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Effect on Grades for Students with Disabilities Who Take Developmental Literacy Coursework

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Walden University
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MSEd, Binghamton University, 2004

BS, Mount Saint Mary College, 1996

Dissertation Submitted in Partial Fulfillment

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Abstract

Students with a wide array of disabilities are graduating from high school but are unprepared for community college literacy courses causing many students who attend community colleges to be unsuccessful in these courses. This problem has led many community colleges to provide developmental courses with mixed results. This causal-comparative study investigated the effect of a developmental literacy course for community college students with disabilities. Behaviorist, constructivist, and cognitivist theories served as a foundation for this study and were used to develop the research question to investigate the significance of the mean difference between two groups of students with disabilities. Only one of the two groups completed the developmental literacy course designed to prepare them for the freshman literacy course. All 166 participants were students with disabilities who took the Accuplacer college placement exam, scored below 55, and were advised to take the developmental literacy course. Archived final grades from 2013 to 2017 were analyzed using an independent-sample *t*-test. Statistically significant results ($p = .021$) indicated that students with disabilities who took the developmental literacy course before taking an entry-level credit-bearing English earned lower mean scores than those who did not take the developmental literacy course. The findings confirmed the need to explore and reconsider developmental course practices and policies because of the negative effects they can have on students with disabilities. Potential positive change implications of this study could influence community college leaders' decisions regarding the continuance, revision, or removal of developmental literacy courses for students with disabilities, which could benefit community college students' academic success.

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Dedication

This work is dedicated to many special people. I call special attention to my father, Wayne K. Lombardo, who passed away before this labor of love was completed. My mom, Mary Ann Lombardo, and Sister Suzanne, have been a source of support from the first day of this journey. Without my loving, caring, compassionate husband Tim, I could not have even imagined taking on this challenge, nor could I have persevered through the years. My girls Jillian and Jessica provided me with unconditional love and encouragement when I needed it the most. I thank my niece, "sons", in-laws, brother and sister-in-law's, and their families, cousins, neighbors, my barn family, co-workers, friends, and many, many others provided what I needed to reach my goal of completing this research. I also wish to thank, from the bottom of my heart, my dearest friends who encouraged me not to give up, especially Dr. D. I want to recognize Julie Wold who offered help and prayers along the journey. My faith in God and my church family played an important role as well. I acknowledge my students who gave me countless reasons to continue educating myself and advocating on their behalf for the last twenty plus years- this is for you with the hope that I have made and will continue to make a difference in the educational world for people with and without exceptionalities. A special thank you to Dr. Derek Schroll, Dr. James Miller, and Dr. Shereeza Mohammed. My three initial committee members, especially Dr. Michael Cass, helped as well. There are instructors from grade school, MSMC, Binghamton and Walden University who also deserve recognition. Without all of the people I have mentioned, I would not have been able to see my dream of having this work come to fruition. I hope to take the knowledge that I have acquired to help those who choose to serve people with disabilities in the future.

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Chapter 1: Introduction to the Study

Community colleges are faced with the high cost and the questionable effectiveness of providing developmental literacy courses for students with disabilities. Crisp and Delgado (2014) indicated, "Developmental education has been cited as one of the most difficult issues facing community colleges" (p. 1). Also, Scott-Clayton, Crosta, and Belfield (2014) noted that nationally, on average, more than $7 billion dollars a year is spent on developmental education. These researchers also found that students who take developmental courses exhibit low completion rates for college programs. Goudas and Boylan (2012) concluded that developmental courses are ineffective in preparing students for rigorous credit-bearing courses. They stated that research on specific outcomes, such as completed credits and degree completion, is limited with most of the data stemming from evaluations of developmental mathematics coursework. Research related to developmental coursework does not include information specifically related to the effect that such courses have on students with disabilities who attend community colleges. My purpose in this study was to investigate whether group membership, which is either (a) participation in the developmental literacy course or (b) nonparticipation, affected the grades earned by students with disabilities who enrolled at a community college in central New York.

I investigated two groups of students with disabilities. Group membership included the first group of students with disabilities who scored below 55 on the Accuplacer placement examination. The students were advised to take a developmental literacy course, and did take the course. The second group of students with disabilities

also scored below 55 on the Accuplacer placement examination but did not take the developmental literacy course. Both groups of students with disabilities took an entry-level credit-bearing English course and I examined the grades earned in this class using archived data to determine whether the students who participated in the developmental literacy course earned higher mean scores than the group that did not. All students with disabilities took the developmental literacy course, as well as those who did not take the course, were included in the study. Group 1 and Group 2 included students with disabilities who attended the same community college in central New York. Also, both groups scored below 55 on the Accuplacer placement examination and were advised to take a developmental literacy course, plus they completed the same entry-level credit-bearing English course. The groups differed in that one group of students with disabilities took the developmental literacy course, whereas the other did not.

Results derived from this research could potentially provide community college administrators in schools with a similar population and geographic location with a better understanding of the effect that developmental literacy coursework has on students with disabilities. Potential positive change implications of the study would be to influence community college administrators regarding the continuance, revision, or removal of developmental literacy courses for students with disabilities. This chapter includes the background, problem statement, purpose of the study, research question and hypotheses, theoretical framework, nature of the study, definitions, assumptions, scope and delimitations, limitations, significance, and summary.

Background

When providing students with developmental coursework, community college administrators face many challenges. Eckes and Ochoa (2005) indicated that the Americans with Disability Act (ADA) of 1990 and Section 504 of the Rehabilitation Act (1978) legislation were created in part to give students with disabilities access to college and are considered civil rights acts. Giving students access to college does not necessarily mean that they are prepared for college-level coursework. Students who demonstrate that they lack certain skills, as indicated most often by placement assessments, are typically placed into one or more developmental courses. Bettinger, Boatman, and Long (2013) focused their research on developmental education and noted that problems exist with the effectiveness of the coursework in terms of the lack of college continuance rates, progression through higher level courses, costs to run the classes, and current reform initiatives that strive to reduce developmental coursework nationwide.

Problem Statement

Developmental education was created to help college students gain skills they lack, but in some cases, these courses may not prepare students for entry-level college credit-bearing classes. The problem that I addressed in this study is that developmental literacy coursework appears to be ineffective for community college students with disabilities. The effect of a developmental literacy course for students with disabilities who attend a community college in central New York is the topic that I researched.

The need for research that addresses a significant gap in practice was supported by Pruett and Absher (2015) when they stated, “One of the most challenging problems

facing community college leaders is addressing the needs of the developmental student" (p. 33). Crisp and Delgado (2014) conducted research and found a wealth of information on developmental education "in terms of gender, ethnicity, age, first-generation status, and academic preparation before college" (p. 100). What is lacking in the arena of educational research is specific information about the effect of developmental education for students with disabilities. MacArthur, Philippakos, and Graham (2016) stated, "Data on participation of students with learning disabilities (LD) in developmental education is sparse" (p. 31).

Subsequently, Plotner and Marshall (2015) said that a need exists for general research surrounding postsecondary education, especially for students with a disability. They proposed that colleges are struggling to accommodate students with disabilities into postsecondary programs. Plotner and Marshall's research focused on students with an intellectual disability, and their work posited that "there are few, if any, research-based guidelines to help program developers prepare and plan adequately for the postsecondary programs" (p. 59). Seminal research by Young and Staebler (1987) identified the need for community colleges to provide developmental programs for students with disabilities. They suggested that using assessments would be the best way to determine who did and did not need developmental coursework. Furthermore, additional supports such as tutoring and new instructional strategies were considered to be integral parts of developmental coursework for students with disabilities.

Young and Staebler (1987) further suggested that community colleges should consider providing students with disabilities access to "independent living skills,

advocacy, advising, career counseling and social skills training" in addition to placing them in developmental courses, yet few schools have done so (pp. 62-63). Lack of concrete data indicating positive results derived from costly developmental or remedial courses could explain why Boylan, Bonham, and White (1999) started investigating problems associated with developmental education. The effectiveness of developmental coursework was brought to the attention of educators because of the rising costs of college tuition and the high numbers of students being advised to take non-credit-bearing courses. Collectively, information directly supports the concern that developmental coursework is not effective for community college students with disabilities.

In this study, I examined the difference between the mean scores of the grades earned by the two groups of students. I compared data and examined a conjectured relationship. The data I obtained should help to fill the gap in practice related to the study of the effect of developmental literacy on students with disabilities who attend a community college.

Purpose of the Study

My purpose in this causal-comparative quantitative study was to determine whether there was an effect on the grades of community college students with disabilities who took an entry-level credit-bearing English class after taking a non-credit-bearing developmental literacy course. The mean scores earned in the entry-level credit-bearing English course from the two groups I examined. I compared average grades earned by one group of community college students with disabilities who took an entry-level credit-

bearing English class after taking a developmental literacy course with those of a second group who did not to take the developmental literacy course.

My intent in this causal-comparative study was to determine whether a significant difference existed in the mean scores of the grades earned in the entry-level credit-bearing English class between the two groups of students with disabilities who attend a community college in central New York. Specifically, the findings of my research could influence decisions made by administrators of this and other community colleges of a similar size and demographics regarding maintaining, amending, reducing, or even eliminating developmental literacy coursework for students with disabilities. The dependent variable was the grade earned, and the independent variable was the group membership status, which is either (a) participation in the developmental literacy course or (b) nonparticipation.

Research Question and Hypothesis

The central research question of this study follows:

RQ1: Is there a significant difference in the mean scores in the credit-bearing English course between students with disabilities who took a developmental literacy course and students with disabilities who did not take the developmental literacy course?

H_{01}: There is no significant difference between the mean scores of students with disabilities who participated in a developmental course and those of students with disabilities who did not participate in the course.

H_{a1}: There is a significant difference between the mean scores of students with disabilities who participated in a developmental course and those of students with disabilities who did not participate in the course.

I explored the difference between the mean scores earned by the two groups of students. I compared the data, and I examined a conjectured relationship. I also compared the groups on the dependent variable across the levels of the independent variable.

Theoretical Frameworks for the Study

I based the theoretical frameworks for this study on a combination of the theories of behaviorism, cognitivism, and constructivism. Ertmer and Newby (2013) noted the theoretical frameworks that relate to developmental coursework are linked to well-known theorists because they share similar ideas related to how students perform academically. I related the frameworks for the study to the course objectives outlined in the developmental literacy course class description. The course objectives included:

1. To provide students with reading and writing comprehension strategies using a wide variety of content-rich material.
2. To broaden students' understanding of the mutual/ beneficial relationships between reading comprehension and appropriate written response.
3. To heighten students' metacognitive awareness, promote self-regulation, and enhance comprehension strategies.
4. To heighten students' metacognitive awareness, promote self-regulation, and enhance comprehension strategies. (SUNY Broome Community College, 2016, n.p.)

