge related effect resulted on mode of instruction. Based on these results, the business literature community is encouraged to support the facilitation of process management in the educational community. Process management can be implemented to reduce the low effect results on student performance evening student outcomes based on final course grades. According to Haines (2016), systems processing calls for minimal change to affect underlining processes. It was recommended to gradually change a small operational guideline which usually results in a large effect measurement.

Online education contributes to a student's educational goals which should make process management a priority. Universities are made to benefit students; therefore, their interest should be considered a priority. Every possible effort should be made to ensure that online and traditional modalities are comparable to provide efficiency of learning.

This guarantees no students are left behind and are exposed to efficient learning models. Stakeholders can be assured on a larger scale that online learning is providing proficiency in learning based on overall student performance. The student population stands to gain the most out of the results because of the direct effect the program has on each participant in an online and traditional environment.

Students have an important role in any process that affects their performance. Concerns exhibited from students make them unique from other entities such as the organization or administration. To handle student concerns towards a change, it was important to be proactive anticipating any possible road blocks in implementing a change. Another way to handle student concerns is to ensure their inclusion in the decision-making process. According to Haines (2016), involving participants that were affected by a process change guarantees the outcome is based on inputted suggestions of the student. In reference to this study, communicating final change results to individual students alerts students to the type of high quality instruction they will receive based on the modifications made to the business discipline.

Theoretical implications that emerged from the results of this study found positive relationships between the effects measurements on student performance and mode of instruction. These results add to the understanding of the perceptions that influences attitudes towards the comparable nature of online and traditional instruction. The results provided a valuable opportunity to advance equivalency theory in distance education with the acceptance of the low impact results achieved based on student outcomes. Efficiency of learning was linked to equivalency theory where distance learning provided a different

form of instructional communication with equivalent experiences. The findings of this study also indicated that researchers need to extend the current theory to build on the theoretical relationships among the variables. These results provided a foundation for advancing the validation of online learning utilizing process management after obtaining additional theoretical insights. As a whole, the research study results contributed to the body of theoretical insight on student performance. The results of this study emphasized the need for further theory developments and additional research in this area.

Conclusions

The purpose of this research study was to explore the potential of utilizing the implementation steps of process management on student performance. To determine this fact, final course grades were obtained from traditional and online courses to evaluate comparability and efficiency of learning. Based on the results, a low or insignificant effect result exists as determined by student outcomes which coincides with most of the research literature in education. Because there was a low impact, process management can be implemented as a change model to reduce the effect result by modifying minimal procedures. The findings support equivalency theory because the different modes of instruction have no bearings on the final results of the courses offered. This study primarily focused on business disciplines; however, it was recommended this process be administered across all disciplines to alleviate any gaps or disparages in information.

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Appendix A: Research Study Coding Form

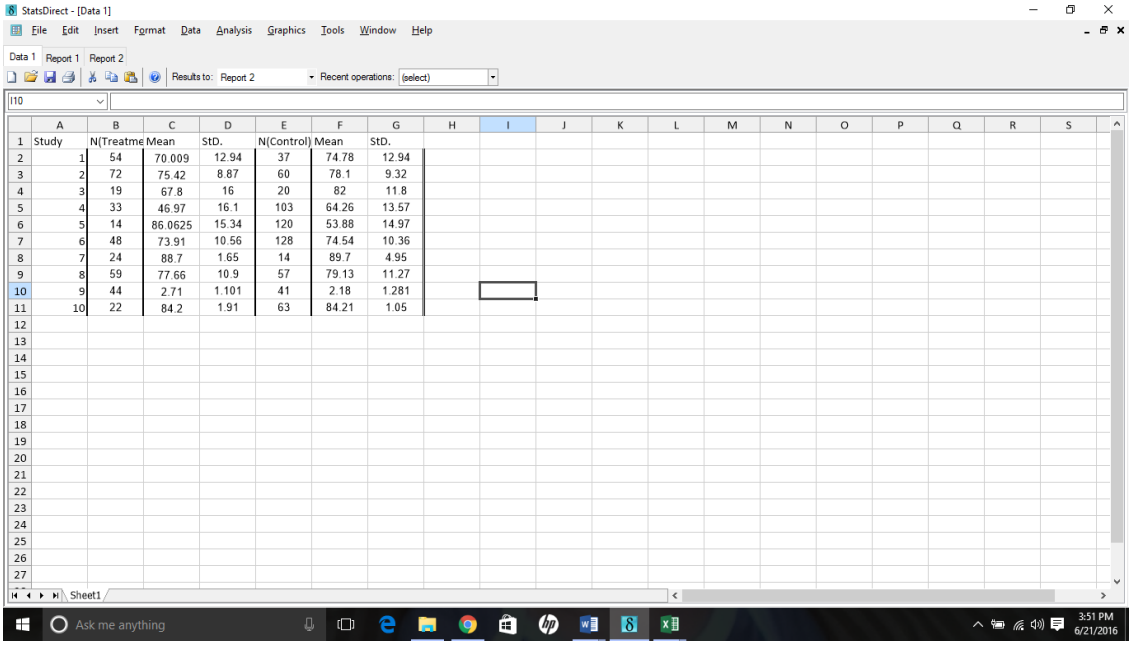
Research Study Coding Form			
Study Name			
Date Coded			
Study Authors			
Year:			
Sample Size (N):			
Measurement	Traditional Mean Scores	Online Mean Scores	Effect Sizes

