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The Textbook Decision: Purchasing Options Affecting Students in the Classroom

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The Textbook Decision: Purchasing Options

Affecting Students in the Classroom

by

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DEDICATION

This dissertation is dedicated to my beautiful wife Julianne, who made me take the leap to get back into higher education and follow my dreams. I love you. Also, to my two amazing daughters: AnnaReed and Ellis; without you two, this dissertation would have been finished a year ago. In all seriousness, I will never step in the way of your dreams, and I can't wait to see how you both impact this world for the better.

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In loving memory of Sibyl "Sibby" Reed (1926-2018). She dedicated her life to her family and to higher education.

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ABSTRACT

This dissertation examined the relationship of student textbook purchasing practices to student success and satisfaction in selected general education undergraduate courses at a Florida public community college. The study utilized secondary data sources, specifically bookstore purchasing data, student records, and student satisfaction survey results. Descriptive statistics and ANOVA were used to determine relationships. Seven specific research questions were answered, and statistically significant results were identified as a result of the data analysis.

The results indicated that there was a relationship between the type of textbook/course material purchased or rented and a student's final grade in a course. There was also a relationship between digital media textbooks/course materials and lower course satisfaction.

When reviewing when students elected not to purchase any textbook/course material for a course that required one, those students reflected lower course grades than students that had access to the textbook/course material in some capacity. When students were provided with an option for their textbook/course material media type, traditional textbooks (paperback or hardcover print) were the most frequently selected.

Finally, the results indicated that there was a relationship between higher priced textbooks/course materials and lower grades, when compared to lower priced textbooks/course materials, and course satisfaction scores also reflected lower scores with higher priced textbooks/course materials.

CHAPTER 1

INTRODUCTION

Of the many expenses students incur as a part of their college or university experience, the cost of required textbooks and course materials is often prohibitive, having the potential to be a major barrier to students' ultimate success in higher education. Since 1986, these expenses have been increasing substantially for students (Koch, 2006). The ever-increasing cost of purchasing textbooks and course materials is a growing financial burden for students in higher education (Kingkade, 2013). Higher education institutions are working to manage these textbook costs for students, but the average overall cost of materials continues to increase across the United States (Carbaugh & Ghosh, 2005).

Many professors, in conjunction with college auxiliary services departments and college bookstores around the country, are creating new and innovative ways to help curb rising textbook costs. These new options are expanding across North America. However, publishers, bookstores, and higher education institutions themselves are all trying to boost revenues. Many businesses are benefitting from the sale of textbooks and materials while students ultimately pay rising prices.

During the paper era of textbooks, secondary markets and libraries for textbooks emerged as opportunities for students to find materials at a lower cost. Old editions or used materials could be re-sold at a fraction of the original cost, providing cost savings to students. New editions emerged as content within a specific field of study needed to be updated, but those

updates did not occur as frequently as knowledge was changing, so the existence of used content continued to drive the secondary textbook markets (Helft, 2009).

Since the massive expansion of the Internet, online learning in higher education has grown dramatically. With online learning and course bundle or course license fees, publishers found a way to eliminate the used market by requiring unique activation codes for students to access course-specific materials (Greco, 2013). Every course and course material type selected by an instructor can now have a direct effect on students' finances.

Problem Statement

Costs for higher education textbooks and course materials have skyrocketed since 1986 (Koch, 2006; Koch, 2006). The community college in southwest Florida studied for this research has tried to defray increasing costs by offering a greater variety of course material and textbook options to students, but keeping costs down is a challenge. This problem is not isolated to this one institution, as these challenges also exist on a national level (Kingkade, 2013).

Due to efforts by the studied institution, the average amount spent by students annually on textbooks and course materials is less than the national average (Annand & Jensen, 2017). Many students, however, still struggle to cover costs of their course materials, despite efforts by administration and faculty.

Addressing the *value* of textbooks and course materials at this community college in southwest Florida is the foundation of this study. Students perceive value in different ways. Students may decide on a price they are not willing to exceed on any given textbook or set of course materials, regardless of the potential negative effect on their overall grade or their declining satisfaction in a given course. This study provides administrators and faculty members

opportunity to gain a greater understanding of the value students place on course materials, and how the adoption decisions made may affect the decisions of the students enrolled. The results of this study could be important for students as well, as any identifiable cost savings options (without the sacrifice of quality) for textbooks and course materials could have a significant impact on student finances. Mellow and Heelan (2014) reported that financial burden tends to play a greater role in the students' lives at state or community colleges.

In a perfect setting, textbooks would be bundled into the cost of tuition, as some legislators are proposing (Penix, Meyer, Johnston, & Fisher, 2017), as that would place textbook and course material costs in complete control of the colleges and universities and eliminate many of the burdens placed on students during the textbook or course material buying process. There are many hurdles, however, to implementation of this solution. Due to the large role played by many states' legislatures in public higher education, implementing such a program could be very slow-moving.

There has been minimal educational research conducted looking at the relationship of student purchasing practices of textbook and course material options to student success and satisfaction in selected general education courses at community colleges in Florida. This is even more pronounced at the general education level where many students enrolled in specific courses are not taking that course as part of their major field of study.

Purpose of the Study

The purpose of this quantitative study, utilizing secondary data sources, is to describe the relationship of student purchasing practices of various textbook and course material options to student success and satisfaction in selected general education undergraduate courses at a

community college in southwest Florida. The study examines the relationship between student success as measured by course grades and student purchasing decisions among various textbook and course material options. The study also explores the relationship between course satisfaction and student purchasing decisions among various textbook and course material options.

Research Questions

The following research questions address the purpose of this quantitative, correlational study:

1. What is the relationship between student use of various textbook/course materials acquired through the college bookstore and student course success, measured by final grade (A, B, C, D, F) at a Florida community college?
2. What is the relationship between student purchasing decisions of textbooks/course materials and student course satisfaction at a Florida community college?
3. What is the relationship between student purchasing decisions of textbooks/course materials and students' success, measured by student success perception (via self-reported grade) (A, B, C, D, F), in selected general education courses within the context of this study at a Florida community college?
4. What is the relationship between student purchasing decisions of textbooks/course materials and students' age and gender at a Florida community college?
5. What is the relationship between student purchasing decisions of textbooks/course materials and selected general education course subjects at a Florida community college?

6. What is the relationship between cost of textbooks/course materials and course success (final grade) at a Florida community college?
7. What is the relationship between cost of textbooks/course materials and course satisfaction at a Florida community college?

Significance of the Study

Ma and Baum (2016) described textbook affordability as a major point of discussion in higher education in the first part of the 21st century as the number of students incurring student loan debt increased. The creation of new alternative options to lower student costs has been helpful, but there are still challenges in addressing proper and adequate utilization of textbooks and course materials among students. This study provides insight into the textbook and course materials options currently available to students at a Florida community college and potential benefits of students' utilizing those options. Professionals in higher education auxiliary services and academic affairs may find value in this study as these two departments often work together in the textbook adoption process. This study also provides insight into how students are using those adoption choices, addressing areas such as cost type and subject matter, as well as how students' purchasing decisions relate to student success in the classroom.

This study looks only at one specific community college in Florida, but many of the challenges at this site are like those throughout the state, as well as in higher education in other parts of North America (Annand & Jensen, 2017). Pieces, if not all, of this study could be re-examined using similar criteria at many colleges and universities in North America with minimal modification.

Definition of Terms

Auxiliary Services. Also known as ancillary services, business services, campus services or non-academic campus support. From campus bookstores to student unions, these services are in the business of generating revenue and finding campus solutions. It is an industry that provides over $40 billion in higher education revenue (National Association of College Auxiliary Services (NACAS, 2017).

Campus Business Partner. A private company that provides an on-going service to a college or university. Campus business partners are required to be actively involved in campus Auxiliary Services to ensure proper operation of the vended program (The Council of Purchasing Professionals (COPP, 2013).

Choice text. The options occasionally available to students when selecting textbooks to purchase for a specific course. These options allow students to choose from various course material mediums (i.e., physical book, online, e-book) (Sandoval, 2016).

Classroom. Defined as a medium for which a student is taking a class within a community college. This would include in-person, face-to-face classroom meetings, blended class settings, in which a student or students come into a classroom for a class, as well as interact with their class online, and a "virtual" classroom for students who are enrolled in a specific class online, where there would be no physical space for meeting as a class.

Community College. Formerly known as junior colleges, community colleges are primarily two-year public institutions of higher education (Cohen, 2008).

Course pack/Course bundle. Online course materials used as a stand-alone product for students or in conjunction with a physical textbook. Course packs/course bundles usually incur a

one-use only course license fee that cannot be refunded, transferred, or re-sold (Nackerud, Stegeman, & Wagoner, 2014).

Family Educational Rights and Privacy Act (FERPA). A Federal law that protects the privacy of student education records. The law applies to all higher education institutions that receive funds under an applicable program of the U.S. Department of Education (FERPA, 2001).

General education courses. For the purpose of this study, general education courses refer to the following high-enrollment courses at the study site:

- Elementary Algebra
- Intro to Philosophical Reasoning
- Applied Ethics
- American Government
- Anatomy and Physiology I
- General Psychology
- General Chemistry I

Integrated Postsecondary Education Data System (IPEDS). A system of interrelated surveys conducted annually by the National Center for Education Statistics (NCES). IPEDS gathers information from every college, university, and technical and vocational institution that participates in the federal student financial aid programs. The Higher Education Act of 1965, as amended, requires that institutions participating in federal student aid programs report data on enrollments, program completions, graduation rates, faculty and staff, finances, institutional prices, and student financial aid (NCES, 2017).

International Standard Book Number (ISBN). An ISBN is a product identifier used by publishers, booksellers, libraries, internet retailers and other supply chain participants for ordering, listing, sales records, and stock control purposes. The ISBN identifies the registrant as well as the specific title, edition, and format (International ISBN Agency, 2014).

National Center for Education Statistics (NCES). The primary federal entity for collecting and analyzing data related to education (NCES, 2017).

Textbook adoption. A list of details about the textbooks a member of the faculty (or sometimes appointed staff personnel) want to list as *required* or *recommended* for specific courses in the course catalog. This information includes the textbook title, author(s), and ISBN number, and may also include required or recommended supplemental material, study aids, lab equipment, technology, etc. (Meador, 2014).

Textbook affordability. As defined by the Florida Department of Education, the effort by higher education institutions and their governing bodies to monitor and assist in the reduction of the cost of textbooks and course materials/resources ("Textbook affordability", 2017).

University. The modern university is institution of higher education and research which grants academic degrees in a variety of subjects. It provides both undergraduate education and postgraduate education, as well as conducts research in numerous fields of study (Barnett, 2015).

Limitations

There are several possible limitations with this study. First, generalizability of results may be limited because this study focuses on one small community college in Florida. Furthermore, context to be studied within this community college is limited to a small number of

general education courses and may not cover every subject matter available to all students due to a lack of readily available data.

Participants completed a satisfaction survey as part of regular data collection processes for the institution, and their responses are assumed to be accurate and true. However, due to the anonymous nature of the surveys, they cannot be validated to 100%. An additional limitation is the lack of a well-rounded population of students from a demographic standpoint. Due to the selection of specific courses for this study, there is no control over the ratio of males to females or traditional versus non-traditional students. For example, one course may be made up of entirely male students under the age of 25, which creates challenges from a data analysis standpoint when comparing demographic information against textbook or course material type and textbook or course material cost.

An additional limitation exists regarding the lack of access to the participants' field of study. A participant's grade in a course may be related to the textbook used, but that student may have an advantage over another student based on field of study. For example, a mathematics major may be better equipped to receive an "A" in a general education college algebra course than a business management major.

Regarding student academic success, this study attempts to control for a student's overall GPA in measuring the relationship between a textbook decision and a student's course grade. As an assumption, a student with a higher GPA should receive a higher grade in a course than a student with a lower GPA.

The institution that serves as the site for this study is made up of three primary campuses, with an on-campus bookstore located on two of the three campuses. Online courses, or blended campus courses, are only offered at one of the three locations; therefore, there is no way of

identifying the availability of textbooks or course materials at a specific campus at the time of purchase. For example, a textbook may be available in five different formats for purchase, but on the day Student A goes to purchase or rent his or her textbook, only four of those options may be in stock. One campus could potentially have a greater stock of the same course materials than another, limiting the options for Student A. The study can identify which campus the textbooks or course materials were purchased from but cannot identify what the stock amounts were at the specific time of purchase.

Another assumption is that the majority of participants are lower division students, as that is the primary student population of state/community colleges. The study is not able to control for upper division or graduate students enrolling in one of the selected courses, as that data are not available for this study.

The courses operationally defined as general education courses each have required course materials or textbooks, indicating the use of the adopted course materials as vital to success in the course. These course sections are limited to review of one instructor's sections per course, as different teaching styles and syllabi could provide extraneous variables when analyzing the data.

Finally, not every student purchases his or her textbooks or course materials directly from the college bookstore. In fact, on average only 60% of a course's textbooks are purchased from the college's bookstore (Taylor & Steele, 2014). As a result, this study also analyzes data from participants who did not purchase directly from the bookstore via a satisfaction survey of various auxiliary services distributed each semester to determine what method was used (third party purchase, borrow, library, no purchase) by the participant to measure against the research questions presented. This study measures actual purchase data alongside self-reported purchase

data from participants who did not purchase their textbooks or course materials from the college's bookstore.

Delimitations

Delimitations of a study include characteristics arising from the scope of the study. This study does include any data from students who are in post-baccalaureate studies. Students may be taking courses at the Florida community college serving as the site for this study, while also enrolled at another institution taking graduate level courses, but those students' responses are omitted from the data analysis. The study will also focus primarily on reviewing lower level courses (freshman and sophomore level courses) which should eliminate many upper level students.

Also, this study does not include purchases made in the bookstore after the college's drop/add period. The study assumes that purchases of textbooks or course materials made later in the semester present a more challenging situation for a student, as they have been without textbook and course material for valuable class time

A variable that is not isolated is financial aid recipient status. The purchases of textbooks in the on-campus bookstore are primarily done by students who receive some form of financial aid. There is no way to filter respondents based on their financial aid status.

A portion of this study only examines specific courses when measuring textbook costs against course success and satisfaction. The specific courses selected represent general education courses with high enrollments. The State of Florida requires that all undergraduate students complete a General Education Core. By selecting courses with high enrollments, the response rates should be greater than in smaller courses.

Organization of the Study

This study is separated into five chapters. Chapter 1 provides an introduction to the study, an overview of the existing problem regarding the rising costs of textbook and course materials, the purpose and significance of the study, and the research questions to be analyzed. This is followed by the definition of key terms used in the study, a description of key limitations and delimitations of the study, and the organization of the study. Chapter 2 provides a review of literature, focusing on the history of textbooks in higher education and including sections on the growth of privately-run bookstores, online resources, academic freedom, restrictions to financial aid, and student choices. Chapter 3 presents the methods used for this study, including the research design, research questions, instruments, data collection process, data analysis process and variables selected for each research question, ethical considerations, and a summary. Chapter 4 presents the results of data analysis, and Chapter 5 presents a discussion of the results, together with implications for further research and practice

CHAPTER 2

LITERATURE REVIEW

This chapter reviews literature and information related to textbook and required course material usage in higher education, specifically at two-year colleges and state universities in the United States. Textbooks and course materials provide essential resources for students to succeed in higher education courses, but the financial costs can often be prohibitively high (Skinner & Howes, 2013). The goal of this literature review is to present the current environment that exists regarding the use of textbooks in higher education by providing a background into the history, as well as presenting the challenges and benefits that currently exist within the realm of textbook affordability.

The overall history of textbooks in higher education is reviewed, followed by the expansion of privately-run bookstores on college campuses. Next, the review covers the increased costs associated with textbooks as a result of online/licensed materials. The chapter then reviews initiatives that have been put in place by college and university libraries, and the efforts made to provide textbooks and course materials as part of their services. Next, the fight against rising textbook costs by standardizing textbooks and the intrusion into academic freedom is addressed. Online services are also addressed. One section focuses on the growth of online bookstores at the higher education level, as well as the exponential growth of open-source materials. Finally, the review covers financial aid restrictions, creating a captive consumer base,

and the student body itself weighing finances over academic success (i.e., can I afford to buy this book?).