Theoretical Foundation

Behaviorist Approach

The behaviorist approach focuses on the way students respond to material that is presented to them. Seminal research by Piaget (1952) reported on self-perception and integration of knowledge, which is linked to education. Writing about an academic environment such as a developmental literacy class for students with disabilities, Piaget attempted to focus on the potential observable and measurable changes made to students' academic performance in classes as a result of the implementation of curriculum (Yilmaz, 2011). Behaviorists stressed the notion that learning occurs after a person receives information from outside sources. This scenario exemplified in the developmental literacy classes for students with disabilities who took the course while attending a community college in central New York. Ertmer and Newby (2013) referred to behavioristic approaches in education that included the "use of instructional cues, practice, and reinforcement" (p. 49). The assumption is that the knowledge gained in the non-credit-bearing developmental literacy course by students with disabilities should be able to be applied to entry-level credit-bearing coursework. It is this aspect of the behaviorist theory that is linked to the developmental literacy course objectives that focused on the integration of reading and writing comprehension strategies using a myriad of content-rich text. Behaviorist theorists neglect to account for "mental processes or what is going on in the human minds" (Yilmaz, 2011, p. 204). It is because of this that I applied the theory of cognitivism to this study.

Cognitivism

The theory of cognitivism is grounded in how students' learning is conceptualized, whereas behaviorist approaches emphasize students' responses. How information is received, organized, stored, and retrieved by the minds of individuals in a learning environment is paramount to cognitivism. In contrast, the focus is not on the instructor and how the material is presented, but rather the perception of the person who is learning. It is in this way that cognitivism and behaviorism theories differ. Whereas Piaget is associated with the behaviorist approach. Seminal research by Bruner (1966) linked the cognitivism theory to notions and experiments that I reviewed. Discoveries regarding similarities in how learners develop more advanced strategies for acquiring information as they mature appeared to be a common theme in the work that the author analyzed. Also, Davis and Sumara (2002) wrote seminal research that linked Dewey to cognitivism. In terms of the cognitivist theory, Ertmer and Newby (2013) stated, "The learner is viewed as a very active participant in the learning process" (p. 51). An important aspect of the delivery of the developmental literacy coursework that relates to cognitivism is the focus on heightening students' metacognitive awareness, while also promoting self-regulation as a means to enhance comprehension strategies.

The theory of cognitivism can be used to support components of developmental coursework with students with disabilities because of the focus on concrete thought processes. Also, the authors' emphasis is on seeing the importance of what students learn, how they learn it, and situations that they can apply it to in the future. This is the primary

reason why the developmental literacy course stresses the generalization of global literacy skills in all classes.

Thus, the cognitivist theory is imperative because it provides a solid foundation for understanding the role of active student involvement in the study. Collectively, what the behaviorists' and cognitivists' approaches do not account for is the notion of how the world affects the learner. Such a notion is included in the constructivists' theory.

Constructivism

Constructivism plays a vital role in providing another aspect of the theoretical framework of my study. The theory focuses on how students construct meaning from what they learn. Constructivists' views were reflected in the course objective from the developmental literacy class that discussed the symbiotic relationships between reading comprehension and creating appropriate written responses. To do this, students must independently construct meaning from different sources, devise a way to understand what they have read and apply it to different situations. Florian and Black-Hawkins (2011) posited that Vygotsky is a theorist closely associated with constructivism. Other authors stressed that current trends in education reflect attributes associated with constructionist and cognitive approaches because they are learner-centered (Ertmer & Newby, 2013; Yilmaz, 2011).

Behaviorism, cognitivism, and constructivism theories served as theoretical frameworks for my study because the theories move from the importance of teaching to the importance of learning. Aforementioned theoretical frameworks supported the learning outcomes of the course and assisted in determining whether the strategies used

to deliver the approved outcomes had a significant effect on the success of students with disabilities when they moved onto a credit-bearing English class.

I included a more detailed explanation of the major theoretical propositions in Chapter 2. In addition, Chapter 2 contains a literature review search strategy, theoretical foundation, literature review related to key variables, history of developmental coursework, placement in developmental courses for students, problems associated with developmental education, success of developmental coursework, ways to improve developmental education curricula, ways to reduce the need for developmental literacy coursework, a summary, and conclusions

Nature of the Study

The nature of the study was to examine whether an effect on grades earned occurred in an entry-level credit-bearing English class by community college students with disabilities who took a non-credit-bearing developmental literacy course. I conducted a causal-comparative quantitative study that used archived data with a convenience sample. I used an independent sample *t*-test because, according to Rumrill, Cook, and Wiley (2011), it compares the average differences between the two groups. I used the results to determine whether the developmental literacy course had a significant effect on the mean scores earned by students in an entry-level credit-bearing English course when compared with students with disabilities who did not to participate in the developmental course.

Definition

Developmental coursework: Coursework aimed at increasing academic skills so that students can be successful in college-level courses (Bailey, Jeong, & Cho, 2010). Terms such as *remedial* or *review courses/classes* and *special courses/classes* are often used to denote educational practices (including, but not limited to, direct instruction, group work, independent practice, and dependent practice) tied to theories such as behaviorism, constructivism and cognitivism or curricula aimed to address students who are underprepared or unprepared for the rigors of college-level courses (Silver-Pacuilla, Perin, & Miller, 2013).

Assumptions

I made several assumptions related to the study on the effect of grades earned in an entry-level credit-bearing English class after students with disabilities participated or did not participate in a developmental literacy course while enrolled at a community college. I assumed the plausible facts to be true, but I could not verify this. The first assumption was that the developmental literacy course was taught using evidence-based practices with fidelity by course instructors. Furthermore, I assumed that the instructors were presenting the material in a similar manner that aligned with the course objectives and learning outcomes (Jenkins & Cho, 2012). Because all departmental employees at the research site report to a department chair and a dean, it is assumed that both the chair and dean ensured quality execution, in this case using evidence-based practices that aimed to have each student master the learning outcomes and course content. The community college had an organizational chart, clear expectations of their teaching faculty, and

evaluation processes in place for continued employment. Thus, I assumed that effective teaching of the developmental coursework occurred from 2013 to 2017.

My second assumption was that the students taking the course put forth their best effort and attended the course. The attendance policy used at the study site was subjective based on the academic freedom afforded to each instructor in conjunction with his or her department procedures. Therefore, the assumptions I included in the causal-comparative study stemmed from both the presentation of material by the instructor and the intake of information by the students with disabilities enrolled in the developmental literacy course. I considered the assumptions to be the potential limitations of the study.

Scope and Delimitations

In this study, I addressed a gap in practice, and I conducted it to help stakeholders make decisions regarding costly developmental literacy coursework for students with disabilities. I included delimitations of scope and size. In addition, in the study I included only one community college located in the northeast part of the state of New York. The study will not be generalizable for other institutions of different sizes or locales, including departments that oversee developmental literacy education coursework for students with disabilities. My focus in this research was the effect on the mean of student scores of students with disabilities who participated in a developmental course and those of students with disabilities who did not participate in the course before taking an entry-level credit-bearing English class. All participants in the study were enrolled at a community college in central New York from the fall of 2013 until the fall of 2017. This included a total of nine traditional 15-week semesters. The estimated number of students

who took the developmental literacy course was 800. However, not all of these pupils were identified as being a student with a disability. Another delimitation was the time frame of the study. In the 2012-2013 school year, the research site revised the curriculum for developmental coursework. “Developmental Reading” morphed into a class titled “Developmental Literacy.” This reflected a trend in higher education aimed to move from traditional reading strategy instruction (such as phonemic awareness and decoding) to integration of approaches that could be applied to all subject areas (Holschuh, 2014).

I chose this study so that the stakeholders at the research site, and other community colleges with a similar size and location, may choose to use the information to assist in making future informed decisions regarding the refinement, reduction, or elimination of such courses. Also, I chose the topic to help fill the gap in research. The choice to limit the participants to those students with disabilities and to examine the same group narrowed the scope of the research. I made this decision to investigate how a subgroup of students responded to the developmental literacy coursework. I did not use an expanded participant pool due to a specific group of students with disabilities being studied. The narrow scope of the participants, only those students with disabilities, can be viewed as a weakness of the study.

Limitations

Limitations were also associated with the study of developmental literacy coursework. One limitation was the inability to prove that all students who had disabilities were included because the college relies on students to self-identify. If students with disabilities chose not to identify themselves to the college as having a

disability and were not recognized by the Accessibility Resources Office (the campus department that provides students with disabilities with an Accommodation Plan), then they would not have been counted as part of the population of students with disabilities. A primary limitation of the study focused on the notion that not all students with disabilities chose to self-identify.

The community college where the research took place required that students identify themselves as having a documented classifying condition if they wanted to access accommodations under Section 504 guidelines (United States. Department of Health, Education, and Welfare. Office for Civil Rights, 1978). If some students choose not to identify themselves as having a disability, then the number of participants could be skewed because the number of students with disabilities could have been much larger, thus affecting the results of the study. Also, the sample size of approximately 300 students prevented me from having the ability to generalize the results due to the population only including students with disabilities. All students with disabilities, who took the developmental literacy course, as well as those who did not take the course, were in the study. According to Lodico, Spaulding, and Voegtle (2010), "One barrier to archival data is that they have been collected by someone else and therefore, the researcher cannot have any quality control on their collection" (p. 99). I relied on archived information from the school-wide data collection system, which is dependent on data reported by various departments.

A commitment to improving literacy skills was considered important to many higher education administrators and instructors across the nation, but how to go about

best meeting the needs of students with deficits tends to vary from institution to institution (Lenz, Ehren, & Deshler, 2005). Also, the ultimate measure of the effect for the quantitative causal-comparative study relied on a comparison between the two groups of community college students with disabilities and the mean grades earned in the entry-level credit-bearing English class following the students with disabilities taking or not taking the developmental literacy course. The study primarily used a standardized testing tool to place the students into the noncredit-bearing literacy course. The class relied on assessments created by individual developmental literacy instructors, which could lend itself to subjectivity in terms of determining student grades and thus is considered an additional weakness of the study.

Significance

The need to fill the gap in research by exploring the effect that developmental literacy coursework had on entry-level credit-bearing English coursework for community college students with disabilities was part of the potential significance of this quantitative causal-comparative study. In addition to filling the gap in research by exploring the effect that such coursework had on students with disabilities who attended a community college, administrators could look at the research to support the decision to maintain, enhance, reduce, revise, or eliminate developmental literacy coursework for students with disabilities. Such decisions could affect students, the school, and society in terms of changes that can or may be made based on this research. The myriad of effects ranges from financial considerations to staffing reconfigurations if developmental coursework needs to be reformed. Financially, institutions who chose to eliminate developmental

coursework would save money in theory. Shields (2005) discussed how the money saved would need to be reallocated toward support services needed by the underprepared students to be successful in credit-bearing courses. Administrators at institutions who may use this research to inform decision making would also need to consider staffing. It is possible if changes were made, then some instructors might find themselves without developmental courses to teach or to make changes to the way they present developmental material for their students. Society might also need to reexamine long-held views on developmental coursework in terms of how such coursework does or does not support "increased diversity and greater equity for students" (Shields, 2005, p. 43). Also, fiscal, staffing, and diversity issues are linked to socioeconomics in many ways.