Appendix B: Coding Manual

Coding Manual The following coding manual represents a detailed collection of instructions describing how data is reported in research reports are quantified for inclusion in the meta-analysis.	
Study Name:	Record the name of the study into the coding form.
Data Coded:	Record the date you are entering the information into the coding form.
Study Identifier:	
Study Authors:	Record the study author(s) of the published studies into the coding form.
Year:	Record the year of the published study into the coding form.
Sample Characteristics:	
Sample Size (N):	Record the sample size (N) of the published study into the coding form
Measurement:	

Measurement:	Record the mean course scores of each research study from the results table into the coding form. Record the effect sizes of each research study from the results table into the coding form.

Appendix C: Meta-Analysis Calculator



	A	B	C	D	E	F	G
1	Study	N(Treatme	Mean	StD.	N(Control)	Mean	StD.
2	1	54	70.009	12.94	37	74.78	12.94
3	2	72	75.42	8.87	60	78.1	9.32
4	3	19	67.8	16	20	82	11.8
5	4	33	46.97	16.1	103	64.26	13.57
6	5	14	86.0625	15.34	120	53.88	14.97
7	6	48	73.91	10.56	128	74.54	10.36
8	7	24	88.7	1.65	14	89.7	4.95
9	8	59	77.66	10.9	57	79.13	11.27
10	9	44	2.71	1.101	41	2.18	1.281
11	10	22	84.2	1.91	63	84.21	1.05

Appendix D: Effect Size Meta-Analysis

Stratum	J(N-2)		g	Exact 95% CI	
1	0.991545	-0.368702	-0.78939	0.053816	1
2	0.994218	-0.295252	-0.638925	0.049867	2
3	0.979569	-1.014177	-1.676434	-0.339784	3
4	0.994391	-1.216307	-1.632284	-0.795875	4
5	0.994306	2.144521	1.529902	2.751749	5
6	0.995682	-0.060493	-0.391996	0.271553	6
7	0.978996	-0.307329	-0.968086	0.3581	7
8	0.993404	-0.132632	-0.496442	0.232182	8
9	0.990932	0.444949	0.012904	0.874102	9
10	0.990932	-0.007567	*	0.477877	10

Stratum	N (exptl.)		N (ctrl.)	d	Approximate 95% CI	
1	54	37	-0.365584	-0.787227	0.056058	1
2	72	60	-0.293545	-0.637974	0.050885	2
3	19	20	-0.993456	-1.658934	-0.327977	3
4	33	103	-1.209484	-1.627053	-0.791916	4
5	14	120	2.13231	1.522741	2.741879	5
6	48	128	-0.060232	-0.392017	0.271553	6
7	24	14	-0.300874	-0.963464	0.361717	7
8	59	57	-0.131757	-0.496162	0.232648	8
9	44	41	0.440914	0.010341	0.871487	9
10	22	63	-0.007498	-0.492873	0.477877	10

Fixed effects (Hedges-Olkin)
Pooled effect size d+ = -0.147368 (95% CI = -0.28438 to -0.010356)
Z (test d+ differs from 0) = -2.108104 P = 0.035

Non-combinability of studies
Cochran Q = 94.479422 (df = 9) P < 0.0001
Moment-based estimate of between studies variance = 0.474478
I^2 (inconsistency) = 90.5% (95% CI = 85% to 93.3%)

Random effects (DerSimonian-Laird)
Pooled d+ = -0.086691 (95% CI = -0.539945 to 0.366564)
Z (test d+ differs from 0) = -0.374868 P = 0.7078

Bias indicators
Begg-Mazumdar: Kendall's tau = 0.022222 P > 0.9999 (low power)
Egger: bias = 2.641909 (95% CI = -8.053744 to 13.337561) P = 0.5846

Appendix E: Meta-Analysis Studies

Campbell, M., Floyd, J., & Sheridan, J. (2011). Assessment of student performance and attitudes for courses taught online versus onsite. *The Journal of Applied Business Research, 18*(2), 45-57. doi:10.19030/jabr.v18i2.2114

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