The History of Textbooks in Higher Education

This section begins with a review of the historical structure of the textbook market in the United States and its comparison to the fiction market. The rising costs of textbooks and changes in the college bookstore industry over time are described in connection to the emergence of new editions of textbooks, shared warehousing, and secondary markets. Afterward, the emergence of online learning and associated online course packs, the birth of the e-book, and open-source materials are reviewed. The section ends with some final thoughts on the history of textbooks in higher education.

The Structure of the textbook market. The increases in the cost of textbooks represent the supply and demand attributed to growth in the textbook market nationwide, as more and more students attend college each year (Schofer & Meyer, 2005). Secondary markets, however, have not grown at the same rate, and colleges are not offering more textbooks for students to rent (Helft, 2009). Ultimately, *new editions* represented the primary reason the textbook marketplace did not resemble that of the fiction print marketplace (Chulkov & VanAlstine, 2013).

Textbook adoptions. The costs of textbooks and course materials are usually the largest unknown variable in a student's academic experience because course materials costs vary, largely depending on which (and how many) classes the students are taking and which (and how many) textbooks or other resources are required for each class. The Federal Higher Education Opportunity Act (HEOA) requires that the University provides information regarding the costs of course materials in a timely fashion that will allow students to budget and plan for the costs of

course materials prior to enrolling in the class (lowering costs with timely textbook adoptions, n.d.).

Comparison of the textbook market and the fiction market. In stark contrast to the market for higher education textbooks, a popular fiction writer can publish a new novel, hope to sell a few million copies, and move on to the next project (Archer & Jockers, 2016). As a direct result of those millions of copies in circulation, recreational readers around the world can continue to purchase new copies via print or digital media or locate the content online via secondary markets, such as in independent bookstores or libraries (Greco, 2013). As a fiction reader finishes a novel, he or she most likely has no further need for that material (Kirsch & Guthrie, 1984). The consumer may keep it to add to a collection, pass it down to another reader, donate it, trade it in, or even throw it out. Another reader then hears about the novel with many different avenues for acquiring that text.

In higher education, the market for a textbook is much different in structure (Levitt & Nass, 1989). Before the growth of collaborative textbook warehousing among college bookstores both regionally and nationally, a local textbook market such as a college bookstore could function much in the same way as a fiction novel market. An academic department would select texts for courses, the college bookstore procured a set number of copies (usually 110% of enrollment according to Levitt & Nass, 1989), and students would purchase their texts at the college bookstore and begin the semester. As Levitt and Nass further explained, at the conclusion of the semester, students usually had four options for their now used textbooks: (a) keep it for further use and enrichment, (b) donate it or give it to a fellow classmate, (c) dispose of it, or (d) sell it back to the bookstore or to a fellow student.

Until the late 1980s, college bookstores operated in this bubble, controlling not only the local textbook marketplace, but also the textbook costs (Finefrock, 1993). The bookstore would attempt to buy the textbooks back from the students, usually at around 50% of the purchase price from the preceding semester (Kahle, 2002). The bookstore could then sell the book the following semester at a *used* rate lower than the cost of a new text, as Kahle explains, providing the next set of students a discount on the text offered the previous semester. College bookstores could continue this cycle while maintaining larger profit margins than purchasing the textbook directly from the publisher at a new wholesale cost, while supplementing damaged books and incomplete inventory with new books direct from the publisher (Koch, 2006). The bookstore would generate a steady revenue, the students had options for textbooks, and the prices were reasonable, as the college either controlled the bookstore directly or had direct oversight over the bookstore operation if it had been outsourced to a third-party servicer.

The emergence of new editions. Consider the textbook sale process as a trinity made up of three parties: the college, the bookstore, and the publisher. Two of the three parties—the college and the bookstore—had an amicable relationship, with textbook publishers left in a position with minimal control (Levitt & Nass, 1989). This is the stage in which the new editions entered the narrative. New editions had been around since the advent of print publishing, both in higher education textbooks and all printed materials (Mize, 2004). Subject matter updates with new findings and research require changes to textbooks to reflect current and accurate information on that subject matter. If a major conclusion or discovery is made—for example, the determination that Pluto is not actually a planet—course materials printed prior to that discovery would need to be updated (Broughton, Sinatra, & Nussbaum, 2013). Otherwise, students taking those courses would not acquire current and accurate knowledge (Mize, 2004). Certain subjects

require updates more frequently than others, but the need for an update will always present itself at some point, as witnessed by Jeffery, Navarro, Lokker, Haynes, Wilczynski, and Farjou in 2012, when they reviewed the accuracy of content in medical textbooks. In contrast the Folger Shakespeare Library, addressed by Holland (1932), was not in need of updating, as Shakespeare's works had long ago been written. How often an update occurs is controlled primarily by authors and textbook publishers (Hetherington, 2014).

A certain ethical question arises when a textbook requires an update: When one small section of a textbook needs to be updated as a result of new or developing knowledge, does the cost of immediately updating the textbook—rather than gathering a larger collection of edits over a longer period of time—supersede the education of the student, allowing him or her to continue receiving outdated knowledge in the interim? When college bookstores operated in an isolated economy, that decision was made within the academic departments (English, 1980). If the changes were minor enough, the department could determine that the instructor could provide an explanation of the new content to their students, thereby delaying the cost of producing a new textbook. As long as the college bookstore and library could maintain a healthy inventory of the required textbook, the older edition—regardless of newer editions being published—could remain in circulation, and the textbook costs to students, revenue to the bookstore, and commission (if the bookstore was serviced by a vendor) to the college could be controlled (Clay, Krishnan, & Wolff, 2001).

Shared warehousing. As communication and shipping became more efficient, the idea of shared warehousing began to expand. Warehouse space for textbooks can have very high overhead costs (Clay, Krisnan, & Wolff, 2001). Depending on real estate in a college's metro area, rental space for that warehouse could be very expensive (Martin, 2013). Alternatively, the

land could hold more value with a different use. In addition to the real estate expenses, paper products deteriorate and decompose, necessitating their protection from the elements, both outdoor and indoor. Hence, storage areas would need to be climate-controlled. According to Daly (2011), warehouse space typically has some of the highest heating and cooling costs of any type of building space, due to the lack of strong insulation, high ceilings, and open-air concept.

Shared warehousing between bookstores became the solution to the problem of escalating costs of book storage, which could be another indirect expense passed on to students (Hetherington, 2014). Neighboring institutions would develop partnerships to pass along unsold books to each other, offering discounts or price breaks to their neighboring schools for buying the unused inventory, according to Hetherington. These partnerships would fill voids when inventory was low, eliminate warehouse space, and store textbooks no longer used without the need to throw them away.

Preservation of textbook costs was always the highest priority, even within these partnerships. The goal was to maintain inventory of course materials as close to 100% without having to warehouse or re-purchase, so buying and reselling to other stores became more popular (Koch, 2006). However, this process also expanded a local market from one school to a few neighboring schools, or even a region of schools. The unintended consequence of shared warehousing—and unintended benefit to the publisher—was competition. Publishers could now introduce a new edition of a specific textbook and cease production of the previous edition (Greco, 2013). If one of the colleges in a warehousing partnership stopped using a specific text, the other colleges would have no option but to purchase the new edition due to a lack of inventory. Once a new edition was purchased, the college would not go back to a previous edition. So, the college had reset the clock on their used marketplace for a specific book, and the

other schools in the partnership had one less school with a need for that specific textbook, resulting in an increase in unwanted inventory that couldn't be sold off (Clotfelter, 2014). Additionally, the college, that had switched to the new edition needed to warehouse all unused copies until another college or campus nearby decided to move to that newer edition as well.

Expanding warehousing efforts and increasing student enrollment resulted in an increased need for specific textbooks and the associated rising costs. Each new edition of a specific text released limited the supply for any new course sections which utilized that book. As the demand outweighed the supply, the cost of both new textbooks and those on the secondary market increased (Clotfelter, 2014). Whereas the college and college bookstore had previously had more control of the textbook costs—which were ultimately passed along to the students—eventually they relinquished some of that power to the publishers in a search for more efficient processes and lowered overall operating costs (Greco, 2013).

Secondary markets. As internet usage became more prevalent in the late 1990s, it resulted in a growth of online secondary marketplaces, such as eBay in the mid-90s and Chegg in 2001. Textbook retailers and college bookstores now had a direct-to-consumer resource to sell materials (Helft, 2009). This period of around five to ten years, prior to the distance learning boom (soon to be known as online learning) of the mid- to late-2000s, would be the most beneficial to students from a cost perspective (Kim & Bonk, 2006). Yes, textbook costs were continually on the rise from decades past, but students had national and potentially international buying power, finding their materials at the lowest possible cost with some additional preparation or planning. This period provided students wide-ranging options for their textbook purchases. The online learning and course pack licenses discussed in the next section would begin to limit that ability.

Online learning and the advent of the online course pack. As students began to enroll in online courses at higher rates, the need to provide course materials strictly online became more prevalent (Chulkof & VanAlstine, 2013). At times, a student's *textbook* could be made up entirely of online materials posted on the publisher's website, and only obtainable with a purchased activation code or license. This code would be limited to a single use and would provide students with access to supplemental course materials or quizzes and examinations. These new resources were incredibly convenient for students who wanted their entire experience online, and they were even more convenient for instructors. Instructors now had the option to generate test questions from content studied in real time, allow for automatic grading, and receive feedback based on formative evaluations from students as to how well a quiz or test may have been built (Buczynski, 2007). Perhaps more important to many professors, there was no need to worry about handling hundreds of paper exams.

The advent of the *course pack* would expand to many face-to-face courses as well. Online homework could be assigned within otherwise traditional programs. A student could be enrolled in a face-to-face course, but all of their homework assignments or practice work may be done through the course pack site.

The course packs, with their unique code requirements, created a major shift in the textbook and course materials marketplace. A secondary market for course packs could not exist, as a code could not be re-sold. Every student enrolling in a course with an online activation code would have two options: (a) purchase the code at full retail price or (b) forgo the purchase and hope they can survive the course without it (Buczynski, 2007). In many cases, there was a physical textbook that accompanied the course pack, but the course pack would make up the majority of the material cost to the student (Okamoto, 2013). Even if a secondary market

still existed for the physical book, the used price for that book alone could be more expensive than purchasing the entire pack. This new resource was forced upon students (by way of faculty adoption), with no way to prevent price increases (Okamato, 2013).

The birth of the e-book. In 1998, the National Institute of Standards and Technology (NIST) released the first open-source Extensible Markup Language (XML) for a standard e-book to the public Internet, sparking the growth of web-based reading materials traditionally only available in print or audio format (Judge, 1998). This introduction to online text would allow publishers and retailers to begin growing the textbook market in a new medium. As the market for e-books grew, new publishers started entering the playing field, authors had the ability to start self-publishing through specific online services, and new retailers began to come into existence (Sandoval, 2016).

From a publishers' standpoint, this new market—albeit small and growing—had one major advantage over traditional print or CD/cassette media: the purchased material could not be re-sold on a secondary market. Since these materials were purchased for an individual's specific device, they could not be transferred to another user without either having an extensive technological background or illegally transferring the license (Sandoval, 2016). Textbook publishers also saw this as a way to avoid the used textbook marketplace. Of course, the end user would need to select the e-book option when purchasing a textbook, but the publisher had complete control over the pricing model of a specific text, and by providing content to users on fancy devices, such as iPads or e-readers for viewing texts, the market share for non-transferrable e-books would grow (Elmore, 2016).

In the late 2000s and early 2010s, devices such as smartphones, tablets, and Apple iPads became immensely popular, creating a medium through which users could now absorb text

outside of traditional print or a standalone e-reader device (Hahn & Bussell, 2012). A student could conveniently access their course content via a tablet and could also access the text material from the same device. The growth of the market for these smart devices has had a positive correlation on the growth of e-book sales in North America (Baek & Monaghan, 2013).

E-books have not created major price increases in student textbook costs. They are a positive addition to the textbook marketplace in the sense that they provide another option to students who may prefer that option to traditional text, but costs have not decreased as a result of e-books. In fact, traditional print media costs to the end-user have increased as a result of the e-book. With lower print volumes distributed as a result of the e-book market share, the cost per print of each traditionally printed textbook has increased (Greco, 2013). The publishers have no incentive to decrease pricing of e-books outside of monitoring demand, and with zero third-party market, they have the ability to track every order purchased and monitor pricing in real time.

E-books tend to be cheaper up-front than traditional texts—usually 40% lower (Elmore, 2016)—due to various factors, including no printing or shipping costs. However, the student may lose out on potential savings from selling the book back to bookstores or on third party markets, which can often exceed the 40% savings on the original purchase. The student may be saving money up-front, but if they have no need to keep the text at the conclusion of the course, they may end up paying more.

Recently, however, there has been a push in the e-textbook marketplace to offer rentable e-book options for customers (Cox, 2013). Although this is yet another option to purchase a textbook, there are once again no significant cost savings. The e-textbook rental cost will be less than the outright purchase price of the e-textbook or the new print version, but the rental cost will tend to cost as much as the used printed text—which again, can be re-sold or rented, creating a

lower overall cost. The student *can* benefit from the savings of a rentable e-textbook when the course materials change every semester, as long as a used market does not exist for the specified text (Cox, 2013). The student may be saving money by renting an e-textbook in this scenario, but they are still footing a hefty textbook expense, as changing course materials every semester eliminates the savings of a robust used book marketplace and decreases rental value from the retailers. In fact, many universities and their governing bodies are enforcing—or at least encouraging—the continual use of course materials for at least an entire calendar year to create course consistency semester over semester and help drive down the growing costs of textbooks and course materials for students (Baek & Monaghan, 2013).

Open-source materials. Faculty-curated content and collaboratively developed content offerings have increased with the expansion of the Internet. The growth of free or open-source content, software, and materials has been expanding further as new information is regularly added to the knowledgebase (Annand & Jensen, 2017). The Internet is an ever-growing database of information, and more free content gets published every second. Open-source content developers like OpenStax generate free content or textbook and course materials. Many of these programs are funded through donations from third parties, federally or privately funded grant programs such as the William and Flora Hewlett Foundation, or, in OpenStax's instance, a college's existing infrastructure. OpenStax is a repository that is provided and maintained by Rice University (Wales & Baraniuk, 2008). Open-source materials have been shown to be beneficial in driving down a student's textbook costs, but questions have been raised as to how quickly content can be updated, as well as the validity of some of the content providers in existence that may not have the backing of a major private university (Hyman, 2012).

For many general education courses that do not have rapidly-changing content, these open-source materials can be a huge help to students, but once a student begins more specific coursework within their field of study, quality open-source materials can be more challenging for an instructor or an academic department to find. As content is continually developed and the pressure to lower student textbook costs grow, open-source materials may become more reliable for program specific courses, but ongoing challenges will still arise as they would for any new set of tools trying to gain traction in a tightly-controlled marketplace (Annand & Jensen, 2017).

Final thoughts on the history of textbooks in higher education. *Which came first, the chicken or the egg?* This well-worn expression easily transfers to the arena of textbooks and education. Education provides teachings from texts previously written, and texts are written for education and adapted based on previous education. Ellsworth, Hedley, and Baratta (1994) observed that as long as there has been writing in some form, textbooks have also existed as a medium for capturing that information. The authors determined, however, that the earliest known textbooks came into existence in the 16th century and were printed in Latin, the common scholarly language of the western world at that time. Ellsworth et al. further stated that not only were the first textbooks printed in Latin, but they were also written to *teach* Latin, as many students at the time understood words and phrases but could not read extensive amounts of content at one time.

Wakefield (1998) reported that textbooks in American higher education have always been the major adaptable piece to a course curriculum, more so even than the instructors themselves, as ideologies can steer people away from major or minor change. Wakefield also discussed how textbooks have continued to be an integral part in many classrooms because of that adaptability. They work with any literary genre, any subject matter, and can come in many

different shapes, sizes, and formats. The article was written prior to the major boom of the Internet, which drastically changed the landscape of higher education, but Wakefield (1998) referenced many forms of textbook *content* made available electronically and via the world wide web. Twenty years later, the adaptability of textbooks in higher education has grown dramatically.

Finally, Wakefield (1998) addressed the challenges and shortcomings within a higher education classroom. The common denominator to the solution of course adaptability is almost always the textbook. A course is taught the way the instructor or the academic department has structured it, and the course materials or textbook is selected to complement that course structure. If the structure needs modification, a new text can be selected or created to better suit the needs of the instructor and the course being taught. According to Wakefield (1998), the survivability of textbooks is due to the value of the content and the various ways in which that content can be presented to meet specific needs outlined for a course and its instructor.