Parker, Barrett, and Bustillos (2014) posited the idea that socioeconomic status can influence students' educational experiences. They continued to explain that many pupils did not graduate from high school with the skills needed to be successful in higher education. This supported the rationale for placing students in developmental courses before them taking credit-bearing courses. Unfortunately, Bailey (2013) surmised that fewer than half of the college students advised to take developmental courses to finish a developmental sequence and even fewer end up earning a college degree. This notion was supported by Pruett and Absher (2015), who stated, "Less than one-fourth of community college students enrolled in developmental or remedial education complete a degree or certificate within eight years of enrollment in college" (p. 32). Thus, placing students in developmental courses may hurt students in the short term and for the school in the long term because fewer students would graduate with a degree.

Silver-Pacuilla et al. (2013) posited that developmental courses have a negative effect on students and institutions. Developmental courses lower retention rates and increase the cost of tuition and the time spent in college, and they are expensive in terms of staffing the non-credit-bearing courses (Silver-Pacuilla et al., 2013). The research indicated that remediating, via developmental courses, depletes valuable resources that could be used toward other programs that support completion rates such as mentor programs and tutoring programs. Silver-Pacuilla et al. also suggested that developmental coursework causes loss of time, dollars, and momentum.

Last, to compound this issue, the overall lack of studies focused on the effect of developmental coursework for students with disabilities, in particular, supports the significance of this study. Filling the gap in research, plus contributing to the knowledge base regarding developmental coursework, is how this study could be applied to the local problem the research emanates, plus the professional application and positive social change that could be made nationwide in community college settings of schools in similar size and location.

Summary

My purpose in this causal-comparative study was to determine the effect on the mean scores earned in an entry-level credit-bearing English class after students with disabilities participated or did not participate in a developmental literacy course while enrolled at a community college. Mean scores earned in an entry-level credit-bearing English class of college students with disabilities who took a developmental literacy course were compared with mean scores of those who did not. I was looking for a

difference in the mean scores earned in the English class between the two groups of community college students with disabilities. The groups were compared on the dependent variable across the levels of the independent variable. The remaining chapters of this study include a review of the literature, a description of the research methodology and design, and a discussion of the data analysis procedures.

Chapter 2: Literature Review

In this literature review, I focused on investigating research associated with the effect that developmental literacy coursework had on students with disabilities who attend community colleges. Developmental non-credit-bearing courses can be costly for both students and institutions. Also, particular to this study, a gap in research exists with regard to students with disabilities and the effect of developmental literacy coursework. My purpose in this quantitative causal-comparative study was to determine the *effect* of developmental literacy coursework on students with disabilities who attend community college who took a credit-bearing entry-level English course. I determined the effect by examining the mean scores obtained by two groups of students with disabilities in an entry-level credit-bearing English course taken after having completed or not completed a developmental literacy course at the community college in central New York.

I examined the current educational research about developmental coursework at the community college-level. Seminal research provided by Merisotis and Phipps (2000) indicated few studies exist on the topic of developmental education that focused on students with disabilities. A gap in the literature is evidenced by a lack of published studies on the topic of the effect of developmental literacy for students with disabilities who attend a community college.

Literature Search Strategy

For the literature review, I used the following databases: Google Scholar, ERIC, Education Research Complete, ProQuest, SAGE Premier, Education Theory Guide, Thoreau, and the Oxford Education Biographies. The search terms included *student or*

students, disabled or disability or disabilities, literacy education, remedial or developmental, course or courses or coursework or class or classes, higher education, and *community colleges.*

The scope of the literature review, including peer-reviewed and seminal research, in terms of publication years, included those from 1984 to 2016. Sources included books, journal articles, dissertation submissions, working papers, user guides, and program manuals. Upon a review of the literature, I determined that there were not sufficient research studies, based on a comprehensive review of published work, related to students with disabilities who are placed in developmental literacy courses. There were, however, numerous studies that focused on the topic of developmental education classes for all students. Studies that include all students provided insight into how students with and without disabilities were placed in developmental courses, as well as problems, means to increase the success rate of students in the courses or alternatives to having students take developmental classes. Research on the topic that related to all students had to be generalized, and assumptions made that some of the students included in the samples were students with disabilities though they were not specifically noted due to a lack of self-disclosure on the students' part.

The literature review included six themes:

1. History of developmental coursework for community colleges.
2. Students with and without disabilities are placed into developmental education courses in community colleges.

3. Problems associated with developmental education coursework at community colleges.
4. Success of developmental courses.
5. Ways to improve developmental class curricula at community colleges.
6. Alternatives to developmental coursework at community colleges.

This chapter includes the literature review related to key variables listed under the headings of The History of Developmental Coursework, Placement of Students Into Developmental Courses, Problems Associated With Developmental Education, Success of Developmental Courses, Ways To Improve Developmental Education Curricula, Ways to Reduce the Need for Developmental Literacy Coursework, plus a summary and conclusion.

Theoretical Foundation

Behaviorism, cognitivism, and constructivism were the theories identified as the ones most connected to the study on the effect of developmental literacy coursework for students with disabilities who attend a community college in a rural setting in central New York. The rationale for choosing the theories was that they aligned and built on the learning objectives for the developmental literacy course used in the study.

The origin of the behaviorism theory appears to be attributed to Piaget. Constructivism was attributed to Vygotsky and cognitivism by Bruner and Dewey (Ertmer & Newby, 2013). Organizing information a common element in the three theories, and the notion of being able to use information, connect to the course objectives with the ultimate goal of the students being able to apply the information gained in the

non-credit-bearing developmental literacy course to the entry-level credit-bearing English class.

Bandura (1993) stated that cognitive, motivational, and selection processes contribute to the alignment of the theories to academic development. Such information connects to the aforementioned theories because learning is dependent on a myriad of factors. It is a cognitive process that can differ from student to student, depending on his or her abilities (Entwistle & Ramsden, 2015). Motivational, affective, and selection processes are linked to behaviorism and constructivism theories because, according to Ertmer and Newby (2013), they affect the way a student reacts to instruction and the resulting response. Furthermore, the three processes influence how the students apply what they learned to other environments.

Parker et al. (2014) discussed a connection between socioeconomic statuses of students and subsequent needs for developmental coursework. They concluded that socioeconomic status affects students' educational experiences. They continued to explain that many pupils did not graduate from high school with the skills needed to be successful in higher education. This supported the rationale for placing students in developmental courses before taking credit-bearing courses. Unfortunately, Bailey (2013) surmised that fewer than half of the college students advised to take developmental courses to finish a developmental sequence and even fewer end up earning a college degree. This notion was supported by Pruett and Absher (2015) who stated, "Less than one-fourth of community college students enrolled in developmental or remedial education complete a degree or certificate within eight years of enrollment in college" (p.

32). Thus, placing students in developmental courses may hurt students in the short term and for the school in the long term because fewer students would graduate with a degree.

Silver-Pacuilla et al. (2013) posited that developmental courses have negative effects on students and institutions. The results indicated that they lower retention rates and increase the cost of tuition and the time spent in college, and they are expensive in terms of staffing the non-credit-bearing courses (Silver-Pacuilla et al., 2013). The research indicated that remediating, via developmental courses, depletes valuable resources that could be used towards other programs that support completion rates, plus developmental coursework causes loss of time, dollars, and momentum.

Literature Review Related to Key Concepts and Variables

In this chapter, I identify, describe, and apply sources of previously conducted research to the constructs of interest as they relate to the quantitative causal-comparative study. Also, I delineated the rationale for the selection of the variables or concepts. Last, the manner that education researchers used to approach the problem and the outcomes were discussed.

The History of Developmental Coursework

Developmental education courses have been offered at institutions of higher education for many years. Parker et al. (2014) discussed the 400-year history of developmental education that dated back to 1636, when unprepared or underprepared students first entered college. Deficits were formerly referred to as deficiencies and were primarily handled by institutions of higher education, such as Harvard, the College of New Jersey or Kings College, by providing tutoring or developmental classes for the

students (Parker et al., 2014). To this day, many college-level administrators handle students who do not have the skills necessary to be successful in the same manner as they did in the early 1600s. Large amounts of time and money are still spent on developmental programs with little evidence to support their effectiveness.

Parker et al. (2014) concluded that since the inception of developmental coursework, there had been researchers/administrators who have questioned the need for such courses to be offered at colleges. Institutions of higher education, dating back to the 1600s, were originally designated for students who had demonstrated exceptional academic performance and were from affluent families. This same courtesy was not extended to economically disadvantaged students who tended to leave grade school unprepared for the rigors of college coursework. Unfortunately, the reality was that many students, rich or poor, did not graduate from high schools with the skills needed to be successful in college (Parker et al., 2014). A study by Boylan (1988) traced the historical events of developmental education, and throughout time, colleges have provided support to assist students who are underprepared for the rigors of postsecondary schooling.

For many decades, the mindset evolved, and college education became available for all students. However, the notion of students with disabilities attending college was still a distant thought as recently as the mid-1900s. As more and more students started to consider higher education as an option after they left high school, a system was created to support those who needed additional support. Developmental courses were created to meet the needs of underprepared students who entered college (Boatman & Long, 2018). Such courses have historically facilitated a means to develop specific skills, typically in

reading, writing, and mathematics, to college students who require remediation. Research by Boylan (1988) identified Harvard College as assisting students as early as the 17th century. This was to help pupils learn Latin because most of the instructors spoke and used texts printed in Latin. Research also indicated that by the 1800s developmental education departments became commonplace at institutions of higher education in the United States. Research by Tomlinson (1989) indicated that most colleges and universities were in industrial areas.

As the industrial revolution spread across the United States, more and more institutions of higher education opened. With this came an increasing number of students who applied to attend college. Brothen and Wambach (2004) stated that in the 1900s, when colleges started to implement open enrollment policies, the result was that schooling became accessible for a large population of people who in the past were unable to attend college because they lacked basic academic skills. Also, Boylan (1988) posited that students with varying degrees of disabilities and functioning levels started to attend college. The shift in thinking began to occur because historically, students with disabilities did not typically attend college. As this became the norm, the numbers of students with disabilities enrolling in and furthering their education began to increase.