Friesen (2013) covered textbook history during the growth of the Internet and the online classroom. He wrote while textbooks and course materials have come in different forms for decades (audio cassettes, videos, musical performance, etc.), providing a platform for which various forms of content could be presented at one time had always been a challenge. A student would need to go to the library and check out an audio cassette or video or utilize specific tools to access the media required. With the growth of the Internet and advancements in technology, textbooks have been able to incorporate various media within one location, easily accessible from a student's personal device.

Friesen (2013) discussed how the growth of mixed media text and content provided to students became a catalyst to the paradigm shift to the utilization of online courses or some

blended (face-to-face and online) course content. Ellsworth, Hedley, and Baratta (1994) described how an instructor could build a text around a specific course and could now build courses around specific content available on that subject matter.

Friesen (2013) further explained that with elaborate texts and content come elaborate devices for viewing that content, as well as new systems into which higher education institutions can bundle all their courses in one location online, a Learning Management System (LMS). An LMS helps solve one major point of contention for open-source materials across all industries, whether textbooks, software, mobile apps, video programming, etc. - the lack of uniform quality control. Instructors must decide if the open-source material truly meets the needs for their courses and provides the students with the quality education they have paid for. The LMS helps to keep a uniform system in place for content.

These systems make access to content as easy as possible for students, who often adapt to changes in technology in real time. It may be challenging for instructors to adapt as well, but textbooks will adapt immediately. Just as the latest and greatest device comes out, textbook developers and publishers find a way to gain maximum profit to get that content to students (Zinser & Brunswick, 2010).

Growth of Privately Run Bookstores on College Campuses

Finerock (1993) wrote about the changing landscape of college bookstores from traditional books-for-purchase bookstores to student centers that sell books, supplies, and merchandise. As the bookstore manager at the time and a faculty member at Kenyon College in Ohio, Finerock was considered an innovator in the bookstore industry, as his store often offered much more than the average college bookstore. He did, however, struggle to source the ever-

growing variety of materials and accessories that, year after year, had been chipping away at the textbook sales percentage of total revenue. An additional struggle Finerock identified was the "student center" aspect of the store. As students now found themselves hanging out in the store, drinking coffee, or reading a book, the requests for longer hours grew, and staffing was challenging at times. Sales were slow, but the store itself was reasonably busy with patrons (Finerock, 1993).

These challenges were welcomed by bookstore vendors. Booksellers and retailers have been around for over a century, but complete partnerships with higher education institutions did not emerge until around the 1980s (NACS, n.d.). Today, bookstore vendors operate over 1,500 stores for colleges and universities in the United States and Canada alone.

Gose (2005) discussed the ever-changing landscape of the college bookstore over the two decades since Finerock's (1993) article. Student needs and requests had been changing with every incoming class, finances mounted, and the economics of vending out bookstore services became more desirable and profitable to many schools. Ten years after Finerock's article, the prominent question among college and university auxiliary services administrators was whether or not the college should bid out bookstore operations. Ten years further, post-2010, the discussions shifted to how the college can work with their bookstore vendor to make the operations more successful while *attempting* to manage costs for students.

Gose (2005) further detailed the effects the finances of this decision had on colleges and universities. In many cases, smaller schools were working with limited capacities administratively to manage, staff, oversee, and keep their in-house bookstore in compliance. Shifting that burden to a vendor who has centralized administration to manage all the administrative needs for all of its stores was the smart decision. Centralizing operations also

lowered administrative costs, returning more funds not spent on overhead back to the college, and passing savings on to the students. Larger schools did not bear the administrative burden as smaller colleges, but they saw benefits in textbook sourcing and warehousing. Instead of existing on a bookstore island trying to source textbooks for their specific students, larger schools were now utilizing a network of many schools acting as mini-warehouses to source whatever the college may require for their textbook needs. Gose (2005) used the University of Georgia as an example of a very large institution going from a self-operated bookstore to a vended operation. In 2004, the vended operation had increased revenues by $300,000 in the first quarter of that first fiscal year.

In recent years, auxiliary services such as the bookstore have become booming business for colleges and universities (Blumenstyk, 2003). The needs of students are always changing, and bookstore vendors have shown that they can adapt at a quicker pace than that of their college self-operated counterparts. A compelling argument for auxiliary services is that a college's mission is to teach and educate. They are not experts in selling textbooks or serving food. Rather, auxiliary service vendors are experts at those operations, so, typically vendors can operate those services more efficiently.

Increase in Textbook Costs Due to Online and Licensed Materials

As new options have become available to instructors and academic departments when adopting course materials, so have new fees which are often passed down to students. Woody, Daniel, and Baker (2010) discussed the added costs associated with online materials and e-textbooks. Financially, the major benefit to students within traditional paper texts was the ability to be re-sold, traded, donated or borrowed. Publishers of a paper textbook have had no way of

monitoring which user has read the book, nor if the book has changed hands many times. This factor drove down book costs for students on the secondary market. If there was a demand for a textbook in the classroom, the book could be re-sold, traded, or borrowed repeatedly. Textbook retailers also provided students with options to buy back books previously purchased if they were aware of further use by the college's academic department or another academic department within their retailer network.

Online course materials eliminated those options entirely. Woody, Daniel, and Baker (2010) discussed how the Internet can be an amazing tool in education but also a restrictive tool. Online materials can be placed behind password protected gateways, unable to be accessed without a purchased passcode only accessed for a set period of time (like a semester), and often accessed by only one user. The same content (just like in a traditional textbook) may be used repeatedly, semester after semester, but every student that chooses to access that material would be required to purchase a passcode at retail value. There was no secondary market for online licenses or licensed computer software.

Miller, Nutting, and Baker-Eleveth (2013) outlined the growth of online course materials, narrowing their focus to two major areas. The first focus was on beneficial tools for faculty members, as well as an enhanced learning environment for students. When a publisher placed traditional textbook content within a website, they made their content more accessible, more interactive, and easier to review. Miller et al. cite the students' ability to search for text directly on a computer as a major advantage, as it became much easier to jump from one place in a large text to another. As for interactivity, images that once would supplement a textbook page could now be a pathway to more detailed information or to a deeper backstory into justifying the use of that specific image or media type.

Faculty members also received great benefits from these new materials. Many of these licensed materials came with test banks for exams, analytics for how well students performed, and even how far they read into each section. These resources made it enticing for academic departments to use them instead of a traditional textbook (Kim & Bonk, 2006).

The other focus addressing the growth of online materials was a reactionary response. For decades, secondary markets for textbooks (bookstores) existed solely in person. Transferring large quantities of books to distant stores or distant customers could be challenging. The Internet changed that. If a student in Florida needed a textbook, he or she could search numerous sites, find the lowest price available, and—even if that book was in North Dakota—have it shipped to his or her door quickly. This growth of online booksellers dramatically expanded secondary textbook sales, cutting out the publishers' profits (Clay, Krishnan, & Wolff, 2011). However, the Internet is a tool for everyone, including both sides of the economy. Publishers began developing online resources as described above. By creating high-quality licensed content that was user-restricted, publishers began to cut out the secondary markets. The results were higher costs for students (Greco, 2013).

Publisher Tools and Benefits to Faculty Members

In 2006, Arreola reported on a conducted study on the ethics of higher education faculty members working with textbook publishers on generating electronic materials for courses. His concentration was on undergraduate healthcare courses, and he focused on four ethical principles: (a) autonomy, (b) beneficence, (c) non-maleficence, and (d) justice. If the processes by which faculty members and publishers produced their materials passed all four of those ethical principles, his study determined these processes were ethically sound. The results

indicated that the materials Arreola reviewed did not meet each of the four criteria. This discussion has been at the forefront of textbook affordability because online course materials have been the largest factor in increased textbook costs over the last decade for students across North America (Moody et al., 2015).

In fact, there are benefits faculty members may receive that are beneficial to all parties, yet do not present any ethical concerns when adopting course materials. Online course packs today often include test banks fully equipped with quizzes, exams, and study materials in line with the textbooks selected and vetted by experts in the specific fields of study (Hunsader et al., 2014). These tools, however, come with some potentially adverse side effects.

Most higher education institutions today are using some form of Learning Management System (LMS) to streamline a student's online learning experience (Fathema, Shannon, & Ross, 2015). Within the LMS, students can access syllabi, assignments, discussion boards, and course content. These online course packs, however, often are incompatible with the major LMSs available. This creates difficulty for many students who have to access assignments in two (or more) different web systems.

An additional consequence to the built-in assessment tools is that students will always find shortcuts. With pre-made databases of testing materials, there will always be the chance of a student to find a way to access those materials prior to an exam or test. By creating unique materials each semester, the risk of having this content exposed prior to an assessment decreases substantially. Assessment development also brings to question what a faculty member or their department's responsibilities are in terms of course development, but those roles are determined by the individual institutions and their faculties (Bristol, 2017).

The Role of University Libraries in Textbook Affordability

College and university libraries have long since been the campus leaders in providing access and new collaborations for processing information (Lyons, 2014). With the ever-evolving process known as textbook adoptions, and the seemingly endless database of materials available to instructors to use for their courses, college and university librarians and their staff have become an increasingly valuable tool during this process (Lyons, 2014). According to Lyons' article, when surveyed, students have viewed the library and their services as being a valuable resource, but faculty members often are not informed of the newest tools and resources available when building a course adoption, citing a need for better communication on both sides.

Many college and university libraries have also been influential in developing new programs or processes in conjunction with Academic Affairs to offer affordable solutions to students. At the University of South Florida, the library spearheaded the college's Textbook Affordability Project (TAP) which included offering e-book materials through the library databases for students to access either via their technology fee paid with tuition, or at no cost to the students, and an increase in open access textbooks developed in conjunction with faculty members (Boczar & Pascual, 2017). The two major challenges discovered in this project were substantial, however. With the e-book in the classroom initiative, it was challenging to partner with major publishers on many titles because this solution would be a major revenue hit to publishers' bottom line. With the open access solution, it simply takes a large amount of resources and time from a faculty member(s) to generate a full open access textbook that is beneficial to the students in a specific course (Boczar & Pascual, 2017). Boczar and Pascual identify several goals, many of which can help grow textbook affordability initiatives and decrease costs without sacrificing content to students.

Celik and Peck (2016) discuss how college and university libraries have had to adapt to how they build their course textbook reserves for students to access. Citing a case study at the University of California, Los Angeles (UCLA), providing a course reserve through the bookstore for student access produced substantial cost savings to students. The challenge, however, exists with the changes in what is considered a textbook. In years past, a library could house reserves of a textbook (and oftentimes older or used editions at a lower cost) for students to utilize. These options still exist, but with the exponential growth of online services and materials blocked by publisher pay-walls, the costs incurred for these services has dramatically increased (Celik & Peck, 2016). Celik and Peck identified two challenges that continue to exist in the library's ability to support the textbook affordability problem: (1) the costs will continue to increase for the library (without assistance from college administration), and (2) textbook policies within the library need to be reevaluated as the "value" of a textbook may be small due to the short (and shortening) shelf life, but the value to the students that utilize the textbook is considerable.

Lyons and Hendrix (2014) authored an article that looked at the challenges from a cost perspective in how college and university libraries assist in the textbook adoption process. Their article offered a case study at the University of Buffalo, similar to that of the University of South Florida. They created an e-textbook initiative that was focused on three major approaches: (1) negotiate directly with publishers on textbook and course material costs, which is a task often overlooked by the college or university; (2) provide support for open source material creation; and (3) provide better communication and awareness as to the issues surrounding textbooks and how they affect students.

Lyons and Hendrix concluded that even though the challenges addressed would still exist, the library was one of the more capable areas within a college to inherit textbook

affordability programs. They already have, in many cases, relationships with publishers, and they purchase journal access on a semester or annual basis, and the purchasing of e-textbooks would be a similar process. Finally, libraries touch most areas of a college, so being able to increase collaboration can be jumpstarted more quickly coming from an area such as the library. Lyons and Hendrix mention that there should not be an equitable transfer of costs from the students to the college or university, as cost savings can be found due to the library's buying power, so there needs to be support from auxiliary services, information technology, and other areas of administration to try to keep up with the constant financial hurdles put in place by publishing companies.

Massis (2013) discusses how college and university libraries need to continue to adapt in assisting with textbook affordability efforts. Cost savings can be found, but many times can be to the detriment of another function provided by the library. Massis mentions course reserves and the benefits they provide, but also the challenges that are presented to the library, mostly from a financial perspective. He also addresses custom textbooks, built by piecing together content from numerous sources for a specific course. Once again, there are benefits (e.g., if the material used can be developed at a low cost or from open source resources) and challenges (e.g., even if the content is coming directly from publisher content, the costs for that material will increase due to the same content costs, with an added cost for custom development or printing). Massis concludes that the bookstore is a vital participant in the textbook affordability process, and as more support is provided, better solutions can be implemented to help both the students and the college and university.

Gibbs and Bowdoin discussed similar challenges faced in 2014 when they wrote an article for *Against the Grain*, outlining George Mason University's TextSelect program. Once

again, the university library outlined a process for building a textbook and e-textbook reserve program for student access. The program has been successful, but the costs have become more and more prohibitive. The article identifies that students will use the materials made available to them, but hurdles such as single-use access codes make it very challenging for the bookstore to gain enough materials for the students trying to access those materials. Purchasing e-textbooks for students' general use is helpful, but the copies available at reasonable costs are usually those that can be found on the secondary markets as well. The textbooks and course materials with the highest price tags are often unavailable or cost prohibitive for college and university libraries without added assistance financially (Gibbs & Bowdoin, 2014).

Finally, Bell (2017) summarized how college and university libraries had been, and if not, should be, starting to implement Textbook Affordability Projects (TAPs). He goes into detail outlining the benefits of a TAP, as well as detailing the challenges, many of which have been presented within this section of the literature review. Bell observes that greater access to textbooks and course materials via the library can only be beneficial to students and needs to be expanded; there is always room for improvement. As to the challenges, he addresses the added costs associated with course materials, especially those with access codes. Cultural changes need to take place, as well as a more proactive approach to adopting textbooks between academics, the college bookstore, the college auxiliary services department, and the library. If all parties are involved earlier on, there is greater opportunity for procuring content that is easily accessible, as well as finding potential cost savings/greater negotiating power.

One option that was mentioned among almost all the articles referenced in this section was that of textbook standardization as a means to ease of access and cost savings. By limiting

the variety of content among sections, libraries can gain access to larger quantities at lower costs, but factors such as course development and academic freedom must be considered.

Academic Freedom vs. Standardizing Textbooks

Educational value is one of the primary discussion points of the textbook affordability discourse. The same course being taught at two separate institutions differs in many ways, including but not limited to varying unique institutional characteristics, different faculty members teaching the course, or different departmental missions. The core subject matter will be similar regardless of the institution, like the ubiquitous quote "math is universal" (Ukpokodu, 2011). An argument could be made both ways, that within an institution these differences should or should not exist. Two instructors with an expertise in the same subject matter could be teaching the same course in entirely different ways at the same school. One course may be using an expensive textbook or course material list, and the other may be using open-source materials exclusively (McKeachie & Svinicki, 2010). The question which arises from this discrepancy is one of quality.

Moody (2015) discussed how approaching textbook affordability takes buy-in from the entire university. Departments such as the business office must work closely with academic affairs to coordinate the most suitable materials for specific courses while attempting to evaluate cost. The biggest challenge is that the larger the institution, the greater quantity of moving parts involved in managing textbook costs. This process can be daunting since many schools have been operating under a system in which a faculty member chooses the proper materials for the course, often with minimal oversight. Shifting this process to one in which faculty members coordinate with others within their department is a major undertaking.

Raible (2015) described another hurdle in tackling the issue of textbook affordability: academic freedom. Weighing cost against what a professor feels is the appropriate material is difficult, and someone is tasked with making that determination. According to Raible (2015), the way in which an academic administrator weighs one book for one professor against one book for another professor is daunting, considering they are both experts in their fields of study and have been using the selected materials successfully in the classroom for an extended period of time. This is a tough discussion, and often an arduous process, if the discussion is held at all. These challenges force this process of standardization to be a long and tedious one, as there are simply far too many factors at play.

Some state and local governments, like in Florida for example, are trying to expedite this process in the name of textbook affordability by enacting laws or stringent guidelines that can force an academic department's hand (Textbook and instructional materials affordability, FL Stat. § 1004.085 2017). The greater discussion, however, still comes back to academic freedom versus value of education. Both Moody (2015) and Raible (2015) agree that the process is extensive, and a paradigm shift will not happen overnight.

Growth of Online Bookstores at the Higher Education Level

For decades, there were three major players in the collegiate textbook retailer arena: Follett, Barnes & Noble, and Nebraska Book Company (Clay, Krishnan, & Wolff, 2001). In 2015, Follett acquired Nebraska Book Company's higher education division, leaving just two major booksellers to handle the majority of collegiate brick and mortar textbook sales in North America. Since then, online retailers have been gradually gaining a larger market share. This began with Amazon and has continued to increase with booksellers pushing new ideas for selling

textbooks to students in the name of access and affordability (Hetherington, 2014). With colleges and universities looking for new options and ideas to expand access and lower costs for their students, these online retailers are gaining more and more credibility as their clientele in the higher education market grows (Hetherington, 2014).

Yang and Zhao (2014) discussed the rapid growth of online sales and retailers. Their study focused on the higher education market and discussed the growth of online textbook sales and e-commerce sites over the previous 15 years. As a medium began to exist for textbooks to be bought and sold online, sales increased when more options became available to students. What started out as a used textbook marketplace soon expanded to include many more options.

Yang and Zhao (2014) also discussed the increasing costs of textbooks and course materials over the previous 15 years and the ways in which new companies were attempting to implement new ideas to provide a quality—and, sometimes, unique—product at a lower cost than traditional materials. By focusing strictly on online sales with zero brick and mortar stores, online retailers could now negotiate pricing on course materials while eliminating the overhead expense of managing physical stores, a cost typically passed down to the customer.

Online retailers then found another way to lower costs without sacrificing quality in course materials: flat fees. In 2016, Teresa Ristow outlined a program built by Rafter, Inc. and used at smaller schools around the country including the school she profiled, Colorado Mountain College. Rafter had built the program around flat fees students would pay to receive all of their course materials. The students would pay a built-in fee on top of their tuition, agreed upon between the college and the bookseller, and in return the students would pay a flat rate for course materials. Ristow (2016) showed this method to be less expensive than buying the same materials on the open market. Obviously, the pricing would be affected by the college and/or the

bookseller's ability to procure and negotiate costs of course materials from publishers. The courses would be limited to what was available within the budget for the specific term, but course material options are plentiful if faculty members would be willing to look toward non-traditional sources.

This new method, however, did not come without challenges. Rafter, Inc. and other small online retailers have had financial struggles. Additionally, as electronic course license usage has risen, so has the price point set by the publishers. As publishers eliminate a secondary market, they force the retailers and colleges to tighten their margins to prevent even higher costs to students. As online materials expand, and core general education courses continue to teach content that remains unchanged, more and more options are becoming available that may drive faculty members away from online course packs and licenses. Yang and Zhao (2014) mentioned the online retailer growth, and as long as students are looking for less expensive options, there will be start-ups trying to build the perfect solution.

Growth of Online Open-Source Resources for General Education Courses

The term *open-source* was coined from the software industry, identifying computer software or web programs as *open* for use to the public—this meant no fee was required, or perhaps offered with a recommended donation. Bergmann (2013) discussed the growth of open-source and crowd-sourced (or faculty collaborated) textbooks and course materials and the hope that these materials would begin to drive down the cost of textbooks for students. Bergmann (2013) detailed the incentivization of open-source materials outside of the financial arena, similar to open-source technology. As with open-source technology, where developers can often parlay a successful open-source project into bigger careers, educators and faculty members can

publish open-source materials to add to their curriculum vitae, which could lead to better career positioning and potential tenure recognition in the current places of employment.

Pitt (2015) discussed the mainstream push for open-source textbooks by organizations like OpenStax and OER Research Hub. He discussed the Internet as a growing database, providing more information to users every second it exists. The same idea exists with open-source textbooks and course materials. For example, Wikipedia is an ever-growing online encyclopedia. Its biggest flaw is its lack of academically-vetted information, though the Wikimedia organization is working to increase Wikipedia's academic credibility (Wikipedia: About, 2017). Open-source textbooks, like those developed within OpenStax, are developed and peer-reviewed by experts within the subject matters in which the course materials are being developed. As their database of materials grows, more and more options are provided for faculty members to select materials for their courses at no cost.

Pitt (2015) also warned that open-source can lead to shortfalls, even for faculty members. Instructors often discourage students from citing sites such as Wikipedia due to lack of credibility, but they too can fall into this trap when building a course material list by selecting open-source materials that have not been appropriately vetted. More extensive research on the front-end by the faculty member can lead to lower costs for students. Publishers have pushed the quality of their materials and their *full-service* textbooks, which can help in curriculum development, but often at the student's expense.

In 2015, Fischer, Hilton, Robins, and Wiley detailed grant funding efforts to assist the growth of online open-source materials used for textbooks. Grants have helped fund programs in which higher education institutions can collaborate and combine open-source content to be used by any school within their network. Programs like the Open Textbook Library, hosted by the

University of Minnesota, is an example of a successful program that has grown in usage and cost savings for students. Fischer et al. (2015) compared standardized examination scores between students who used these programs versus students using traditional textbooks. The authors reported in some cases, students using open-source materials actually performed at a higher level.

Regardless of the current market share, the growth and documented success is challenging for big publishers to ignore. Balancing fee-based materials with open-source materials will be crucial for the future for textbook adoptions. For years now, students have had no control of the adoptions being selected. Although the situation has not noticeably changed, administrators have been listening, and the pressure to lower costs is growing. Open-source materials have started to fill that need, and the pressure will continue to mount if publishers do not adapt (Bergmann, 2013).

Financial Aid Restriction to College Bookstores: Creating a Captive Consumer Base

For many college and university students, especially those from lower income families or with little to no estimated family contribution (EFC), the financial aid disbursement each semester is crucial not only to their academic careers, but also to their personal lives. Most higher education institutions offer some form of drop/add program, in which the student can add or drop courses within the first week or two of classes (MacCallum, 2008). Financial aid is often withheld from disbursement to the student until after this drop/add period because the amount owed in tuition—the highest payment priority and taken out prior to disbursement—could fluctuate until the last minutes before drop/add closes. Once that period closes, the college or university also needs time to process and reconcile student financial records to verify accuracy

before releasing funds back to the students' personal accounts. This overall process can take some time, and students find themselves three weeks into a new semester before receiving their financial aid support (MacCallum, 2008).

During those first few weeks of classes, faculty members have begun to dive into course content and course materials, and they do not wait for students who are unable to purchase the learning content as a result of the delay mentioned above. The solution that colleges and universities have implemented for this problem resulted from the self-operated or vendor-operated partner bookstores (Campbell, Deil-Amen, & Rios-Aguilar, 2015). By providing access to a student's financial aid balance for the purchase of their textbooks and course materials, a captive customer base is created. Students without excess cash for purchasing course materials are forced to purchase their materials from the bookstore managed by the college or university in order to have their materials on time, so they cannot therefore take advantage of price shopping elsewhere.

In an article about California Community Colleges attempts to improve this problem, Cochrane (2007) described ways in which more access to financial aid disbursements can be provided to students. The biggest program the California Community Colleges began to offer was an increase in Federal Work Study or student employment. This form of financial aid allowed students to receive a standard paycheck for part-time, on-campus employment that often began prior to the start of the semester, thereby providing students with income to pay for textbooks and course materials. Cochrane (2007) detailed additional options for students to access their aid. Qualifying students could access funds via their campus cards for use outside of the bookstore based on specific circumstances, which provided them with additional options. According to Cochrane (2007) the biggest issue faced by the California Community College

System was that throughout the 21 community colleges, the similarities in how financial aid and financial aid disbursement were handled were inconsistent. Cochrane (2007) concluded that the colleges needed to do a better job working together to determine the best ways to serve the overall student population. There was no need for 20 schools to have a problem that one school may have already fixed. They can learn from each other.

The captive customer base discussion has improved slightly for students over the past decade. Bookstores have started to adapt in students' favor: many bookstores are now allowing students to price shop by means of price matching. If a student can find the same required course materials online for a lower rate, the bookstore will honor that lower price. Granted, many bookstores limit the price matching options to select retailers, but it is a better option than not being able to compare prices in any capacity (Textbook Affordability, 2017).

Delaney and Kearney (2015) discussed the growth of flat tuition rates for students, which has begun to help financial aid processing times. Colleges have charged a simple flat rate for tuition, either for part time or full-time students (e.g., one rate for course hours from 1 to 8 per semester and one rate for course hours of 9 or more per semester). Not only does this incentivize students to take more classes and graduate quicker, but it removes some of the burden of financial aid, managing all the course changes a student may make during drop/add. Under this incentive, as long as a student stays over or under the part time/full time threshold, the tuition payment remains the same, providing the financial aid department an earlier opportunity to process disbursements to the students faster. Delaney and Kearney (2015) also mentioned that this could disproportionately affect the working student who may only take courses part time due to financial needs requiring them to work long hours. These working students could be subsidizing the full-time students who are enrolled in more hours, as their price per credit hour is much

higher. Nevertheless, colleges and universities are looking at viable options to get students their funds as quickly and accurately as possible because colleges and universities want students to focus on their education, not necessarily finances.

Students' Choices: Weighing Finances Over Academic Success

Kempson, Bryson, and Rowlingson (1994) wrote that when people are financially strapped, they can resort to drastic measures to make ends meet. Often that includes prioritizing one expense over another, including prioritizing monthly bills over choosing to purchase textbooks and course materials for their college and university classes. A student can rely on friends and colleagues who have previously taken the course with the specific instructor, or reviews online to identify how necessary a textbook may be for that course. Students find themselves willing to sacrifice a higher grade in a course for the sake of saving the expense of the course material, hoping they can pass the course without purchasing the required textbook. This was once easier for students, who could borrow or copy text materials from friends and classmates. But, with today's online course packs and online quizzes, it can be impossible in classes that require online course materials.

Stone and Baker-Eveleth (2013) discussed the buying habits of students in relation to required online or electronic textbooks and course materials. The authors concluded that students, after reviewing the syllabus and course assignments, tried to look for a less expensive textbook instead of the material required for that specific course. Stone and Baker-Eveleth (2013) further detailed the decisions of students choosing to purchase a paper version of a textbook, even if the e-textbook was selected for adoption. The reason for this decision was not academic, but rather financial. With the e-textbook, there is zero option to resell the textbook

after use, whereas a traditional printed textbook typically will have a value on the secondary market.

The conclusion of this section of the literature review is that students are at times willing to compromise on their academic success to ease the financial burden of attending a college or university. Not only could students elect not to purchase a textbook for a course that requires one, but they may also make course, instructor, or even academic program selections based on perceived cost of textbooks for that course, instructor, or degree path.

A recent study conducted by Wakefield Research found that 50 percent of students who simply delayed buying textbooks, meaning they eventually did purchase (just one of many purchasing decisions), had grades suffer as a result (McKenzie, 2017).

Young (2013) wrote an article for the *Chronicle of Higher Education* discussing the evolution of the college textbook. But this evolution has also occurred for the courses themselves. Every push towards more electronic resources for class materials has created an adjustment in how the course is taught, but it has also created a necessary added expense that a student cannot avoid to pass the course. The same student who may have weighed purchasing a textbook under the pretense that he or she would be able to succeed without it, now will have to avoid that class, thereby limiting their academic options.

In a similar article, Skinner and Howes (2013) discussed the perceived value students place on required textbooks and course materials. This study addressed how most students viewed the textbook as a means to an end: the successful completion of the course. A minority of students may have seen the value in baseline knowledge and long-term value, but the majority did not place a value on those attributes. This is in direct opposition to how the faculty member

valued the course material. According to Skinner and Howes (2013), "If students are not regularly reading their textbooks, should faculty be so committed to using them?" (p. 133).

Faculty members saw great importance in baseline knowledge that a textbook provides, the standards that textbook may set for subject matter guidelines, and the sense of uniformity, or adaptability, the textbook provided across similar course sections, either at the same institution or varying institutions across North America. Transferrable content across institutions was valuable for a faculty member, but to a student enrolled in one specific elective course, the textbook value only existed as a means to a final grade. The article concluded that the best thing that could be done when selecting required course materials was to include the students' perspective(s). Student perspectives might not be the most important factor in that selection, but the course materials adopted could drastically affect how a course is taught and how enriching a course is to the students enrolled.

There is a gap in the literature regarding the academic effect for the student of refusing to purchase a textbook, including the true expense of that choice on the student's overall performance. Colleges and universities are attempting to find ways to help reduce textbook and course material costs for their students in an effort to reduce students' overall financial burden while attending a college or university.

Electronic or Traditional? Today's Students Still Elect for Paper in a Digital Age

Jhangiani, Dastur, Le Grand, and Penner published an article in 2018 addressing digital format textbooks/course materials versus the traditional paper textbook. Their article addressed that student perception still was to select a traditional printed format when given the choice. Their study mentions that 75% of students would elect to choose a paper textbook. The most

prevalent attribute contributing that choice was the students' inability to take notes or highlight text in a digital format. The article goes on to mention lower "digital literacy" rates among students and faculty members, meaning the students have not been adequately taught how to learn via digital media, and the faculty members may not be capable enough themselves to teach them.

In further support of the strength of the paper textbook, Ditmyer et. al. studied dental students for a journal article published in 2011, which found that 25% of students that were provided a digital textbook, opted to also purchase a physical paper copy to assist in their studying. The article goes on to explain that even though e-textbooks were adopted more frequently than their paper counterparts, the paper materials were used by 55% of all students in some capacity. It concludes that the dental students studied for this article, when given the choice, still chose a paper textbook over digital.

Changes to Florida Law Regarding Textbook Affordability

In 2017, the Florida legislature made adjustments to Florida Statute 1004.085 to address the challenges that existed within the textbook marketplace in higher education (FL Stat. § 1004.085 2017). Rules were adopted to require at least 95% of all textbooks to be adopted within 75 days prior to the start of a semester, giving college bookstores ample time to find the best possible prices for the colleges' textbooks. Also, a 45 day deadline prior to the start of a semester was implemented for at least 95% of all adoptions to be present for students so that they would have ample time to compare prices from different retailers or websites, as to acquire their necessary textbooks at the best possible prices.

The statute also addressed the need for colleges and universities to review their adoption processes and adopt guidelines to assist in adopting lower cost textbooks/course materials. Those processes included oversight within an academic department to ensure that variances in textbook/course material costs between different sections of the same course were monitored and managed.

Finally, all these measures were put in place, however there was no language that created any specific limitations on what a textbook/course material could be sold for. A dollar amount cap or cap on textbook cost percentage as a part of the total cost of attendance were not addressed. The statute created rules to give students the best opportunity to save money on their textbooks/course materials, and provided guidelines on cost saving initiatives for textbook adoptions, but the cost of textbooks/course materials would ultimately still be at the discretion of the individual colleges and universities, and what they elected to adopt for each course and corresponding sections.

Overview of Increasing Costs of Higher Education in the United States

The cost of higher education for students in the United States has increased steadily since the end of World War II. Tuition increased dramatically between the 1950s and 1980s due to growing college attendance rates, which have resulted in colleges and universities needing to increase service offerings, build new buildings, and simply invest in college infrastructure (Clotfelter, 2014). Since the 1980s, universities have introduced fees to attend courses which have steadily increased (Hemelt & Marcotte, 2011). Some of those fees are justified or market-driven. One example that demonstrates this trend is housing expense. If a student attends class in San Francisco, housing expenses are well above the national average and are likely to continue

increasing (Martin, 2016). Other fees may increase as the cost of doing business for colleges increases, but those expenses are often passed to students (Clotfelter, 2014), similar to how a business will pass on overhead expenses to the consumer.

Textbooks, however, are driven by a marketplace made up of a captive audience: a student population with minimal control over the management of material costs (McKie, 2012). As a result, textbook pricing has increased substantially. Since the early 1980s, textbook and course material costs have increased at a higher rate than tuition, housing costs, and healthcare costs in the United States (Kingkade, 2013). Those costs have been even more dramatic since online learning programs have increased in popularity, and publishers' ability to limit the used textbook marketplace has grown thanks to unique course pack licenses (Kim & Bonk, 2006).