Young and Staebler (1987) noted that community colleges should be responsible for educating students with disabilities by making developmental coursework available to them. In the past twenty years, according to Plotner and Marshall (2015), postsecondary education programs for students with disabilities, specifically those with an intellectual disability, have slowly started to become commonplace in higher education. Additionally,

Clotfelter, Ladd, Muschkin, and Vigdor (2015) conducted a quantitative study using a regression discontinuity design for data collected from 58 community colleges located in North Carolina, as well as data from K-12 schools, based on information of more than 14,000 students. The authors provided some historical information indicating that some 4-year schools have offered developmental courses for students who were underprepared for rigorous college-level work. Conclusions provided that historically, developmental education coursework was not effective and "it actually reduce[d] the probability that students will succeed in college or that they will ever pass a college-level course in the remediated field" (Clotfelter et al., 2015, p. 22). The study supported the notion that students with or without disabilities did not benefit from taking a developmental course. Thus, it is a commonplace nowadays for 4-year institutions to consider eliminating developmental education coursework due to the cost and time necessary to run them. This trend is being investigated by community colleges as well since much of the published data indicates that developmental coursework is ineffective for all students and it does not appear to prepare them for the rigors of credit-bearing coursework.

Placement of Students Into Developmental Courses

Community college admission specialists frequently advise students to take developmental classes based upon results obtained from placement assessments. Parker et al. (2014) stated that there had been an ongoing "debate over students whose academic profiles suggest under-preparedness and how the challenge they present should be addressed" (p. 17). Seminal research indicated that many colleges and universities place students into developmental classes based on local policies, external factors such as test

scores, legislation, and politics (Lundell & Collins, 1999). Typically, results of college placement examinations such as the "ACCUPLACER®, developed by the College Board and COMPASS®, developed by ACT, Inc." are often used to determine if a student needs a developmental course (Scott-Clayton et al., 2014). The community college where this study took place uses the Accuplacer as the primary means of placing students into developmental courses, but it is not the only assessment used at community colleges.

In some cases, community college admission specialists also consider other factors such as high school classes taken, state test scores or testing conducted by educational professionals such as psychologists or guidance counselors. Fields and Parsad (2012) posited that about half of all postsecondary education institutions, community colleges included, use a reading test for determining the need for developmental courses. The Assessment of Skills for Successful Entry and Transfer (ASSET®) diagnostic tool is another option for colleges to use to assess students when they enter college. According to Boatman and Long (2018), Burdman (2012), and Jaggars, Hodara, and Stacey (2013), placement of students into developmental coursework is a flawed system because it relies too heavily on college placement scores such as the ACCUPLACER and COMPASS assessments. Additionally, Jaggars et al. (2013), in a synthesis of research studies from the Community College Research Center (CCRC), reported that placement scores alone can result in severe placement errors such as students being placed into non-credit-bearing developmental or remedial courses that do not count towards graduation requirements and are typically costly for students.

Rutschow and Schneider (2012) discussed recent developmental education reforms and concluded the validity of college placement-tests and the potential benefits are frequently questioned because of the potential for increased rates in students placed in developmental courses. Additionally, Saxon and Slate (2013) completed a quantitative study of students enrolled in developmental courses from 2000-2011at 76 community colleges in Texas. Research findings supported the idea that more than 20% of the students enrolled were placed into such courses due in part to inconsistent cut-off scores used to place students. Zinth (2012) referred to using subsection scores on standardized tests as a "tripwire unknown to the vast majority of college entrants who are unaware that low scores on such examinations could require them to complete [and pay for] remedial education before enrollment in credit-bearing coursework" (p. 5). Hughes and Scott-Clayton (2010) suggested investigating other means to determine to place a student into developmental courses when students, with or without disabilities, enter community colleges. Overall, this research supports the conclusion that I made that the system used to place students into developmental courses is typically flawed.

Numerous authors inferred that the research on the placement of students into developmental coursework in community colleges is not necessarily reliable (Boatman & Long, 2018; Burdman, 2012; Jaggars et al., 2013; Saxon & Slate, 2013; Visher, Weiss, Weissman, Rudd, & Wathington, 2012). The research I reviewed suggested using alternative means such as high school transcripts that include grades and class rankings, previously completed coursework and any academic assessment data to place students who enroll community colleges into developmental courses (Hughes & Scott-Clayton,

2010). Overall, the placement of students into developmental courses at institutions of higher education needs further investigation. Investigating the effect of developmental literacy coursework on students with disabilities is a critical step in filling the gap in research and can provide insight into decisions related to the continuance, revision or dissolution of developmental literacy coursework in community colleges.

Problems Associated With Developmental Education

Upon a review of literature, I found limited information about students with disabilities, and the effect of developmental education literacy coursework had on future success rates in credit-bearing courses. What I discovered was that there are numerous examples of problems associated with developmental education in general. Silver-Pacuilla et al. (2013) said that the strain created by developmental coursework could be viewed in terms of loss of "time, dollars, and loss of momentum" (para. 3). Statistics published by Barrow, Brock, and Rouse (2013), Bettinger et al. (2013) and seminal research by Bailey et al. (2010) stated that 35-50% of all college students nationwide need at least one developmental course. Also, Florian and Black-Hawkins (2011) found that colleges have implemented developmental education courses to accommodate students who were underprepared, but the data indicated that the courses are relatively ineffective and costly. Melguizo, Bos, and Prather (2011) noted that the effectiveness of developmental coursework is debatable and that further research is necessary to evaluate such programs. Casazza and Silverman (2013) posited that developmental education is considered a factor for low completion rates at the collegiate level. Developmental courses do not count towards graduation requirements because they are most often non-

credit-bearing (Silver-Pacuilla et al., 2013). Putnam (1984) mentioned that there are high costs associated with creating programs for students with disabilities. This means that unprepared or underprepared students are often advised to take developmental coursework for which they must pay either with their own money or by using resources from their financial aid packages even though they do not get college credit for them, and the courses do not count towards earning a degree.

Increasing lack of support for developmental coursework has been worsened by the financial implications it has on community colleges and on the students with and without disabilities that attend them. With growing numbers of students with higher academic needs attending college, administrators are focused on only keeping programs that are proven to be effective. Developmental courses are an example of one attempt to remedy the problems that are associated with students, those with and without disabilities, entering college unprepared or underprepared with and without disabilities, but such classes can put a fiscal strain on both students and institutions of higher education. On average, about 40% of students who are advised to take developmental courses do not finish the sequences necessary to move on to credit-bearing courses (Torraco, 2014). The problem goes beyond students failing to finish developmental sequences. Boatman and Long (2018) found that there are low completion rates for college students who were advised to take developmental education classes. Less than one out of ten students who take a developmental course at a community college graduate in less than three years (Complete College America, 2012). Bailey (2013) surmised that less than half of the college students advised taking developmental courses to finish a

developmental sequence and even less end up earning a college degree. Grubb and Gabriner (2012) and Scott-Clayton and Rodriguez (2015) concluded that developmental courses are a barrier for many students. Grubb et al. (2011) indicated that completion rates drop with each developmental course taken, and many students never graduate from college (Bettinger et al., 2013). This conclusion was supported by Bustillos (2012) and Boatman and Long (2018) who indicated that developmental education courses hindered college completion rates. Clotfelter et al. (2015) suggested that students who take developmental courses have reduced success rates and they have a lower chance of passing credit-bearing courses, though there were no adverse effects on the chance that such students return to school. Researchers concluded that if students who take developmental coursework at a community college do return to school, the chances of them transferring to 4-year institutions are greatly reduced (Crisp & Delgado, 2014). The research I presented in this chapter indicates that students with and without disabilities who take developmental courses are less likely to graduate or transfer to another college to earn a degree.

Additional problems with developmental education coursework were discussed by Holschuh and Paulson (2013) who said colleges should distinguish between developmental courses when presenting data because there tend to be differing conclusions regarding the effectiveness of the courses. The authors suggested developmental courses, in general, should not be looked at as the only barrier to completion when there are many variables that exist.

Another problem centered on the fiscal aspect of developmental education. According to Howell (2011) taxpayers, government officials, and students felt they were paying for the instruction of basic skills twice. Basic skills are taught in high school, and then, if students are advised to take a developmental course, they are re-taught the same skills in college. Howell also argued that each time a student takes a developmental course, it increases the time necessary to complete degree programs and most students who take developmental courses fail to graduate.

Researchers who have studied developmental coursework tended to identify similar problems. Boatman and Long (2018) outlined five problems associated with developmental education, including cost, type of instruction, time, need, and appropriateness. Boatman and Long's research concluded that problems with developmental coursework could have different results on various groups of students but did not specifically mention students with disabilities. Such differences tended to complicate the assessment of the effectiveness of developmental coursework. The authors mentioned that several states have stopped funding remedial coursework at 4-year institutions. Lack of research on the effect of developmental courses for students with disabilities supports the need for this study because it identified a gap in research.

Success of Developmental Courses

In addition to the theme of problems associated with developmental education, there has also been research that indicated the success of developmental courses. Research conducted by Bol, Campbell, Perez, and Yen (2016) indicated that developmental mathematics course instructors teach self-regulation strategies to increase

students “achievement, metacognitive self-regulation and time/study environmental management skills” (p. 480). Floyd (2016) conducted a case study resulting in anecdotal information that students who take developmental courses feel that they had a positive effect on students’ academic success. This notion was supported by Parker, Traver, and Cornick (2018) who said, “One strategy for improving community college students’ pass rate in developmental math courses is the contextualization of developmental math content into the fabric of other courses ” (p. 2). Parker et al. (2018) supported the positive effect that a developmental non-credit-bearing course can have on a credit-bearing course.

Bettinger and Long (2009) said that remediation improves student outcomes (p. 34). They also posited that there were positive effects derived from students placed in remedial mathematics, and one effect was that they were more likely to continue to a 4-year institution. Calcagno (2007) indicated that there are positive associations between remedial education courses and the number of students who move on to the second year of college. Furthermore, Crews and Aragon (2007) published findings on students enrolled in developmental coursework indicated that, “… initial participants completed more of the credit hours they attempted than did nonparticipants; later participants enrolled for more semesters than did nonparticipants, on average…” (p. 637).

Also, research by Boatman and Long (2018) indicated that students assigned to non-credit-bearing developmental courses to increase literacy skills earned slightly higher grades in credit-bearing courses than students who did not take the courses. Furthermore, “students in the lowest levels of remedial writing persisted through college and attained a

degree at higher rates than their peers in the next highest level course" (p. 21). Moss and Yeaton (2006) indicated students who scored the lowest on a pretest and who took a developmental English course had a higher than expected achievement compared to students who did not take the class. The researchers concluded that "those students who are most in need of developmental education received the most benefit" (Moss & Yeaton, 2006, p. 225).

Ways To Improve Developmental Education Curricula

Another major theme I identified from a review of the literature included ways to enhance developmental course curricula. Silver-Pacuilla et al. (2013) suggested using evidence-based instructional concepts when presenting developmental instruction to underprepared students who take college classes. MacArthur, Philippakos, and Ianetta (2015) pointed out that there are three effective practices that should be embedded into developmental curricula and they included using planning and revising strategies, additional support, and how to self-regulate. Wilson (2012) surmised that partnering with local high schools, offering more accelerated coursework while improving existing developmental coursework, plus looking at assessments used to determine what college readiness truly means were all viable options to consider. Hamilton (2013) posited that a team teaching approach that integrated conceptualized material was one way to improve developmental education. Based upon discussions with former instructors, this was not done at the site of the study.