Chapter Summary

This chapter began with a review of the history of textbooks and the structure of the textbook marketplace in higher education. It then compared the higher education textbook market to the open marketplace that is general book sales. The chapter detailed how the higher education textbook marketplace has grown and evolved over the years, as well as the challenges that have come along with that growth. It then addressed issues leading to higher costs for students and what is being done to both combat and increase those costs, including laws that have been enacted to assist with keeping costs down for students. Finally, the chapter addressed how students are handling the ever-changing textbook marketplace in higher education. It addressed the choices students have for textbook/course material mediums, and how student decisions made regarding textbooks could relate to students' overall academic experience.

CHAPTER 3

METHODS

The purpose of this quantitative study, utilizing secondary data sources, was to describe the relationship of student purchasing practices of various textbook/course material options to student success and satisfaction in selected general education undergraduate courses at a community college in southwest Florida. The study examined the relationship between any changes in average GPA and student purchasing practices of various textbook/course material options. The study also explored the relationship between any changes in average course satisfaction and student purchasing practices of various textbook/course material options.

This chapter describes (a) the research questions, (b) research design, (c) data collection, (d) data analysis, and (e) a summary of the chapter.

Research Questions

The following seven research questions were used to guide this study's exploration into student textbook and course material purchasing practices:

1. What is the relationship between student use of various textbook/course materials acquired through the college bookstore and student course success, measured by final grade (A, B, C, D, F) at a Florida community college?
2. What is the relationship between student purchasing decisions of textbooks/course materials and student course satisfaction at a Florida community college?

3. What is the relationship between student purchasing decisions of textbooks/course materials and students' success, measured by student success perception (via self-reported grade) (A, B, C, D, F), in selected general education courses within the context of this study at a Florida community college?
4. What is the relationship between student purchasing decisions of textbooks/course materials and students' age and gender at a Florida community college?
5. What is the relationship between student purchasing decisions of textbooks/course materials and selected general education course subjects at a Florida community college?
6. What is the relationship between cost of textbooks/course materials and course success (final grade) at a Florida community college?
7. What is the relationship between cost of textbooks/course materials and course satisfaction at a Florida community college?

Research Design

This study utilized secondary data sources, specifically bookstore purchasing data, student records, and student satisfaction survey results. Frequency analysis distributions were analyzed, and ANOVA was used to determine the relationships described in the research questions. In 2000 Lappe described how relational studies are used to describe relationships, rather than infer any sort of cause and effect between two variables. Secondary data are essential for this study as they provide greater access to data that may not be available with primary data (Vartanian, 2010).

The research questions presented in this study examined the following dependent and independent variables:

Table 1

Research Questions with Corresponding Dependent and Independent Variables

	Research Question	*Dependent Variable*	*Independent Variable*
1	What is the relationship between student use of various textbook/course materials acquired through the college bookstore and student course success, measured by final grade (A, B, C, D, F) at a Florida community college?	Course Grade (A, B, C, D, F)	Textbook Type Use
2	What is the relationship between student purchasing decisions of textbooks/course materials and student course satisfaction at a Florida community college?	Course Satisfaction	Textbook Acquisition Decision
3	What is the relationship between student purchasing decisions of textbooks/course materials and students' success, measured by student success perception (via self-reported grade) (A, B, C, D, F), in selected general education courses within the context of this study at a Florida community college?	Student Success Perception (via self-reported grade) A, B, C, D, F)	Textbook Acquisition Decision
4	What is the relationship between student purchasing decisions of textbooks/course materials and students' age and gender at a Florida community college?	Student's Age Student's Gender	Textbook Acquisition Decision
5	What is the relationship between student purchasing decisions of textbooks/course materials and selected general education course subjects at a Florida community college?	Textbook Acquisition Decision Cost of Course Materials	Course Subject
6	What is the relationship between cost of textbooks/course materials and course success (final grade) at a Florida community college?	Course Grade (A, B, C, D, F)	Cost of Course Materials
7	What is the relationship between cost of textbooks/course materials and course satisfaction at a Florida community college?	Course Satisfaction	Cost of Course Materials

This study examined the student purchasing decision process and the potential relationship that those decisions have with student academic success and course satisfaction. That process itself has many paths and diversions. Figure 1 identifies the typical decision tree that a student could follow in purchasing textbooks for a given course.

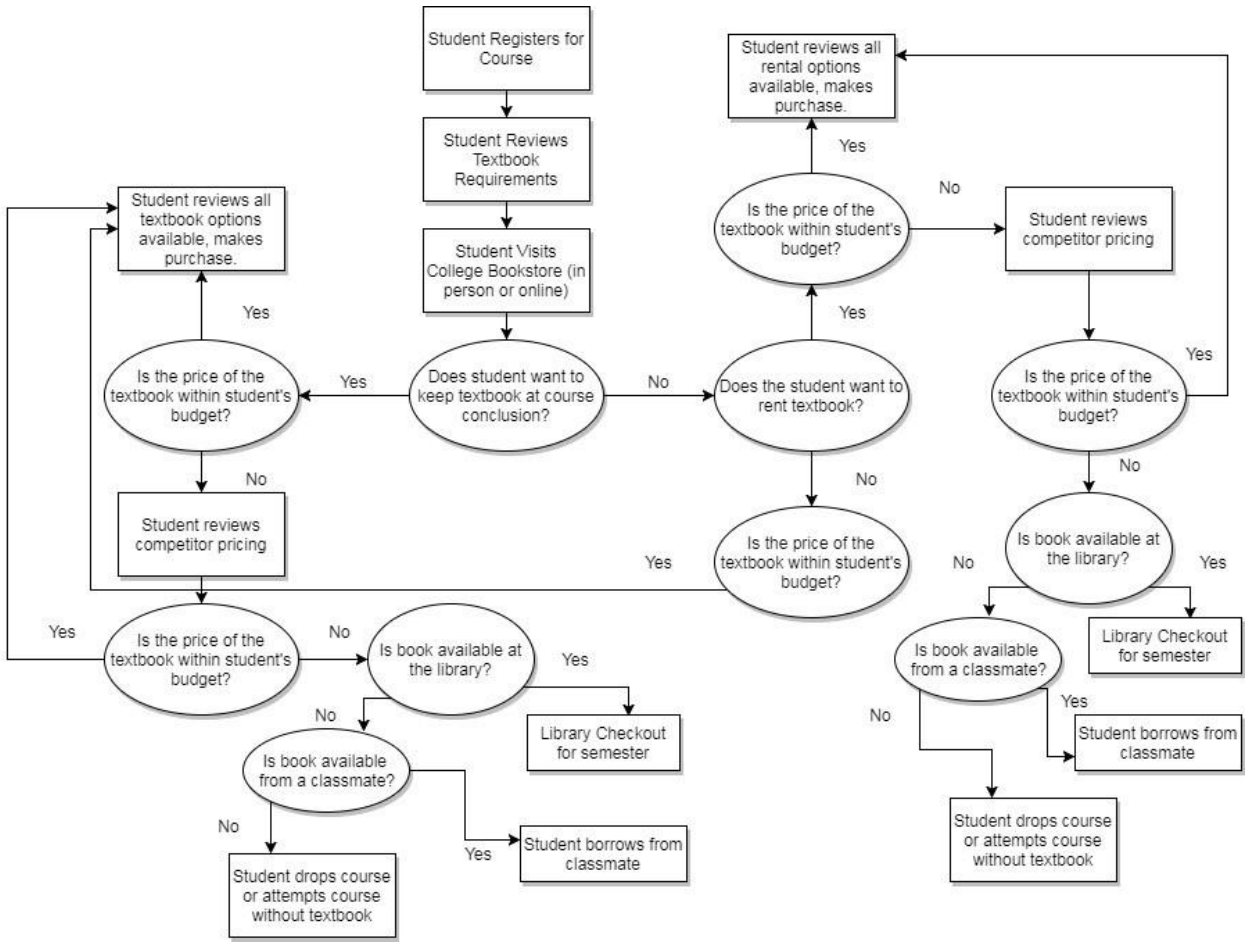

Figure 1. Student decision tree for textbook purchases.

Population and Sample

The population for this study was limited to one community college in southwest Florida. The population sample consists of freshmen, sophomores, juniors, and seniors. Recently

withdrawn or graduated students have access to the survey, as they remain within the college's active directory for three semesters following their withdrawal confirmation. However, if the courses selected for review are not part of the survey they completed, their responses are not counted. There are no restrictions regarding age or sex/gender, but those demographics were recorded and analyzed. This population is considered a nonprobability sample as the population represents certain characteristics that the study investigated (Johnson & Christensen, 2012).

The general education courses selected for this study refer to the following high-enrollment courses at the study site:

- Elementary Algebra
- Intro to Philosophical Reasoning
- Applied Ethics
- American Government
- Anatomy and Physiology I
- General Psychology
- General Chemistry I

These courses were selected based on their high enrollment, yielding the most data, as well as their standardized use of textbooks across multiple sections.

It was anticipated that there was a large enough population of responses collected to result in statistically significant findings, and there were no Type I Errors (the incorrect rejection of a null hypothesis, a "false positive"); or Type II Errors (the inability to reject a false null hypothesis, a "false negative") (Sheskin, 2004).

A power analysis was conducted. The power analysis determines if the results collected will be a large enough sample size to provide statistically significant results at a 95% confidence level.

With this study, there will be minimal risk to the participants, as the data were generated through confidential reports outlining individual purchases at the bookstore and student grades in a specific course. The link between those two data fields is a student identification number which is not present in the data used in this study as it was segmented and replaced with an auto-generated participant ID. These data should be considered secondary data. The satisfaction survey portion of this study is also secondary data as the college auxiliary services department collects this information as part of their semester to semester satisfaction surveys.

Data Collection

The data collection section addresses the use of secondary data for this research, the instrumentation used, the data analysis conducted, and the ethical considerations that were addressed for this research. The data collected were gathered over three academic terms: Fall 2016, Spring 2016, and Fall 2017. In 2016 Florida Statutes 1004.085 established requirements for monitoring and addressing textbook use and cost. These three terms provide the most current data related to the affordability requirements (Textbook and instructional materials affordability, (FL Stat. § 1004.085 2017).

Access to secondary data sources. Secondary analysis uses existing data to answer a unique research question, not previously addressed with the data collected (Szabo & Strang, 1997). Within the researcher's administrative position, access to data that are considered secondary is common, as it is collected for professional uses within college administrative roles.

All data are collected and stored regardless of use in this research study. These data were utilized to conduct all data analysis for this research study. There was no primary data collection conducted solely for this research study.

Instrumentation. Currently, the secondary data are available within the college's auxiliary services department. Bookstore purchasing data and student records are both housed within secured databases. Survey results are recorded securely and confidentially. The bookstore data and student records are updated in real time, and the auxiliary services student satisfaction survey is distributed at the conclusion of the fall, spring, and summer semesters. Table 2 identifies which data collection point will be used for each research question.

Table 2

Association between Research Questions and Data Collection Points (Datasets 1 and 2)

	Research Question	Data Collection Point	
		Dataset 1	***Dataset 2***
1	What is the relationship between student use of various textbook/course materials acquired through the college bookstore and student course success, measured by final grade (A, B, C, D, F) at a Florida community college?	Bookstore Purchase Records Academic Records	
2	What is the relationship between student purchasing decisions of textbooks/course materials and student course satisfaction at a Florida community college?		Self-Reported Purchase Decision Self-Reported Course Satisfaction Rating
3	What is the relationship between student purchasing decisions of textbooks/course materials and students' success, measured by student success perception (via self-reported grade) (A, B, C, D, F), in selected general education courses within the context of this study at a Florida community college?		Self-Reported Purchase Decision Self-Reported Course Grade

Table 2

Continued

4	What is the relationship between student purchasing decisions of textbooks/course materials and students' age and gender at a Florida community college?	Bookstore Purchase Records Age/Gender	Self-Reported Purchase Decision Self-Reported Age/Gender
5	What is the relationship between student purchasing decisions of textbooks/course materials and selected general education course subjects at a Florida community college?	Course Subject Bookstore Purchase Records	Course Subject Self-Reported Purchase Decision
6	What is the relationship between cost of textbooks/course materials and course success (final grade) at a Florida community college?	Course Subject Bookstore Purchase Records Academic Records	Course Subject Self-Reported Purchase Decision Self-Reported Course Grade
7	What is the relationship between cost of textbooks/course materials and course satisfaction at a Florida community college?	Course Subject Bookstore Purchase Records	Course Subject Self-Reported Purchase Decision Self-Reported Course Satisfaction Rating

Dataset 1. Dataset 1 consists of bookstore purchase records and student grade records. With each bookstore purchase, a unique identifier is used for each student. Within the bookstore purchase records is an ISBN and a course reference number (CRN). The ISBN provides detail as to exactly the type of book being purchased and how it was purchased (new, used, rental). Student grade records can be matched via the unique identifier and the CRN. By matching the unique identifier and CRN from the student grade records to the bookstore purchase records, Dataset 1 is created.

Dataset 2. Dataset 2 exists in the form of a student satisfaction survey that is given out to all active students via the College's Business and Auxiliary Services department. This survey

is distributed each semester (Fall, Spring, Summer). The survey covers every area of Auxiliary Services and is not isolated only to textbook affordability. The textbook affordability or bookstore section includes, but is not limited to textbook purchasing decisions, satisfaction ratings in courses, bookstore experience satisfaction, and the overall benefit of specific textbooks or course materials. Within the textbook affordability section, there is also a question for each course for a student to self-report their course grade for each specific course that semester. The actual textbook or course material ISBN is not requested during this survey because the ISBN is available in bookstore reports once the CRN or course prefix, code, and section number are provided.

Possible respondent participation in both or neither dataset. On average only 60% of a course's textbooks are purchased from the college's bookstore (Taylor & Steele, 2014); meaning approximately 40% of students with reported grades in dataset 1 were be recorded in dataset 1 due to a lack of record pertaining to their purchasing activity at the college's bookstore. Conversely, students who have elected to not participate in the auxiliary services satisfaction survey were not included in dataset 2. Students who neither purchased textbooks or course materials from the bookstore, nor participated in the auxiliary services satisfaction survey, were excluded entirely from this study. Students who did purchase textbooks or course materials from the bookstore and also participated in the auxiliary services satisfaction survey were present in both datasets although dependent and independent variables do not overlap within the two datasets. See Figure 2.

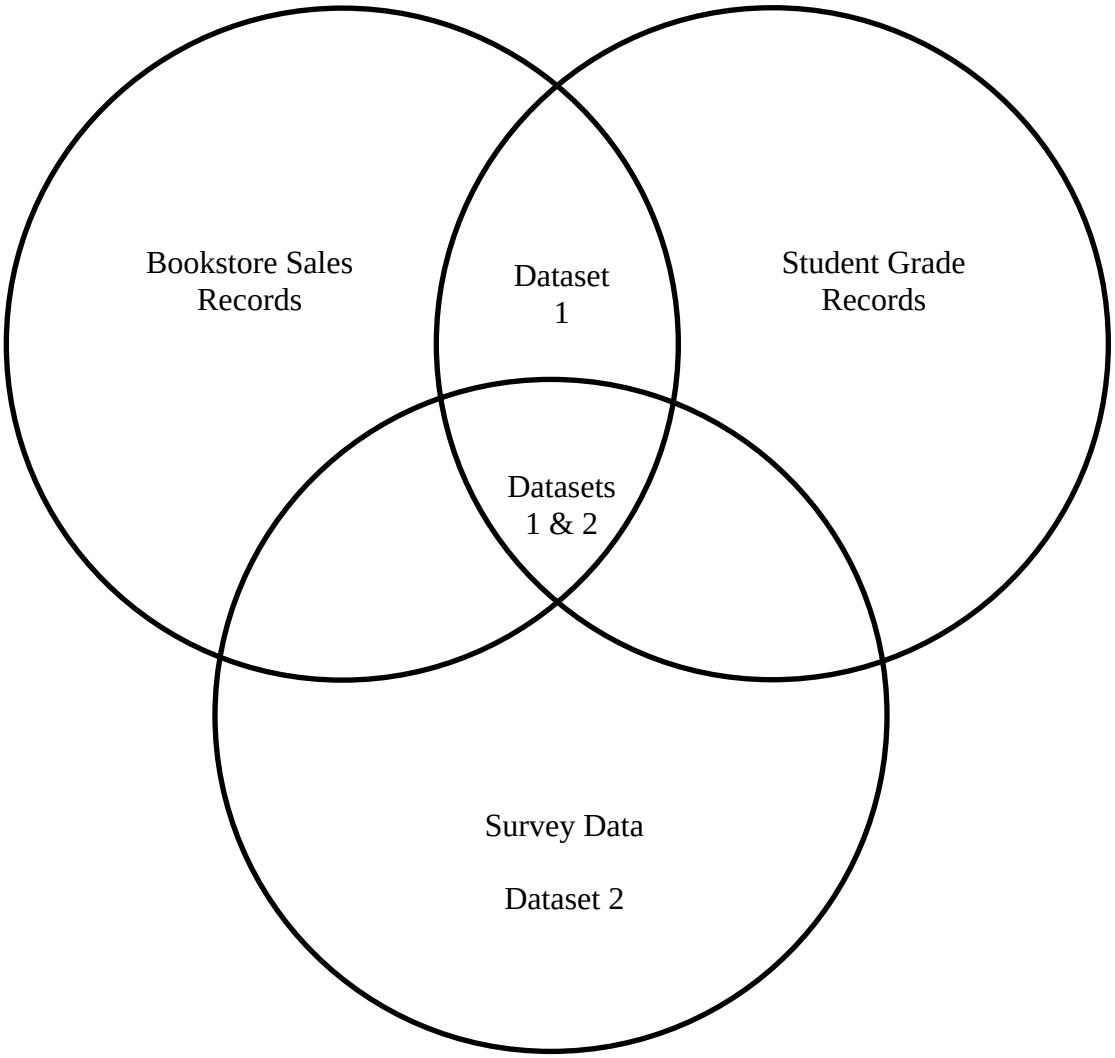

Figure 2. Student presence in each dataset.

Data Analysis

The major variables reviewed are between textbook/course materials type choice and course grade (Research Question 1), as well as between textbook/course materials choice and satisfaction in the course (Research Question 2). These two analyses encompass the major theme of this study, i.e., whether textbook type or requirement to purchase has a relationship to a student's grade or a student's overall satisfaction in a course taken.

Frequency distributions were analyzed, and analysis of variance (ANOVA) was used to measure the textbook choice category with course grade(s) and satisfaction. Cuevas, Febrero, and Fraiman (2004) describe ANOVA as testing different groups to see if differences exist between them. The ANOVA test measured the information between the two primary research questions. Dataset 1 includes textbook/course materials purchase type and student grade in a course; and textbook/course materials purchase type and student self-reported satisfaction in a course. Dataset 2 includes textbook/course materials purchasing decision and student success perception (via self-reported grade); and textbook/course materials purchasing decision and student satisfaction in a course. ANOVA was used to measure if a specific textbook/course materials purchase type (Dataset 1) or textbook/course materials purchasing decision (Dataset 2) is related to student grade/success or satisfaction.

These datasets were tabulated in Microsoft Excel. Datasets were read into the statistical analysis software known as SPSS. SPSS codes were created to display a visual representation of the data recorded, as well as to provide results of the ANOVA calculations and frequency analyses. Supplemental calculations were also administered to provide additional supporting results. An overall view of trends, including frequency analysis, mean, median, minimums, maximums, standard deviations, skewness, kurtosis, and outliers were provided. All outliers, or

data that were vastly different from the bulk of the data collected, were inspected for univariate outliers. All univariate outliers were removed to prevent inaccurate representation of data.

Categorical groupings. Variables used in this study were categorized into groupings. The first variable is textbook/course material purchase type (from the college bookstore) that was broken down into a total of 10 categories:

1. Paper - Buy
2. Paper - Rent
3. E-book - Buy
4. E-book - Rent
5. Audio - Buy
6. Audio - Rent
7. Online Course Pack - Buy
8. Online Course Pack - Rent
9. Other - Buy
10. Other – Rent

The textbook/course materials acquisition decision variable within dataset 2 was broken down into 7 categories as a categorical variable:

1. Buy (from any location)
2. Rent
3. Borrow from library (controlled use of material)
4. Borrow from classmate (non-controlled use of material)
5. Did not purchase

6. Other (download from third party websites, found on student donation table, etc.)
7. No response

Textbook and course material spending was categorized into 6 categories as a continuous variable:

1. Free
2. $0.01 - $24.99
3. $25.00 - $49.99
4. $50.00 - $99.99
5. $100 - $149.99
6. Over $150

Demographic data were grouped into the following categories for gender and age:

Gender:

1. Male
2. Female
3. Other
3. Do Not Disclose

Age:

1. 18-24
2. 25-40
3. 41-61
4. 62 and Older

Within dataset 1, and when available in dataset 2, a student's overall GPA was measured against success in specific courses. These GPAs were grouped by GPA range to filter students

into specific academic success categories. All respondents were measured in a general pool, but the analysis also grouped students according to GPA as a continuous variable. What this provides is an analysis of grade variation among students with higher academic success and those with average or lower academic success. The GPA range is:

1. High (3.0 or higher)
2. Average (2.0 – 2.99)
3. Low (0 – 1.99)

The average GPA of the course(s) overall, both for the current semester and previous semesters was also measured compared to the respondents' grade. For example, if a respondent receives a "B" (GPA score value of 3) in a course, but the overall course average GPA is a "B-" (GPA score value of 2.75), an explanation will be provided as to the details of the variance. Variance was used to measure whether there was a relationship between textbook/course materials purchasing decisions and students' grades and whether those grades were higher or lower than the class average overall.

Table 3 identifies the categorical grouping for each research question. Table 4 identifies the statistical methods that were used for each research question.

Table 3

Categorical Groupings to Be Used with Each Research Question

	Research Question	Categorical Grouping
1	What is the relationship between student use of various textbook/course materials acquired through the college bookstore and student course success, measured by final grade (A, B, C, D, F) at a Florida community college?	Textbook/course material purchase type (from the college bookstore) GPA grouping
2	What is the relationship between student purchasing decisions of textbooks/course materials and student course satisfaction at a Florida community college?	Textbook/course materials acquisition decision Satisfaction score
3	What is the relationship between student purchasing decisions of textbooks/course materials and students' success, measured by student success perception (via self-reported grade) (A, B, C, D, F), in selected general education courses within the context of this study at a Florida community college?	Textbook/course materials acquisition decision GPA grouping
4	What is the relationship between student purchasing decisions of textbooks/course materials and students' age and gender at a Florida community college?	Textbook/course material purchase type (from the college bookstore) Textbook/course materials acquisition decision Age grouping Gender grouping
5	What is the relationship between student purchasing decisions of textbooks/course materials and selected general education course subjects at a Florida community college?	Textbook/course material purchase type (from the college bookstore) Textbook/course materials acquisition decision General education course list
6	What is the relationship between cost of textbooks/course materials and course success (final grade) at a Florida community college?	Textbook and course material spending GPA Grouping
7	What is the relationship between cost of textbooks/course materials and course satisfaction at a Florida community college?	Textbook and course material spending Satisfaction score

Table 4

Statistical Methods to Be Used with Each Research Question

	Research Question	*Statistical Method*	*IV and DV*
1	What is the relationship between student use of various textbook/course materials acquired through the college bookstore and student course success, measured by final grade (A, B, C, D, F) at a Florida community college?	One way ANOVA or Kruskal-Wallis H test	Dependent Variable: course grade (A, B, C, D, F) Independent Variable: textbook type purchased
2	What is the relationship between student purchasing decisions of textbooks/course materials and student course satisfaction at a Florida community college?	One way ANOVA	Dependent Variable: course satisfaction Independent Variable: textbook acquisition decision
3	What is the relationship between student purchasing decisions of textbooks/course materials and students' success, measured by student success perception (via self-reported grade) (A, B, C, D, F), in selected general education courses within the context of this study at a Florida community college?	One way ANOVA or Kruskal-Wallis H test	Dependent Variable: student success perception (via self-reported grade) A, B, C, D, F) Independent Variable: textbook acquisition decision
4	What is the relationship between student purchasing decisions of textbooks/course materials and students' age and gender at a Florida community college?	Frequency Analysis, Mann-Whitney test	Dependent Variable: student's age Dependent Variable: student's gender Independent Variable: textbook acquisition decision
5	What is the relationship between student purchasing decisions of textbooks/course materials and selected general education course subjects at a Florida community college?	Frequency Analysis	Dependent Variable: textbook acquisition decision Independent Variable: course subject
6	What is the relationship between cost of textbooks/course materials and course success (final grade) at a Florida community college?	One way ANOVA or Kruskal-Wallis H test	Dependent Variable: course grade (A, B, C, D, F) Independent Variable: cost of course materials
7	What is the relationship between cost of textbooks/course materials and course satisfaction at a Florida community college?	One way ANOVA	Dependent Variable: course satisfaction Independent Variable: cost of course materials

Ethical Considerations

A request for review involving human subjects was filed with the Institutional Review Board (IRB) of the community college serving as the site for the study. The request was based on the use of secondary data, as no human subjects were reviewed outside of standard data collected for normal college business practices. The community college IRB application decision was submitted to the University of South Florida Social and Behavioral Institutional Review Board (IRB).

The secondary data that were reviewed for this study include segments of a student identifying number, but this number, being segmented and replaced with a computer-generated participant ID, did not allow the researcher to identify who the participant is. All participant contact information provided within dataset 2 was redacted for any use outside of use within the community college's Business and Auxiliary Services department.

The student data used in both datasets are housed on a secured network drive accessible by only three employees: the researcher and two members of upper administration. The college has information technology security procedures and guidelines in place to ensure that employees given access to sensitive data follow appropriate rules and training. All data used for this study are protected under these rules and procedures. All data are encrypted, and data are only accessible from a connection behind the college's firewall. The three individuals who have access to the data in this study signed affidavits confirming their completion and understanding of information technology security training, procedures, and guidelines.

Instructor identities are also protected, as course codes (course prefix, course ID, and section number) are automatically replaced with the course's General Education identifier via the VLOOKUP and IF functions in Microsoft Excel. The data previously collected by the

community college's Business and Auxiliary Services department are transferred to one of two Microsoft Excel spreadsheets; one for each dataset. For example, if data for course prefix and number PSY2012 are collected, using an IF statement function, that course prefix and number is automatically replaced with General Psychology.

Data Characteristics

The secondary data, which were collected over three school terms were analyzed and reviewed, then presented in two datasets. Dataset 1 included textbook/course material sales records generated from the college's campus bookstore, as well as academic records matched by a unique participant ID. This dataset contained usable data for 5,595 unique participant IDs.

Dataset 2 was data derived from a survey distributed through the college's Auxiliary Services Department at the end of each academic term. This survey collects data on all of the college's auxiliary functions, including the bookstore, dining service operations, snack and beverage vending, and printer/copier services. The data used for this study only included records pertaining to bookstore data. This dataset contained usable data for 560 unique participant IDs.

Participant Demographic Information

A general idea of the demographic attributes of the two datasets reviewed is provided within this section. Tables 5 and 6 provide demographic information pertaining to age grouping, as defined in chapter 1, and gender with corresponding percentage by category.

Table 5

Demographic Characteristics of Respondents from Dataset 1

Dataset 1 Personal Demographic Variable	*N*	*Percent*
Age	5595	100.0%
18-24	3584	64.1%
25-40	1421	25.4%
41-61	443	7.9%
62 and Older	29	0.5%
No Response	118	2.1%
Gender	5595	100.0%
Female	3323	59.4%
Male	2260	40.4%
Other	7	0.1%
No Response	5	0.1%

Table 6

Demographic Characteristics of Respondents from Dataset 2

Dataset 2 Personal Demographic Variable	*N*	*Percent*
Age	560	100.0%
18-24	271	48.4%
25-40	148	26.4%
41-61	116	20.7%
62 and Older	20	3.6%
No Response	5	0.9%
Gender	554	100.0%
Female	402	72.6%
Male	149	26.9%
Other	1	0.2%
No Response	2	0.4%

As described in this chapter, participants could overlap in both datasets. But, the two sets of data have not been merged in any capacity, and the unique participant ID in dataset 1 has no

correlation to the participant ID within dataset 2, and vice versa. For example, participant ID 359 in dataset 1 cannot be matched or linked to participant ID 359 in dataset 2.

Summary

This chapter reviewed the research methods used in this study. It provided justification as to why the specific methods were chosen. It outlined the secondary data that were used for this research study and examined the data collection process including instrumentation. Finally, it addressed how each dataset was analyzed, indicating how each method was specifically used within each of the two datasets. The mixed, or multimethod approach for this study was used to provide a triangulation between the two sources of data.

CHAPTER 4

FINDINGS AND PRESENTATION OF DATA

The purpose of this study was to describe the relationship of student purchasing practices of various textbook and course material options to student success and satisfaction at a community college in Florida. The long-term goal of this study was to provide valuable feedback regarding the textbook/course material lifecycle to help improve textbook/course material decisions at every level in higher education. This chapter contains the analysis and the statistical treatment of the secondary data that were used for this study. The secondary data was collected over three terms, Fall 2016, Spring 2017, and Fall 2017. The study had seven research questions:

1. What is the relationship between student use of various textbook/course materials acquired through the college bookstore and student course success, measured by final grade (A, B, C, D, F) at a Florida community college?
2. What is the relationship between student purchasing decisions of textbooks/course materials and student course satisfaction at a Florida community college?
3. What is the relationship between student purchasing decisions of textbooks/course materials and students' success, measured by student success perception (via self-reported grade) (A, B, C, D, F), in selected general education courses within the context of this study at a Florida community college?

4. What is the relationship between student purchasing decisions of textbooks/course materials and students' age and gender at a Florida community college?
5. What is the relationship between student purchasing decisions of textbooks/course materials and selected general education course subjects at a Florida community college?
6. What is the relationship between cost of textbooks/course materials and course success (final grade) at a Florida community college?
7. What is the relationship between cost of textbooks/course materials and course satisfaction at a Florida community college?

Research Question Analysis

This study addressed seven research questions pertaining to secondary data from two sources. Each research question was analyzed and measured for specific results to support the larger discussion about the textbook decision. Each question is presented with its findings as well as supporting tables and graphics. There were multiple fields within the two datasets that were used to measure each research question.

Research Question 1. *What is the relationship between student use of various textbook/course materials acquired through the college bookstore and student course success, measured by final grade (A, B, C, D, F) at a Florida community college?*

This research question utilized data specifically from dataset 1. The data used in dataset 1 were participant class grade, GPA Grouping, participant GPA, and book type purchased from the bookstore.

The data for research question 1 were measured as an overall group, as well as divided into three categorical groupings: Low GPA Students (0.00-1.99), Average GPA Students (2.00-2.99), and High GPA Students (3.0 or greater). The justification for the GPA groupings was to isolate similar GPA students, to evaluate the mean GPA positive differences or negative differences within their specific grouping. The way this was measured was by comparing students' overall GPA to the course grade GPA received for a course.

There was a total of 9035 purchase records reviewed from dataset 1. Figure 3 shows the frequencies by book type for research question 1.