Furthermore, Arendale (2002) noted that there had been support in education to shift from deficit-based to ability-based instruction and assumptions to be considered

when creating and implementing developmental education curricula and to use additional supports. The teaching philosophy of ability-based instruction appeared to slowly be supported at the site of the research, according to a former instructor of the class. This notion was supported in an earlier publication by Young and Staebler (1987) who posited that meeting the needs of students who were underprepared for college could mean that this population needed the additional support that would be provided by developmental education courses. The problem is that the effect is limited.

One theme focused on helping instructors who teach developmental courses. Bustillos (2012) suggested that instructors use modulized or contextualized curriculum, mainstreaming students into credit-bearing courses, implementing supplemental instruction, enhancing techniques for the advising process, embracing mastery learning models, increased participation in learning communities, and the implementation of holistic supports provided outside of school. Part of enhancing curricula for developmental education programs entailed using self-regulated instructional strategies. According to a former instructor, these instructional strategies were commonly used at the research site. MacArthur and Philippakos (2013) stated that when teaching strategies in a developmental classroom setting, instructors should focus on "using knowledge of text organization to guide planning and self-regulation" (p. 178). Silver-Pacuilla et al. (2013) indicated that self-regulation could assist students in gaining developmental skills that could help them to increase their reflective, planning, and goal setting abilities. Waycaster (2011) suggested the best way to help instructors who teach developmental courses is to provide them with quality professional development opportunities.

Providing teachers with customized professional development using specific pedagogical skills and support from administration tended to make a difference when preparing faculty members who are asked to teach developmental coursework in a community college setting (Capt, Oliver, & Engel, 2014). A suggested topic for professional development for instructors included embedding thinking systems into developmental education curricula (Hiller Connell, Remington, & Armstrong, 2012). Lundell and Collins (1999) suggested that instruction should be embedded in the "context of meaningful engagement with the subject matter rather than in isolated preparatory skills course" (p. 15). This could have meant the researchers felt that it was best to link developmental studies or other support programs with credit-bearing courses. Research by Arendale (2002) indicated that supplemental instruction evolved because of studies on best practices that indicated that there was a need for support to increasingly diverse student populations who go to college but are seemingly unprepared or underprepared. The notion of supplemental instruction came about as educational specialists discussed how to meet the needs of a wide variety of students who attend colleges. Supplemental instruction helps lower functioning students with academic support via peer assistance in credit-bearing classes that often have higher failure rates (Dawson, van der Meer, Skalicky, & Cowley, 2014). Other learning support programs such as tutoring and mentoring can also provide the extra help necessary for underprepared students who may struggle with the demands of college coursework.

In addition to supporting instructors, Bettinger et al. (2013) indicated that students taking developmental courses had increased levels of success when given additional

supports such as access to child care, financial aid help, tutoring, summer bridge programs, learning communities, counseling and tutoring. Such supports are in place at the proposed study site. To implement additional supports, those who are tasked with helping underprepared students with and without disabilities need support from those in positions of power at institutions of higher education. Boatman and Long (2018) pointed out that effective developmental coursework would require changes in administrative practices and revisions made to the infrastructure and data collection processes.

Ways to Reduce the Need for Developmental Literacy Coursework

There are ways to support students while they are in high school so that they are prepared for the rigors of college-level work. I discovered that there are programs and initiatives aimed at reducing the need for developmental coursework for students who go to college unprepared or underprepared for entry-level college classes. Bettinger et al. (2013) discussed administering placement-tests to sophomore or junior students to see what skills they lack so that they could take classes in high school that addressed deficit areas before going to college. Howell (2011) mentioned establishing a set of common skills criteria to compensate for the information asymmetry that exists between high schools and colleges. Visher et al. (2012) supported the idea of adopting The Common Core Curriculum Standards as a way of improving the alignment between high school and college skills. Curriculum alignment could mean that fewer students would need developmental courses when they get to college (Visher et al., 2012). Suggestions provided by various authors would require major changes to occur at the local, state and national level and this could be costly in terms of fiscal responsibilities and resources

because different support programs would be implemented for students with and without disabilities.

There are other alternatives to consider instead of placing underprepared students into developmental courses. Barrow et al. (2013) stated that summer bridge programs, learning communities, and academic tutoring also are ways to support developmental education reforms. With a concurring opinion, Bustillos (2012) agreed that an alternative to developmental coursework would be summer bridge programs, summer intervention and acceleration programs, intensive summer programs, learning communities, and academic tutoring. Torraco (2014) and Bailey and Cho (2010) suggested using the Integrated Basic Education and Skills Training and Learning Communities or the Shifting Gears initiative as viable options to developmental education coursework. Such programs provide support via tutoring and mentoring to people who returned to school during the recent economic downturn who struggle with college-level academic tasks by targeting specific skills (particularly those related to literacy) that not only help them in the classroom but also those necessary when entering the workforce. Research by Barbatis (2010), Hern and Snell (2010), plus current research by Hern (2012), suggested that community colleges should consider accelerated pathways as an option for students needing developmental coursework, as well. Accelerated pathways allow college students who need developmental coursework to finish them in a shorter time frame so they can move onto credit-bearing courses. Visher et al. (2012) pointed out that using the Accelerated Learning Program (ALP) was a promising alternative to conventional stand-

alone developmental English courses. These programs pair credit-bearing courses with additional supports for students who struggle.

Another option was provided by Silver-Pacuilla et al. (2013) who suggested that it is possible to accommodate students, possibly with appropriate modifications, while they are in credit-bearing college classes instead of placing them in developmental coursework. Bolt, Decker, Lloyd, and Morlock (2011) surmised that accommodating students is an alternative to remediating them. Bettinger et al. (2013) suggested that institutions should consider increasing the use of technology, such as online supports or learning laboratories, to make the presentation of developmental coursework more efficient so that students can fast-track through the remedial process. They also posited that institutions of higher education should consider mainstreaming students who need developmental courses directly into credit-bearing classes because research showed that it is an effective alternative to having students take developmental courses. Rutschow and Schneider (2012) stated that there are many ways to increase the effectiveness of developmental education. Suggestions included encouraging alignment between schools and colleges, changes in the actual curriculum, practices or interventions, increased use of innovations/technology, varied placement assessments, staff buy-in, and professional development focused on the topic of developmental coursework.

Summary and Conclusions

Major themes associated with this study on the effect of developmental literacy coursework for students with disabilities focused on the literature on developmental coursework in general, for all students. Little is known about the effect that

developmental literacy coursework has on community college students with disabilities because there is a lack of literature on this subject.

Overall, findings indicated that developmental literacy does not typically have a positive effect on student performance (Casazza & Silverman, 2013). What is not known about the discipline is the effect that developmental coursework, specifically developmental literacy, has on students with disabilities who attend community colleges. This study has contributed to filling the gap in research by investigating a topic that had yet to be investigated. It extended the discipline because it provided sound research in an area that had not been studied thoroughly. This study can help administrators of community colleges at the site and others of similar sizes and locations, to make decisions about whether to keep, modify, or eliminate developmental coursework for students with disabilities.

Chapter 3: Research Method

Florian and Black-Hawkins (2011) indicated that the ability to accommodate students' unique learning needs had challenged community colleges. Advising college students with disabilities to take developmental coursework is one way that community colleges have chosen to deal with students' literacy needs. According to Richards (2015), such needs are, in part, a result of students with disabilities not graduating from high school with the skills necessary to be successful in college. Community colleges attempt to provide support for students who lack the skills necessary based primarily on results derived from the Accuplacer college placement examination to be successful in entry-level credit-bearing courses by placing them into a developmental course or courses.

Jaggars and Hodara (2011) stated that the problem of the effectiveness of developmental coursework for students is current, relevant, and significant to the field of special education. The effectiveness of developmental courses, especially for students with disabilities, is called into question. Developmental coursework, according to Goudas and Boylan (2012), does not prepare students for credit-bearing coursework at the community college-level. This finding seems to contradict the original purpose of developmental coursework. This chapter includes the Introduction, Research Design and Rationale, Methodology, Threats to Validity, Ethical Procedures, and Summary. I will discuss each of these sections in detail with relevant content outlined.

Introduction

My purpose in this study was to investigate the effect on grades earned in an entry-level credit-bearing English class after students with disabilities take a developmental literacy course while enrolled at a community college in central New York. I did this by focusing on the difference between mean scores of the grades earned by the two groups of students. The population included students with disabilities who enrolled in an entry-level credit-bearing English class after having taken or not taken a developmental literacy course. An important problem that I examined in this research is that developmental literacy coursework appears to be ineffective for community college students with disabilities. This was the underlying importance of the study. Also, the recommendations I proposed are in this study.

Research Design and Rationale

The research design was a causal-comparative approach to conducting a quantitative study. Seminal research indicated the rationale for using a causal-comparative design was that this type of study requires a comparison of two groups to establish a possible cause-effect relationship between variables (Gay & Airasian, 2000; Triola, 2012). One of the two groups of students with disabilities chose to take a developmental literacy course, and the other did not. One hundred percent of the population of study fit into Group 1 or Group 2. Group 1 was a group of students with disabilities who scored below 55 on the Accuplacer placement examination and took the developmental literacy class. Group 2 included students with disabilities who also scored

below 55 on the Accuplacer placement examination but did not take the developmental literacy course. I used archived data to examine the difference between mean scores of the grades earned by the two groups of students. Examining such data helped to answer the research question of whether a significant difference exists in the grades in the credit-bearing English course between students with disabilities who took a developmental literacy course and students with disabilities who did not take the developmental literacy course.

The developmental literacy course entailed instruction focused on students demonstrating proficiency by using a myriad of methods aimed at providing students with reading and writing comprehension strategies. This was done by using a wide variety of content-rich material. Also, instructors of these classes were asked, as indicated by the published course objectives from 2016, to broaden students' understanding of the mutual/beneficial relationships between reading comprehension and appropriate written response. Furthermore, the classes were designed to heighten students' metacognitive awareness, promote self-regulation, and enhance comprehension strategies. Last, developmental literacy at the research site was slated to address the same three rudimental objectives, including heightening students' metacognitive awareness, promoting self-regulation, and enhancing comprehension strategies.

The causal-comparative design method, according to Rumrill et al. (2011), is often used when accessing archived data. These data provide information that may be used to inform decisions. In this specific case, the method allowed me to obtain

information on the effect of developmental education literacy coursework for students with disabilities to determine a cause and effect relationship.

I investigated the difference between mean scores of the grades earned by the two groups of students. This study included a dependent variable, and it was the grade earned while the independent variable is the group membership status, which was either (a) participation in the developmental literacy course or (b) nonparticipation. I examined the mean scores and discussed the differences in terms of a potentially statistically significant result. This comparison led to me indicating a relationship between the developmental literacy course and the grades earned in the credit-bearing English course. Because there was no random assignment, and because I used archived data, the internal validity of the results could have been compromised.

I investigated the difference between the mean of student scores earned by the two groups of students. I conducted a *t*-test using unequal sample sizes for each group so that data could be analyzed. Also, this study included the dependent variable of the grade earned in entry-level English. The independent variable is the group membership status, which was either (a) participation in the developmental literacy course or (b) nonparticipation in the developmental literacy course. I examined the mean scores of the entry-level English class and discussed the differences in terms of a statistical significance between the two groups ($p < .05$). This comparison led me to indicate a relationship between the developmental literacy course and the mean entry-level English scores. Because there was no random assignment, and I used archived data, the internal validity of the results could have been compromised.

Methodology

Population

The target population included all students with disabilities who took an Accuplacer placement examination after being accepted to a community college in central New York between the years of 2013 and 2017 and scored below 55 on the reading section; thus, they were advised to take a developmental literacy course. I estimated that the sample for this study to be approximately 300 students who took the placement test at the community college used for this research study.

I included all students who met the criteria of having taken the placement test in the population. Group 1 was composed of students with disabilities who scored below 55 on the Accuplacer placement examination who were advised to take a developmental literacy course, registered for the course, and completed the course. Group 2 was composed of students with disabilities also scored below 55 on the Accuplacer placement examination who were advised to take a developmental literacy course but did not take the course. Both groups of students with disabilities took an entry-level credit-bearing English course, and I examined the mean of student scores earned in this course (using archived data) to determine whether the developmental literacy affected the entry-level English scores. I conducted a *t*-test using unequal sample sizes for each group. I describe the test and results later in the study.

In addition, both groups of students had the following attributes and qualities in common: They were students with disabilities, they attended the same community college in central New York, they scored below 55 on the Accuplacer placement examination,

they were advised to take a developmental literacy course, and they took the entry-level credit-bearing English course. I investigated the difference in mean scores earned in the entry-level credit-bearing English class after the students with disabilities did or did not take the developmental literacy course. A timespan of nine semesters, fifteen weeks in length, included the years between 2013- 2017. Ultimately, changes were made in the 2017 school year for the Developmental Literacy course at the study site in a pilot program to investigate implementing an enhanced class paired with a credit-bearing entry-level English class. The change was made and it is being reviewed within the department. Leaders are considering options in terms of the developmental literacy course, and the results of this study could potentially help them make an informed decision.

Sampling and Sampling Procedures

The setting for the study was a community college in central New York. On average, approximately 7,000 students have enrolled at the college with about 10% of the total student body being students with a disability though only approximately sixty students per year take the developmental literacy course (SUNY Broome Community College, 2019). I included information from the fall of 2013, and the total number of participants was estimated to be approximately 300 total students. I used convenience sampling to obtain data. With convenience sampling, researchers obtain easily accessible information (Triola, 2012). In this case, some of the students who attended the community college did score in a range on the placement examination that would have caused them to be advised to take a developmental literacy course. The criteria I used

limited the sample to include only students with disabilities who attended the community college from 2013-2017 who fit into one of two groups.

The rationale for using a causal-comparative approach given a convenience sample for the two groups was due to the need to compare two groups exposed to one or more interventions with a variable that was measured once by using archived grades scores from credit-bearing courses (Triola, 2012). Further, a convenience sampling method is often used because the participants are at a site that can provide data to explore the problem in depth and to a level appropriate for a doctoral level study. According to the institution's website, the developmental literacy course was, "a content literacy course providing instruction and practice in reading and writing comprehension strategies, with an emphasis on critical thinking" (SUNY Broome Community College, 2016, n.p.).

The course objectives were:

1. To provide students with reading and writing comprehension strategies using a wide variety of content-rich material. 2. To broaden students' understanding of the mutual/ beneficial relationships between reading comprehension and appropriate written response. 3. To engage students in the evaluation of multiple literacies, thereby enhancing critical thinking capabilities. 4. To heighten students' meta-cognitive awareness, promote self-regulation, and enhance comprehension strategies. (SUNY Broome, Community College, 2016, n.p.)

Archival Data

I collected data by gaining access to archived student information from an employee of the college with administrative privileges to access data. Data included students with disabilities who scored below a benchmark of 55 on the Accuplacer college placement examination and were advised to take a developmental literacy course. The college administrator who disseminated the information necessary assigned the students a random number. Scores of 55 or below indicated that those students with disabilities would have been advised to take a developmental literacy course. Information regarding the students with disabilities who did and did not take the developmental course was identified by the administrator inputting those specific data points into the information repository. I was then provided the information.

Each student enrolled at the site was given a transcript listing his or her Accuplacer score, classes attempted, and classes completed, as well as his or her grades. The institution set the cutoff score of 55 after a thorough review of suggestions made by the CollegeBoard (2014). The Accuplacer was and still is a frequently used standardized test that assesses college students' academic skills in the areas of mathematics, English, and writing. The Accuplacer was used to determine which of the students with disabilities were advised to take the developmental literacy course. Students who took the course would have had it listed in their course history. I included such information, and it was stored in a data collection program, as well as on the students' transcripts.

Data Analysis Plan

For this study, the main objective was to compare the two groups of students with disabilities (those who had taken the developmental literacy course and those who had not taken the course) on their entry-level English course grades. All data were entered into SPSS (version 25, IBM Corp, NY). The information gave me a clearer picture of how the students with disabilities who took the developmental literacy course performed in an entry-level college credit-bearing English class as compared to those students with disabilities who did not and how they performed in the same class. This information supported the decision I made to use a causal-comparative design method.

I based the dependent variable of grades earned upon performance measured by the instructor at an institution that used scaled scoring. Specifically, the community college for the study used alphabetic grades, A, B, C, D and F, which equated to grade ranges, 100-99 for an A, 98-90 for a B, 89-80 for a C, 79-70 for a D, anything below a 69 was considered a failing grade. The *t*-test showed that there was a difference in scores not due to chance. An alpha of .05 was the significance level used as the criterion to determine if the observed difference was due to more than just chance. If chance were ruled out as a plausible explanation, then it would be said that the difference is statistically significant and therefore, a relationship was determined. According to Rumrill et al. (2011), the independent *t*-test compares the average differences between the two groups. Statistical significance is determined if "the *p-value* of the observed scores is less than the predetermined alpha level set by the researcher" (Creswell, 2012, p. 192). If

the mean difference was statistically significant, then this information could support the continuation of the developmental literacy program.

Threats to Validity

The threats to external validity included the notion that the results gained from the research could not be generalized to a community schools with larger populations or 4-year institutions due to the small sample size of approximately 300 students who participated in the study. Also, I used a convenience sample of only one community college in a small urban setting in the northeast section of the United States. Thus it prevented me from having the ability to generalize the results due to the population only including students with disabilities. The results could help inform the stakeholders from the site where this study took place or other community colleges that are similar in size and location.

Generalization is important, according to Rumrill et al. (2011) because it allows the findings to be extended to other settings beyond the one used in the study. This concept could not be applied to this study. I considered generalization, but due to limited access to other institutions, it did not affect my decisions to conduct a study using only one site with a population of approximately 300 students in a small urban setting.

I considered threats to internal validity as a means to discover how the independent and dependent variable related to each other. Insomuch, a goal was to seek to exclude other explanations regarding the relationship (Rumrill et al., 2011). For the study, I considered the grade earned as the dependent variable. I looked to see if there

was a difference in the mean scores of both groups. Group A and Group B included students who scored 55 or below on the Accuplacer placement examination.

In this case, I included a convenience sample of students with disabilities who placed below 55 on the Accuplacer placement-testing examination and were therefore advised to take a developmental literacy course. Some of the students with disabilities took the developmental literacy course while others did not. The study did not use a random assignment because the participants used must have met certain criteria. They must have identified themselves as being a student with a disability, have taken or not taken a developmental literacy course, have taken an entry-level credit-bearing English course and have attended the research site between the years of 2013-2017. A random assignment would not have allowed me to selectively pick a group of students who meet all of the criteria. According to Rumrill et al. (2011), "random assignments reduces the possibility of systematic group difference that may influence scores on the dependent measures" (p.101).

I included other threats to internal validity, such as the testing procedure used to place the students into developmental education courses. I considered the Accuplacer college placement examination to be an internal threat. According to Talbert (2017), the placement-test should not be the primary means of placing students into developmental courses. The proposed site for this study used the Accuplacer results as the primary means to determine if a student would have been advised to enter a developmental class. Other factors such as a student's grade point average (GPA) and state testing results were

not typically factored into the decision to place students into a developmental literacy course.

In addition to internal and external validity, I also considered construct validity as a part of the research operation of the study. Construct validity "focuses on the specific causal factors or mechanisms that are responsible for the overall observed change in the dependent variable" (Rumrill et al., 2011, p. 109). For this study, I identified the grades earned as being the dependent variable.

There were several constructs that could have affected the outcome of this study. One construct included the ability of the developmental literacy instructors to use evidence-based instruction to the students. I would also include the motivation and construct intelligence of the students with disabilities who took the class. For example, Group 1, students with disabilities who decided to take the developmental literacy course, may have had certain self-motivation skills that those in Group 2, students with disabilities who did not take the course, did not have. Such concepts could have provided an understanding of the connection "between the abstract, conceptual definition of a construct and the concrete procedures that comprise the study" (Rumrill et al., 2011, p.109). I could not account for the threats to construct in the study, but I did identify them.

Lastly, I considered threats to statistical validity during the creation of the research. I used an independent *t*-test to compare the average differences between the two groups. Since the dependent variable of grades earned was based on scaled test scores, they were considered to be continuous because of interval scoring. Specifically, the

community college used in the study used alphabetic grades, A, B, C, D, and F, that equate to grade ranges, 100-99 for an A, 98-90 for a B, 89-80 for a C, 79-70 for a D, anything below a 69 was considered a failing grade. The independent *t*-test showed that there was a difference in means due to more than just chance. Statistical significance is determined if "the *p-value* of the observed scores is less than the predetermined alpha level set by the researcher" (Creswell, 2012, p. 192).

Ethical Procedures

Once the Institutional Research Board (IRB) approval was granted from Walden University and an IRB number assigned, I completed the application process to obtain approval from the research site. After obtaining IRB approval from the site, the archived data was requested from 2013-2017 and was provided to me.

All students with disabilities in the study did not have their names identified, but rather I assigned them a random number, thus adhering to the criteria listed in the Family Educational Rights and Privacy Act legislation (Fry, Therese, & Weckmueller, 1997). I kept the names of the participants confidential because I used a coding system in place of names, there was limited access to the data, and all information was kept in a secure location under an anonymous file name on a password-protected computer that only I had access.