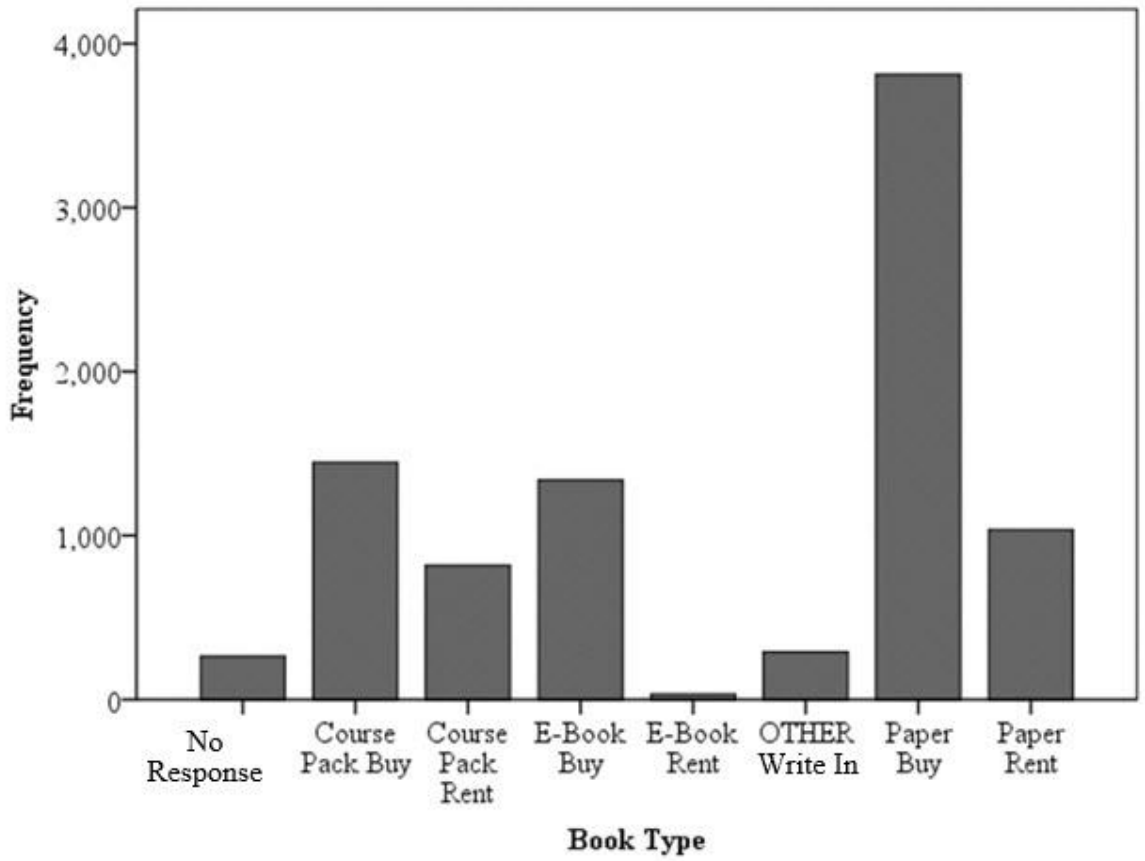

Figure 3. Frequencies of book type purchased at the bookstore

Table 7 outlines all the mean differences between book types purchased from the bookstore against all other book types purchased, via a Paired Samples T-Test without accounting for GPA grouping. There were 5 results that were statistically significant at at least a 95% confidence interval. There was a lower course grade for the following four textbook purchase types: 1. No Textbook Used, .10 lower course grade GPA points compared to all other textbook purchase types; 2. Course Pack Rent, .11 lower course grade GPA points compared to all other textbook purchase types; 3. E-Book Rent, .56 lower course grade GPA points compared to all other textbook purchase types; 4. Paper Rent, .13 lower course grade GPA points

compared to all other textbook purchase types. The only textbook purchase type to have a statistically significant higher GPA score was Course Pack Buy, with a .08 higher score compared to all other textbook types.

Table 7

Paired Samples T-Test of GPA Scores for One Purchase Type Versus all Others

	Mean	*SD*	*SE*	*t*	*df*	*p*
No Textbook Used	-0.1	0.79	0.05	2.09	262	<.05
Course Pack Buy	0.08	0.76	0.02	3.9	1445	<.001
Course Pack Rent	-0.11	0.72	0.03	4.56	818	<.001
E-Book Buy	-0.04	0.76	0.02	2	1337	0.05
E-Book Rent	-0.56	0.55	0.1	5.81	31	<.001
OTHER	-0.04	0.6	0.04	1.27	288	0.2
Paper Buy	0	0.78	0.01	0.04	3812	0.97
Paper Rent	-0.13	0.71	0.02	5.69	1034	<.001

Data Source = Dataset 1

Table 8 outlines all the mean differences between book types purchased from the bookstore against all other book types purchased split by GPA group, via a Paired Samples T-Test. Within all three GPA groups, there were 10 results that were statistically significant at a 95% confidence level.

Within the low GPA group, there was no statistically significant difference in GPA between book types ordered.

Within the average GPA group, there were four statistically significant differences in GPA between book types ordered. Students who purchased a course pack correlated to a 0.13 lower GPA score compared to all other book types ordered. Students who purchased an E-Book correlated to a 0.14 lower GPA score compared to all other book types ordered. Students who rented an E-Book, correlated to a 0.87 lower GPA score compared to all other book types ordered. Finally, students who rented a paper copy of a textbook correlated to a 0.27 lower GPA score compared to all other book types ordered.

Within the high GPA group, there were six statistically significant differences in GPA in relation to book types ordered. The GPA score differences were less substantial than those in the average GPA group. Students who did not purchase any textbook correlated to a 0.10 lower GPA score compared to all other book types ordered. Students who purchased a course pack correlated to a 0.05 higher GPA score compared to all other book types ordered. Students who rented a course pack correlated to a 0.11 lower GPA score compared to all other book types ordered. Students who purchased an E-Book correlated to a 0.03 lower GPA score compared to all other book types ordered. Students who rented an E-Book correlated to a 0.42 lower GPA score compared to all other book types ordered. Finally, students who rented a paper copy of a textbook correlated to a 0.10 lower GPA score compared to all other book types ordered.

Table 8

Paired Samples T-Test of GPA Scores for One Purchase Type Versus All Others, Split by GPA Group

		Mean	*SD*	*SE*	*t*	*df*	*p*
Low Performer							
	No Textbook Used	-0.12	1.21	0.23	-0.52	26	0.61
	Course Pack Buy	0.11	1.04	0.1	1.15	113	0.25
	Course Pack Rent	-0.22	1.11	0.13	-1.72	73	0.09
	E-Book Buy	0.18	1.19	0.11	1.65	115	0.1
	OTHER	0.28	0.97	0.22	1.27	18	0.22
	Paper Buy	-0.05	1.07	0.06	-0.89	369	0.37
	Paper Rent	0.11	1.12	0.13	0.86	76	0.39
Average Performer							
	No Textbook Used	-0.1	1.07	0.12	-0.86	80	0.4
	Course Pack Buy	0.13	1.03	0.05	2.49	367	0.01
	Course Pack Rent	-0.08	1.03	0.07	-1.11	196	0.27
	E-Book Buy	-0.14	0.98	0.05	-2.64	339	<.05
	E-Book Rent	-0.87	0.81	0.27	-3.23	8	<.05
	OTHER	-0.16	0.79	0.1	-1.51	57	0.14
	Paper Buy	-0.01	1.02	0.03	-0.32	1026	0.75
	Paper Rent	-0.27	0.99	0.06	-4.3	247	<.001
High Performer							
	No Textbook Used	-0.1	0.49	0.04	-2.54	154	<.05
	Course Pack Buy	0.05	0.58	0.02	2.83	963	<.05
	Course Pack Rent	-0.11	0.47	0.02	-5.53	547	<.05
	E-Book Buy	-0.03	0.55	0.02	-1.75	881	0.08
	E-Book Rent	-0.42	0.36	0.08	-5.54	21	<.001
	OTHER	-0.04	0.48	0.03	-1.33	211	0.18
	Paper Buy	0.01	0.58	0.01	1.08	2415	0.28
	Paper Rent	-0.1	0.49	0.02	-5.45	709	<.001

Data Source = Dataset 1

When measuring the entire data population for research question 1, Analysis of Variance (ANOVA) was conducted. When comparing the seven purchase types measured, the ANOVA was significant F (7, 9027) = 11.119, $p < .001$, indicating that there is a significant difference in grade point change in relation to textbook purchase type.

Because there was a significance level lower than 0.05, a post-hoc multiple comparisons test was conducted (Table 9) to determine where the differences in GPA existed in the different textbook purchase types.

Table 9

Multiple Comparisons of ANOVA Post-Hoc Tests for GPA Scores

Multiple Comparisons						
					95% CI	
		Mean Difference (I-J)	*SE*	*p*	*Lower*	*Upper*
No Textbook Used	Course Pack Buy	0.05	0.07	1	-0.17	0.27
	Course Pack Rent	-0.15	0.08	0.53	-0.38	0.09
	E-Book Buy	-0.07	0.07	0.98	-0.29	0.16
	E-Book Rent	-.66*	0.21	<.05	-1.28	-0.04
	OTHER	-0.2	0.09	0.39	-0.48	0.08
	Paper Buy	0.04	0.07	1	-0.17	0.26
	Paper Rent	-0.2	0.08	0.17	-0.42	0.03
Course Pack Buy	Course Pack Rent	-.20*	0.05	<.001	-0.34	-0.05
	E-Book Buy	-0.12	0.04	0.08	-0.25	0.01
	E-Book Rent	-.71*	0.2	<.05	-1.3	-0.12
	OTHER	-.25*	0.07	<.05	-0.46	-0.04
	Paper Buy	-0.01	0.03	1	-0.11	0.1
	Paper Rent	-.25*	0.05	<.001	-0.38	-0.11
Course Pack Rent	E-Book Buy	0.08	0.05	0.71	-0.07	0.23
	E-Book Rent	-0.51	0.2	0.16	-1.11	0.09

Table 9

Continued

	OTHER	-0.05	0.08	1	-0.28	0.18
	Paper Buy	.19*	0.04	<.001	0.07	0.32
	Paper Rent	-0.05	0.05	0.99	-0.2	0.11
E-Book Buy	E-Book Rent	-0.59	0.2	0.05	-1.18	0
	OTHER	-0.13	0.07	0.59	-0.35	0.08
	Paper Buy	.11*	0.04	<.05	0.01	0.22
	Paper Rent	-0.13	0.05	0.1	-0.26	0.01
E-Book Rent	OTHER	0.46	0.2	0.32	-0.16	1.08
	Paper Buy	.70*	0.19	<.05	0.11	1.29
	Paper Rent	0.46	0.2	0.26	-0.13	1.06
OTHER	Paper Buy	.24*	0.07	<.05	0.04	0.45
	Paper Rent	0.01	0.07	1	-0.22	0.23
Paper Buy	Paper Rent	-.24*	0.04	<.001	-0.36	-0.12

* The mean difference is significant at the 0.05 level.

Data Source = Dataset 1

From the ANOVA post-hoc multiple comparisons test, the results show 19 comparisons where there is a statistically significant difference in the GPA mean when comparing two different textbook types. The differences that have the largest change in GPA exist in comparing purchased course packs to rented E-Books (-0.709 GPA) and purchased paper textbook to rented E-Books (-0.703 GPA).

Research Question 2. *What is the relationship between student purchasing decisions of textbooks/course materials and student course satisfaction at a Florida community college?*

This research question utilized data specifically from dataset 2. The data used in dataset 2 were course satisfaction score and book type purchased from the bookstore.

Along with descriptive statistics, ANOVA statistical tests and corresponding post-hoc tests were run to measure student purchasing decisions against change in course satisfaction.

Table 10 identifies the total counts of textbook types selected, as self-reported by students in the Auxiliary Services Satisfaction Survey. In total there were 2687 responses, with 220 students omitting a textbook type selection. The mean listed in Table 10 represents the students' Likert scale (scale of 1 – 5, 1 being very dissatisfied, 5 being very satisfied) response to their course satisfaction question for the course associated with the textbook purchase decision they made.

The mean course satisfaction scores for non-responses (None) (3.5), Other – Write In responses (3.65) and Physical (Hard cover or Paperback) (3.5) were higher than those of the other formats (Audiobook, Combination, E-Book, or Online Pack).

Table 10

Descriptive Statistics of Course Satisfaction by Textbook Selection Type

					95% CI			
	N	*Mean*	*SD*	*SE*	*Lower Bound*	*Upper Bound*	*Min*	*Max*
None	220	3.50	1.2	0.08	3.34	3.65	1	5
Audiobook	2	2.00	0.00	0.00	2.00	2.00	2	2
Combination	244	3.11	1.31	0.08	2.95	3.28	1	5
E-Book	455	3.23	1.24	0.06	3.12	3.35	1	5
Online Pack	152	3.20	1.28	0.10	2.99	3.40	1	5
Other - Write In	69	3.65	1.33	0.16	3.33	3.97	1	5
Physical (Hard cover or Paperback)	1545	3.50	1.24	0.03	3.44	3.56	1	5
Total	2687	3.40	1.25	0.02	3.36	3.45	1	5

Data Source = Dataset 2

Figure 4 below visualizes the mean satisfaction score measured with textbook/course material type frequency count.

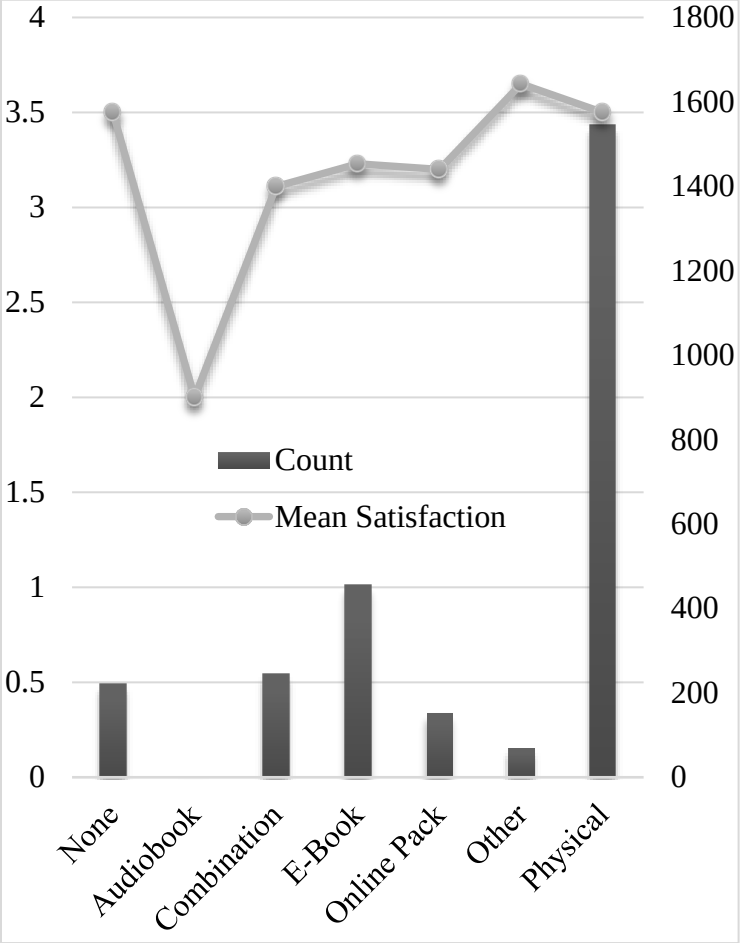

Figure 4. Mean satisfaction score with textbook/course material frequency

A Test of Homogeneity of Variances was run to examine the null hypotheses which states: "There is no difference of variances in satisfaction score across the various textbook types used." The *p value* (Sig.) was less than 0.05, F (6, 2680) = 3.19, so the null hypotheses can be rejected.

An ANOVA test was then conducted to compare the seven textbook type groups. The ANOVA was significant, F (6, 2680) = 6.9, p < .001. The significance score of < .001 states that there is greater than 99% confidence that there is a difference in satisfaction score in relation to textbook type used.

Since the *p value* was less than 0.05, multiple comparisons were then run to identify the specific purchase types where there was a significant difference in satisfaction score compared to other purchase types. As outlined in Table 11, there were eight statistically significant changes in satisfaction score in relation to book type. The greatest change in satisfaction score existed when a write-in response was provided compared to a combination purchase (textbook and course pack, textbook and E-Book, etc.).

Table 11

Multiple Comparisons Tests of Textbook Types for Course Satisfaction Scores

Multiple Comparisons						
Purchase Type		*Mean Difference (I-J)*	*SE*	*p*	*95% CI*	
					Lower	*Upper*
None	Audiobook	1.5	0.88	0.62	-1.11	4.11
	Combination	.38*	0.12	<.05	0.04	0.72
	E-Book	0.26	0.1	0.14	-0.04	0.56
	Online Pack	0.3	0.13	0.26	-0.09	0.69
	Other - Write In	-0.16	0.17	0.97	-0.66	0.35
	Physical (Hard cover or Paperback)	0	0.09	1	-0.27	0.26
Audiobook	Combination	-1.12	0.88	0.87	-3.72	1.49
	E-Book	-1.23	0.88	0.8	-3.84	1.37

Table 11

Continued

	Online Pack	-1.2	0.89	0.83	-3.81	1.42
	Other - Write In	-1.65	0.89	0.51	-4.29	0.98
	Physical (Hard cover or Paperback)	-1.5	0.88	0.62	-4.1	1.1
Combination	E-Book	-0.12	0.1	0.9	-0.41	0.17
	Online Pack	-0.08	0.13	1	-0.46	0.3
	Other - Write In	-.54*	0.17	<.05	-1.04	-0.04
	Physical (Hard cover or Paperback)	-.38*	0.09	<.001	-0.64	-0.13
E-Book	Online Pack	0.04	0.12	1	-0.31	0.38
	Other - Write In	-0.42	0.16	0.12	-0.89	0.06
	Physical (Hard cover or Paperback)	-.27*	0.07	<.001	-0.46	-0.07
Online Pack	Other - Write In	-0.46	0.18	0.15	-0.99	0.08
	Physical (Hard cover or Paperback)	-0.3	0.11	0.07	-0.61	0.01
Other - Write In	Physical (Hard cover or Paperback)	0.15	0.15	0.95	-0.3	0.61

*. The mean difference is significant at the 0.05 level.