The principal ethical concern addressed had been identified as the research site is my current place of employment. I did not teach any of the developmental literacy courses from 2013-2017. The use of archival data did not identify the participants, and

that was done as a way that prohibited researcher influence. I made further considerations when the data was analyzed, and a discussion of results created.

To gain access to the site, I received permission from the colleges' Institutional Research Board (IRB) that included, but was not limited to the President, Vice-Presidents, Board of Directors, and Data Specialist. I requested and obtained permission through a formal letter with a subsequent follow-up email that outlined my main purpose of the study, the approximate amount of time I needed to collect data on site, efforts that I took to ensure the protection of participants, and I included how the results will be beneficial to education. Since I used archived data indicating which students with disabilities who scored below 55 on the Accuplacer took and did take the developmental literacy course were included, plus mean scores earned in an entry-level credit-bearing English, informed consent document was not necessary (Rumrill et al., 2011). The members of the IRB were asked if they wanted to receive results in the form of a report summarizing information after data was collected accompanied by a formal letter stating that I did not disclose any personal information of the participants, including but not limited to names, grades, specific college or other identifiable descriptors that could compromise anonymity during the study. Because no such information was requested the IRB indicated that a letter would suffice.

Researchers must abide by the IRB of both Walden University and that of the college of study requirements that specifically point out that it is important to use precautionary measures to protect the rights of the participants to ensure confidentiality throughout the study. Computers used for the study were passcode protected, timed out

after ten minutes of inactivity and were in a locked office. The information used for the study will be held for five years, as required by the Walden University Institutional Review Board (2015). The deletion of the file will occur after that.

Summary

The design method for this quantitative causal-comparative study was to determine if there was an effect on students with disabilities who took a developmental literacy course after being advised to do so after scoring below 55 on the Accuplacer test. I choose to use archived data to obtain information. I presented the results of the inquiry in Chapter 4.

Chapter 4: Reflections and Conclusions

My purpose in this causal-comparative quantitative study was to determine whether a statistically significant effect exists on the mean grades earned by community college students with disabilities who took an entry-level credit-bearing English class after taking a non-credit-bearing developmental literacy course when compared with students who did not take the developmental course. The research question focused on determining whether the mean scores earned in the entry-level credit-bearing English course differed between the two groups. I compared average grades earned by one group of community college students with disabilities who took an entry-level credit-bearing English class after taking a developmental literacy course with a second group who did not to take the developmental literacy course. Specifically, I designed this research study to investigate the following question:

RQ1: Is there a significant difference in the mean scores in the credit-bearing English course between students with disabilities who took a developmental literacy course and students with disabilities who did not take the developmental literacy course?

H_{01}: There is no significant difference in the mean scores in the credit-bearing English course between students with disabilities who took a developmental literacy course and students with disabilities who did not take the developmental literacy course.

H_{a1}: There is a significant difference in the mean scores in the credit-bearing English course between students with disabilities who took a developmental literacy course and students with disabilities who did not take the developmental literacy course.

In this chapter, I reference details about this study's setting, participant demographics, and data collection procedures. I include and explain the results derived from the study. A summary of the results is at the end of this chapter.

Data Collection

The time frame for this study in which I used archived data included information from the fall of 2013 to the fall of 2017. This included a total of nine traditional 15-week semesters. Data included information from two groups of students. Both groups of students had identified themselves as having a documented disability; all attended the same community college in central New York, all earned scores below 55 on the Accuplacer placement examination, all were advised to take a developmental literacy course, and to take the entry-level credit-bearing English course. The first group took the developmental literacy course, and the second group did not.

I presented several discrepancies in the data collection in Chapter 3. I estimated the study would include approximately 300 students. The archived data indicated that a total of 166 students fit the criteria for the study. Some students who started in either class either chose to withdraw or were administratively dropped due to lack of attendance from one or both of the classes.

Also, I noted a discrepancy in the grade ranges included in Chapter 3. There it stated that the grade ranges were a 100-99 for an A, 98-90 for a B, 89-80 for a C, 79-70 for a D, anything below a 69 was considered a failing grade. In actuality, the grade ranges were 100-88 for an A, 87-78 for a B, 77-68 for a C, 67-60 for a D, and anything below a 60 was considered an F. GPAs at the college use a 4.0 GPA scale.

Baseline descriptive data and demographic characteristics of the sample included two groups. Group 1 was composed of students with disabilities who scored below 55 on the Accuplacer placement examination who were advised to take a developmental literacy course and did take the course. A total of 31 students took both the developmental literacy course and the English 110 course.

Group 2 was composed of a group of students with disabilities who also scored below 55 on the Accuplacer placement examination and were advised to take a developmental literacy course but did not take the course. I indicated that the archived data had 135 students that fit this criterion. Both groups of students with disabilities took an entry-level credit-bearing English course, and I examined the mean scores earned in this class using archived data to determine whether there was a significant difference between the two groups of students. There were 166 total students included in the study.

This sample is proportional to the larger population of the research site in terms of the students with disabilities included in the study. The sample used 166 participants who aligned with the study criteria. At the research site, approximately 10% of the total student population identifies as a student with a disability (Senior Accessibility Resources Office Specialist, personal communication, 2018). Approximately 6,000 students are enrolled at the study site each academic year. Given a 10% reporting rate of students with disabilities each year, I assumed that approximately 600 students with disabilities would be taking classes. Actual data indicated a total of approximately 750 students enrolled in the developmental literacy course during the nine semesters. A total of 201 students fit the criteria as being a student with a disability for the study, indicating

a reasonable sample to represent the population. Represented in this group were approximately 28% of the students with disabilities. Thus, the sample is representative of the population of interest.

Results

The results of the hypothesis tested determined a statistically significant difference in the mean scores earned in the credit-bearing English course between students with disabilities who took a developmental literacy course and students with disabilities who did not take the developmental literacy course. Table 1 shows that I conducted a *t*-test using unequal sample sizes for each group. I used a *t*-test so that data could be analyzed. Mean scores in the credit-bearing English class obtained by the students with disabilities were higher by .62 points if they only took the credit-bearing English 110 without taking the developmental literacy course prior

Table 1 includes information about the archived data study sample used for this study. I included all students with disabilities who took Developmental Literacy before taking English 110 (n), those who took English 110 (n), the mean, standard deviation (*SD*), and standard error (*SE*).

Table 1

Archived Data Study Sample

Group	*n*	Mean	*SD*	*SE*
With Dev. Lit.	31	2.03	1.303	.234
Just Eng. 110	135	2.65	1.346	.116

Table 2

Independent Samples Test

		Levene's Test for Equality of Variances								
									95% confidence interval of the difference	
		F	*p*	*t*	*df*	*p* (2-tailed)	Mean difference	*SE* difference	Lower	Upper
Score	Equal variances assumed	.888	.348	-2.325	164	.021	-.620	.266	-1.146	-.093
	Equal variances not assumed			-2.372	45.866	.022	-.620	.261	-1.145	-.094

Because there were unequal sample sizes, I had to test for unequaled variances. This is why I did the post hoc analysis called the Levene's test for unequal variances. As seen in Table 2, the significance figure labeled *p* is greater than .05, meaning that even though there were different samples sizes for the groups, the variances for each group were equal. Table 2 included information about the data obtained from the *p* value from the two-tailed *t*-test. The *p* value for the two-tailed *t*-test was .021, which was less than the alpha value of .05. This was statistically significant in that it showed a difference in

the mean values between the two groups of students in the study. From this table, the significance figure labeled *p* is greater than .05, meaning that even though there were different samples sizes for the groups, the variances for each group were equal. The *p* value was .021, which was less than the alpha value of .05. This indicated that the difference in the mean values was statistically significant. The 95% confidence interval (CI) for the *t* statistic -2.31 is between -1.14 and -.93. The calculated effect size is $d = .35$, and it is a small effect size emphasizing that the difference between the two means is small. There was a statistically significant difference in the mean scores of students with disabilities who participated in a developmental course and those of the students who did not participate in the course, $M = .62$, 95% CI [-1.14 to .92], $t(164) = -2.325$, $p = .021$, and $d = .35$. Because there was a statistically significant difference between the means ($p < .05$), I can reject the null hypothesis. A total of 166 students who took the English course without taking the developmental literacy course beforehand earned a mean score that was .62 points higher than those who had taken the developmental course.

Summary

My purpose in this quantitative causal-comparative study was to examine whether a developmental literacy course had a significant effect on the success of students with disabilities who took English 110 compared with students with disabilities who did not participate in the developmental course. Archived grades from 2013 to 2017 indicated that 166 total students fit the criteria for this study. The research question focused on the mean difference between two groups of students' grades in English 110. I analyzed the data using an independent-sample *t*-test. I compared one group of students with

disabilities participated in a developmental course, and their overall English 110 grade with another group of students with disabilities who did not participate. Overall, the results indicate that students with disabilities who did not take the non-credit-bearing developmental literacy course earned higher mean scores compared with those who did. I rejected the null hypothesis indicating that there was a statistically significant difference between the means of the two groups that was small due to the small effect size. Chapter 5 includes discussions, conclusions, and recommendations related to this causal-comparative quantitative study.

Chapter 5: Discussion, Conclusions, and Recommendations

My purpose in this causal-comparative quantitative study was to investigate whether there was an effect on the grades of community college students with disabilities who took an entry-level credit-bearing English class after taking a non-credit-bearing developmental literacy course. I examined the mean scores earned in the entry-level credit-bearing English course from the two groups. I compared grades earned by one group of community college students with disabilities who took an entry-level credit-bearing English class after taking a developmental literacy course with a second group who did not take the developmental literacy course. It was important to determine whether there was an effect on students with disabilities achievement who took the non-credit-bearing developmental literacy course before moving on to take the credit-bearing English course because seminal research by Barrow et al. (2013), Bettinger et al. (2013), and Bailey et al. (2010) stated that there are concerns about the effectiveness of developmental coursework. An analysis of the data that I used in this study supports the concerns raised by other researchers.

The key findings that I determined in this study indicated that students with disabilities who took a developmental literacy course before taking a credit-bearing English class earned lower mean scores than those who did not take the non-credit-bearing developmental literacy course. Students who took the English course without taking the developmental literacy course beforehand earned a mean score that was .62 points higher than those that had taken the developmental course. This small mean difference was statistically significant with a small effect size. The practical significance

of this is that it appears that this developmental course does not help students with their English course.

Interpretation of the Findings

I expected the results of this study to contribute to the research that addresses a meaningful gap in practice in terms of the study of the effect of developmental coursework for students with disabilities. Specifically, I designed it to determine, using archived data from 2013 to 2017, whether students with disabilities were more prepared for a credit-bearing entry-level English course after having taken a developmental literacy course as determined by examining mean earned final grade point averages (GPA). The findings indicated that there was little difference in the effect of the developmental literacy course on student English course final scores.

Studies on the effect of developmental education had historically not typically focused on students with disabilities. I investigated the effect that developmental literacy coursework had on students with disabilities who attended a community college in central New York between the fall of 2013 through the fall of 2017. This research expanded the body of knowledge related to developmental education.

My purpose in this causal-comparative quantitative study was to determine whether there was an effect on the grades of community college students with disabilities who took an entry-level credit-bearing English class after taking a non-credit-bearing developmental literacy course. I chose to use a causal-comparative study method that used archived data with a convenience sample population. Because the research used archived data that compared means between two groups, I chose an independent sample

t-test to assess statistical values using SPSS. I obtained statistical significance in this study in general terms of all of the students collectively. When looking at the findings in total, I rejected the null hypothesis of the research question.

The findings of this study indicate that students with disabilities in the non-credit-bearing class before taking the non-credit-bearing English earned mean scores that were .62 points lower than the students with disabilities who took only the credit-bearing English course. Such information confirms not only the concern about the continued placement of students in developmental courses; it also supports the notion to explore developmental practices and policies for community college students because of negative effect on students' fiscal status and lack of retention. Furthermore, it supports the need for better intervention, improved staff development opportunities for developmental instructors, plus a more in-depth analysis of students with disabilities who are taking this developmental course.

Changes to developmental education policies were discussed by Jordan (2018) who posited that reforms are necessary because institutions of higher education are "recognizing that remedial programs are largely responsible for eroding student financial aid packages and acting as barriers to graduation . . ." (p. 227). Furthermore, in terms of community college students with disabilities, the research gathered in this causal-comparative quantitative study could be used in support of eliminating or revising developmental coursework. Many states have decided to stop funding developmental coursework because they appear to be ineffective, as this research supports, but it was with 4-year colleges (Barnes, 2017). Whereas eliminating funding is an option, some of

the research supports spending time, money, and training on making changes to existing systems and programs, especially when talking about community colleges (Boylan, Calderwood, & Bonham, 2017; Jaggars & Bickerstaff, 2018). This is because more underprepared college students decide to enroll at community colleges with open enrollment as opposed to going on to 4-year institutions that may not have open enrollment policies.

Also, the findings confirm the information presented in the Literature Review found in Chapter 2. The data analyzed in this study supports research by Florian and Black-Hawkins (2011) in terms of developmental courses being ineffective. This was true in terms of students who took the developmental course earning lower average grades in English 110 after having taken the developmental literacy course. In a general sense, this research could provide the rationale to support the notion posited by Holschuh and Paulson (2013) that developmental coursework hinders students' performance thus supporting the idea that this approach is ineffective.

The theoretical frameworks for this study included behaviorism, cognitivism, and constructivism. The frameworks aligned with and built on the learning objectives for the developmental literacy course. The course objectives according to SUNY Broome Community College (2016) indicated that students would have improved reading and writing comprehension strategies, increased knowledge of the symbiotic relationship between how to use reading comprehension skills to respond in the written form appropriately and increase a student's level of critical thinking. In this study, I did not provide conclusions about the effectiveness of the developmental coursework in terms of

the outlined learning objectives. Participation in the developmental course did not, according to an analysis of mean scores, indicate better performance in the credit-bearing English class. To the contrary, I discovered the opposite effect because the students who did not take the developmental class before taking the credit-bearing English class did better than those who did.

Limitations of the Study

As described in Chapter 1, there were limitations to generalizability, validity, and reliability that arose from the examination of the archived data. The limitations that are associated with the research could include the inability to conclude that all students with a disability were in the study because students are not required to register with the Accessibility Resources Office. This could have led to an underreporting of students with disabilities who took the developmental literacy course before proceeding to the credit-bearing English class. Therefore, the actual number of students with disabilities who took the developmental course could have been more than the 31 students in this study.

Also, there were problems with this study in terms of generalizability because I chose to review only archived mean scores from one community college in rural central New York. The study focused on nine traditional 15-week semesters and did not investigate other developmental courses beyond literacy. Although the study does have external validity due to the number of participants being proportional to the larger population of interest at the chosen research site, it cannot be generalized to other colleges that differ in size or location.

Other limitations include my choice to use archived data that were collected by the research site and relied on reporting by various departments. Such data cannot be proven to be accurate. This issue was discussed in seminal information provided by Lodico et al. (2010). Furthermore, other limitations beyond the data review method centered on the no standardized assessments used in the courses that determined GPAs. When nonstandard measures are used, subjectivity in grading is a possibility. This could have contributed to the higher mean averages obtained by the students who took only English 110 without previously taking the developmental literacy course.

Recommendations

The recommendations for further research that are grounded in the strengths and limitations of the current study, as well as in the literature reviewed in Chapter 2, point to a need for developmental literacy coursework to be eliminated at the community college level or for sweeping changes to be made to the existing developmental coursework curriculum at the research site. Specifically, the findings of this research could affect decisions made by administrators of this and other community colleges of a similar size and locale regarding maintaining, amending, reducing, or even eliminating developmental literacy coursework for students with disabilities. Daugherty, Gomez, Carew, Mendoza-Graf, and Miller (2018) and Royer and Baker (2018) indicated that a plethora of corequisite models are being implemented at colleges across the United States. Such work would provide an alternative to subjecting students with disabilities to take a non-credit-bearing developmental literacy course that according to the data from this study, did not have a positive effect on grades.

Also, future research could entail investigating other aspects of the problem. For example, initial college placement scores of the two groups, scores earned in high school English courses, including, but not limited to, the New York State Regents exams or Common Core exams. An examination of the socioeconomic standings of the student groups, if the students with disabilities in developmental coursework are first-generation students or what specific classification the participants reported to the Accessibility Resources Office at the study site are also examples of possible topics of inquiry. In the future if such studies are conducted, they could provide detailed information regarding the background of the participants and would include gender and ethnicity. This study also could extend itself into qualitative research on the same topic. This research would include surveys, a program review, or even case studies. Overall, any further work on this topic would help to fill the need for research that addresses a meaningful gap in practice in terms of the study of the effect of developmental coursework for students with disabilities.

Although the complete elimination of developmental coursework is an option due to the lack of data to support a significant effect for students with disabilities, alternatives to taking such drastic action do exist. Options could include considering ways to improve or enhance developmental coursework, and I mentioned some earlier in this study. This could be done, according to Silver-Pacuilla et al. (2013), by implementing evidence-based instructional concepts in the developmental literacy class.

Furthermore, the results could support implementing what Bustillos (2012) suggested in terms of instructors' use of modulized or contextualized curriculum. Also,

mainstreaming students into credit-bearing courses, implementing supplemental instruction, enhancing techniques for the advising process, embracing mastery learning models, increased participation in learning communities, and the implementation of holistic supports provided outside of school should be considered as a result of this study.

Other options to replace developmental coursework were previously discussed in the study by MacArthur et al. (2015), and they discussed several practices that were proven to be effective. These included using planning and revising strategies, additional support, and how to self-regulate. Other authors such as Silver-Pacuilla et al. (2013) supported the need for self-regulation because it can assist students in gaining developmental skills that could help them to increase their reflective, planning, and goal setting abilities.

Improving the actual coursework by using a variety of strategies is imperative, but other factors should be considered as a result of this study. Bettinger et al. (2013) indicated that students taking developmental courses had increased levels of success when given additional supports such as access to child care, financial aid help, tutoring, summer bridge programs, learning communities, counseling and tutoring. Although some of the supports were in place at the study site, as indicated by former instructors, it would be advantageous for the support programs to be explored further, especially for students with disabilities.

Also, in 2014, The State University of New York (SUNY) Task Force on Remediation suggested that colleges work with local high schools to offer more accelerated coursework and analyze assessments used to determine college readiness,

while at the same time striving to continuously improve existing developmental coursework. This is something that the research site used for this study should do because many high schools work closely with the community college. The last viable option to consider was to use team teaching that conceptualized material (Hamilton, 2013). It would seem that any changes discussed in this study would need what Boatman and Long (2018) said is a vital element to any developmental literacy program, and that is administrative support. The author pointed out that effective developmental coursework would require changes in administrative practices and revisions made to the infrastructure and data collection processes. Combined, the options above could increase the effectiveness of the developmental literacy course for community college students with disabilities.

Implications

The potential effect for a positive social change at the community college-level for students with disabilities who were advised to take a developmental literacy course and did so resulted in a determination that the course did not have a positive effect on the mean average grades in a credit-bearing English class when compared to students who did not take the non-credit-bearing course. A literature review included in Chapter 2 of this study led to the conclusion that a need exists for research that specifically investigates the effect that developmental literacy has on students with disabilities.

The knowledge obtained in this causal-comparative quantitative study can help to fill the need for research that addresses a meaningful gap in practice. Crisp and Delgado (2014) conducted research that shed light into many aspects of developmental education.

MacArthur et al. (2016) supported Crisp and Delgado by saying that specific information about the effect of developmental education for students with disabilities is limited to only students who identified as being learning disabled. Conversely, in this study, I addressed all students with disabilities and did not delineate the specific classifying condition. The choice to include all disabilities was done to address the need for research that addressed a meaningful gap in practice. Another reason behind the decision to conduct this study given the set criteria for participants supported the notion that meeting the needs of underprepared students via developmental coursework is an issue faced by community college administrators (Pruett & Absher, 2015). I would hope that this research would help to inform administrators at the study site to make informed decisions regarding developmental coursework.

There are many recommendations for practice in terms of revising developmental education coursework to improve the mean scores earned in credit-bearing coursework. The City University of New York (CUNY) Start program sounds promising, according to Weiss (2017). The idea is to provide a low-cost, short-term alternative for students who would have been advised or required to take developmental coursework.

Conclusion

After reviewing the data obtained from this study, the key essence of the research centered on the notion that resources provided for developmental programs aimed to support underprepared students with disabilities who attend community colleges need to be reallocated. Educational stakeholders should consider funding programs that place students with disabilities into credit-bearing classes without expecting them to take a

developmental literacy course as a prerequisite. Also, institutions should lessen the amount of developmental coursework in general because they have proven to be historically ineffective, especially in rural community college environments.

In terms of specifically addressing student needs, more research on developmental education is necessary because what is available often fails to include disability status for study participants. Boylan and Trawick (2015) stated that to further the knowledge base of developmental education, "Organizations such as the Community College Research Center, Jobs for the Future, MDRC, and the Center for the Analysis of Postsecondary Readiness . . ." need to come together to address the issues that are not only evident in the available literature on the topic of developmental education, but what was discussed in this study (p. 33). Regardless of the decisions that institutions of higher education choose to make, especially the research site administrators, one constant theme remains. Students with disabilities will continue to need assistance in an academic setting, but developmental coursework, as it is now, may not be the best option.

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