Research Question 3. *What is the relationship between student purchasing decisions of textbooks/course materials and students' success, measured by student success perception (via self-reported grade) (A, B, C, D, F), in selected general education courses within the context of this study at a Florida community college?*

This research question utilized data specifically from dataset 2. The data used in dataset 2 which included specific textbook type selection, the method acquired/purchased, and self-reported grade in the corresponding class, measured in a GPA scale (A=4, B=3, C=2, D=1, F=0).

Along with descriptive statistics, ANOVA statistical tests and corresponding post-hoc tests were run to measure student purchasing decisions against change in self-reported grade.

Table 12 identifies the total counts of textbook types selected as well as the acquisition method for each specific textbook type, as self-reported by students in the Auxiliary Services Satisfaction Survey. In total there were 2468 responses. The mean listed in Table 12 represents the students' self-reported expected grade in the specific course that corresponded with the textbook purchase decision they made.

Table 12

Descriptive Statistics of Expected Grades by Book Type and Acquisition Method

						95% CI			
Book Type	*Method Acquired*	*N*	*Mean*	*SD.*	*SE*	*Lower Bound*	*Upper Bound*	*Min*	*Max*
Combination	Bought	203	3.08	1.30	0.09	2.90	3.26	-1	4
	Did not buy	4	3.50	0.58	0.29	2.58	4.42	3	4
	Other - Write In	2	4.00	0.00	0.00	4.00	4.00	4	4
	Rented	38	3.26	1.13	0.18	2.89	3.64	-1	4
	Total	247	3.13	1.26	0.08	2.97	3.28	-1	4

Table 12

Continued

E-Book	Borrowed from Library	2	4.00	0.00	0.00	4.00	4.00	4	4
	Borrowed from Other (Friend, Family Member)	6	3.33	0.52	0.21	2.79	3.88	3	4
	Bought	358	3.30	1.07	0.06	3.19	3.41	-1	4
	Course did not require a textbook	6	2.33	2.58	1.05	-0.38	5.04	-1	4
	Did not buy	14	3.71	0.47	0.13	3.44	3.98	3	4
	Other - Write In	14	3.14	1.79	0.48	2.11	4.18	-1	4
	Rented	55	3.67	0.55	0.07	3.53	3.82	2	4
	Total	455	3.34	1.07	0.05	3.24	3.44	-1	4
Online Pack	Borrowed from Library	2	2.00	0.00	0.00	2.00	2.00	2	2
	Bought	120	3.19	1.00	0.09	3.01	3.37	-1	4
	Course did not require a textbook	10	3.10	1.20	0.38	2.24	3.96	0	4
	Did not buy	3	3.67	0.58	0.33	2.23	5.10	3	4
	Other - Write In	11	3.27	0.79	0.24	2.74	3.80	2	4
	Rented	2	3.00	0.00	0.00	3.00	3.00	3	3
	Total	148	3.18	0.98	0.08	3.02	3.34	-1	4
Other - Write In	Borrowed from Library	2	4.00	0.00	0.00	4.00	4.00	4	4
	Bought	38	3.45	0.83	0.13	3.18	3.72	1	4
	Course did not require a textbook	2	4.00	0.00	0.00	4.00	4.00	4	4
	Did not buy	6	4.00	0.00	0.00	4.00	4.00	4	4
	Other - Write In	7	2.00	2.24	0.85	-0.07	4.07	-1	4
	Rented	10	3.50	0.85	0.27	2.89	4.11	2	4
	Total	65	3.38	1.11	0.14	3.11	3.66	-1	4
Physical (Hard cover or Paperback)	Borrowed from Library	10	4.00	0.00	0.00	4.00	4.00	4	4
	Borrowed from Other (Friend, Family Member)	18	3.67	0.59	0.14	3.37	3.96	2	4

Table 12

Continued

Bought	1081	3.41	0.90	0.03	3.36	3.47	-1	4
Did not buy	14	1.43	1.83	0.49	0.37	2.48	-1	4
Other - Write In	49	3.53	0.68	0.10	3.34	3.73	2	4
Rented	381	3.55	0.76	0.04	3.47	3.62	-1	4
Total	1553	3.44	0.89	0.02	3.39	3.48	-1	4

Data Source = Dataset 2

The means reported in Table 12 described three comparisons. First, they described the self-reported grade change of all the methods of acquisition of a specific textbook type against one another. Second, they described the self-reported grade change of the different textbook types, isolating a specific acquisition method. Finally, the described the self-reported grade change of all textbook types and acquisition methods overall.

A Test of Homogeneity of Variances (Table 13) was run to measure the ability for this question to reject the null hypotheses which states: “There is no difference in self-reported grade when comparing various textbook types used and methods of acquisition.” The *p values* (Sig.) for three of the five categories were less than 0.05, so the null hypotheses can be rejected for those three categories.

Table 13

Test of Homogeneity of Variances

Self-Reported Grade Expected				
		df		
Book Type	*Levene Statistic*		*df2*	*p value*
Combination	1.529	3	243	0.20
E-Book	8.935	6	448	<.001
Online Pack	1.734	5	142	0.13
Other - Write In	7.365	5	59	<.001
Physical (Hard cover or Paperback)	12.301	5	154	<.001

For categories E-Book, Other Write-In, and Physical (Hard cover or Paperback), the *p values* were all < .001, which is less than the 95% confidence interval of 0.05. Those *p values* mean that for those three categories, there was a statistically significant relationship between self-reported expected grade and using a different acquisition method for a specific type of textbook/course material. For the categories of Combination and Online Pack, a statistically significant relationship between acquisition type and self-reported grade could not be made, thus the null hypothesis for those two categories was accepted.

An ANOVA test was then conducted (Table 14) returning a *p values* (Sig.) of < .05, < .05, and < .001 for E-Book, Other Write-In, and Physical (Hard cover or Paperback) respectively which fall within the 95% confidence level of 0.05. This indicates there is greater than 95% confidence that there is a relationship between self-reported expected grade and textbook/course material acquisition method.

Table 14

ANOVA Results for Self-Reported Grade Related to Textbook/Course Material Type and Acquisition Method

Textbook/Course Material Type		*SS*	*df*	*MS*	*F*	*p*
Combination	Between Groups	3.17	3	1.06	0.66	0.58
	Within Groups	387.95	243	1.60		
	Total	391.11	246			
E-Book	Between Groups	16.24	6	2.71	2.43	<.05
	Within Groups	499.96	448	1.12		
	Total	516.20	454			
Online Pack	Between Groups	3.73	5	0.75	0.77	0.58
	Within Groups	138.34	142	0.97		
	Total	142.07	147			
Other - Write In	Between Groups	17.49	5	3.50	3.33	<.05
	Within Groups	61.90	59	1.05		
	Total	79.39	64			
Physical (Hard cover or Paperback)	Between Groups	66.40	5	13.28	17.74	<.001
	Within Groups	1157.97	1547	0.75		
	Total	1224.38	1552			

Finally, since the *p values* for three categories were less than 0.05, multiple comparisons were then run to identify the specific acquisition methods that resulted in a significant difference in self-reported expected grade. As outlined in Table 15, there were 16 statistically significant changes in self-reported expected grade in relation to acquisition method and textbook type selected. The greatest change in self-reported expected grade existed when “Did not buy” was

selected for a Physical (Hard cover or Paperback) textbook. When comparing did not buy to all other acquisition methods, there was a statistically significant difference in every method, and the average self-reported expected grade for "Did not buy" was 2.203 points less (out of 4) than the other categories.

Table 15

Multiple Comparison Tests of Textbook/Course Material Type, Acquisition Method, and Self-Reported Grade

Multiple Comparisons							
			Mean Difference (I-J)	*SE*	*p*	*95% CI*	
						Lower Bound	*Upper Bound*
		Did not buy	-0.42	0.29	0.77	-1.27	0.43
		Other - Write In	0.15	0.29	1	-0.7	1.01
		Rented	-0.38	0.15	0.18	-0.83	0.08
		Borrowed from Library	-0.7	0.75	0.97	-2.92	1.51
E-Book	Bought	Borrowed from Other (Friend, Family Member)	-0.04	0.44	1	-1.33	1.25
		Course did not require a textbook	0.96	0.44	0.29	-0.33	2.25

Table 15

Continued

		Bought	0.42	0.29	0.77	-0.43	1.27
		Other - Write In	0.57	0.4	0.79	-0.61	1.75
		Rented	0.04	0.32	1	-0.9	0.98
		Borrowed from Library	-0.29	0.8	1	-2.65	2.08
	Did not buy	Borrowed from Other (Friend, Family Member)	0.38	0.52	0.99	-1.15	1.91
		Course did not require a textbook	1.38	0.52	0.11	-0.15	2.91
		Bought	-0.15	0.29	1	-1.01	0.7
		Did not buy	-0.57	0.4	0.79	-1.75	0.61
		Rented	-0.53	0.32	0.63	-1.47	0.41
		Borrowed from Library	-0.86	0.8	0.94	-3.22	1.51
	Other - Write In	Borrowed from Other (Friend, Family Member)	-0.19	0.52	1	-1.72	1.34
		Course did not require a textbook	0.81	0.52	0.7	-0.72	2.34

Table 15

Continued

		Bought	0.38	0.15	0.18	-0.08	0.83
		Did not buy	-0.04	0.32	1	-0.98	0.9
		Other - Write In	0.53	0.32	0.63	-0.41	1.47
		Borrowed from Library	-0.33	0.76	1	-2.58	1.93
	Rented	Borrowed from Other (Friend, Family Member)	0.34	0.45	0.99	-1.01	1.68
		Course did not require a textbook	1.34	0.45	0.05	-0.01	2.68
		Bought	0.7	0.75	0.97	-1.51	2.92
		Did not buy	0.29	0.8	1	-2.08	2.65
		Other - Write In	0.86	0.8	0.94	-1.51	3.22
		Rented	0.33	0.76	1	-1.93	2.58
	Borrowed from Library	Borrowed from Other (Friend, Family Member)	0.67	0.86	0.99	-1.89	3.22
		Course did not require a textbook	1.67	0.86	0.46	-0.89	4.22

Table 15

Continued

		Bought	0.04	0.44	1	-1.25	1.33
		Did not buy	-0.38	0.52	0.99	-1.91	1.15
	Borrowed from Other (Friend, Family Member)	Other - Write In	0.19	0.52	1	-1.34	1.72
		Rented	-0.34	0.45	0.99	-1.68	1.01
		Borrowed from Library	-0.67	0.86	0.99	-3.22	1.89
		Course did not require a textbook	1	0.61	0.66	-0.81	2.81
		Bought	-0.96	0.44	0.29	-2.25	0.33
		Did not buy	-1.38	0.52	0.11	-2.91	0.15
		Other - Write In	-0.81	0.52	0.7	-2.34	0.72
		Rented	-1.34	0.45	0.05	-2.68	0.01
	Course did not require a textbook	Borrowed from Library	-1.67	0.86	0.46	-4.22	0.89
		Borrowed from Other (Friend, Family Member)	-1	0.61	0.66	-2.81	0.81
Other - Write In	Bought	Did not buy	-0.55	0.45	0.82	-1.88	0.77
		Other - Write In	1.447*	0.42	<.05	0.21	2.69
		Rented	-0.05	0.36	1	-1.12	1.02

Table 15

Continued

		Borrowed from Library	-0.55	0.74	0.98	-2.74	1.64
		Course did not require a textbook	-0.55	0.74	0.98	-2.74	1.64
		Bought	0.55	0.45	0.82	-0.77	1.88
		Other - Write In	2.000*	0.57	<.05	0.32	3.68
		Rented	0.5	0.53	0.93	-1.06	2.06
	Did not buy	Borrowed from Library	0	0.84	1	-2.46	2.46
		Course did not require a textbook	0	0.84	1	-2.46	2.46
		Bought	-1.447*	0.42	<.05	-2.69	-0.21
		Did not buy	-2.000*	0.57	<.05	-3.68	-0.32
		Rented	-1.500*	0.51	0.05	-2.99	-0.01
	Other - Write In	Borrowed from Library	-2	0.82	0.16	-4.42	0.42
		Course did not require a textbook	-2	0.82	0.16	-4.42	0.42
		Bought	0.05	0.36	1	-1.02	1.12
	Rented	Did not buy	-0.5	0.53	0.93	-2.06	1.06
		Other - Write In	1.500*	0.51	0.05	0.01	2.99

Table 15

Continued

		Borrowed from Library	-0.5	0.79	0.99	-2.84	1.84
		Course did not require a textbook	-0.5	0.79	0.99	-2.84	1.84
		Bought	0.55	0.74	0.98	-1.64	2.74
		Did not buy	0	0.84	1	-2.46	2.46
	Borrowed from Library	Other - Write In	2	0.82	0.16	-0.42	4.42
		Rented	0.5	0.79	0.99	-1.84	2.84
		Course did not require a textbook	0	1.02	1	-3.02	3.02
		Bought	0.55	0.74	0.98	-1.64	2.74
		Did not buy	0	0.84	1	-2.46	2.46
	Course did not require a textbook	Other - Write In	2	0.82	0.16	-0.42	4.42
		Rented	0.5	0.79	0.99	-1.84	2.84
		Borrowed from Library	0	1.02	1	-3.02	3.02
Borrowed from Other (Friend, Family Member)	Bought	Did not buy	1.984*	0.23	<.001	1.32	2.65
		Other - Write In	-0.12	0.13	0.94	-0.48	0.24
		Rented	-0.14	0.05	0.09	-0.28	0.01

Table 15

Continued

		Borrowed from Library	-0.59	0.28	0.27	-1.37	0.2
		Borrowed from Other (Friend, Family Member)	-0.25	0.21	0.82	-0.84	0.33
		Bought	-1.984*	0.23	<.001	-2.65	-1.32
		Other - Write In	-2.102*	0.26	<.001	-2.85	-1.35
		Rented	-2.120*	0.24	<.001	-2.79	-1.45
	Did not buy	Borrowed from Library	-2.571*	0.36	<.001	-3.59	-1.55
		Borrowed from Other (Friend, Family Member)	-2.238*	0.31	<.001	-3.12	-1.36
		Bought	0.12	0.13	0.94	-0.24	0.48
	Other - Write In	Did not buy	2.102*	0.26	<.001	1.35	2.85
		Rented	-0.02	0.13	1	-0.39	0.36

Table 15

Continued

		Borrowed from Library	-0.47	0.3	0.62	-1.33	0.39
		Borrowed from Other (Friend, Family Member)	-0.14	0.24	0.99	-0.82	0.54
		Bought	0.14	0.05	0.09	-0.01	0.28
		Did not buy	2.120*	0.24	<.001	1.45	2.79
		Other - Write In	0.02	0.13	1	-0.36	0.39
	Rented	Borrowed from Library	-0.45	0.28	0.58	-1.24	0.34
		Borrowed from Other (Friend, Family Member)	-0.12	0.21	0.99	-0.71	0.48
		Bought	0.59	0.28	0.27	-0.2	1.37
	Borrowed from Library	Did not buy	2.571*	0.36	<.001	1.55	3.59
		Other - Write In	0.47	0.3	0.62	-0.39	1.33

Table 15

Continued

	Rented	0.45	0.28	0.58	-0.34	1.24
	Borrowed from Other (Friend, Family Member)	0.33	0.34	0.93	-0.64	1.31
	Bought	0.25	0.21	0.82	-0.33	0.84
	Did not buy	2.238*	0.31	<.001	1.36	3.12
	Other - Write In	0.14	0.24	0.99	-0.54	0.82
	Rented	0.12	0.21	0.99	-0.48	0.71
	Borrowed from Library	-0.33	0.34	0.93	-1.31	0.64

*. The mean difference is significant at the 0.05 level.

Research Question 4. *What is the relationship between student purchasing decisions of textbooks/course materials and students' age and gender at a Florida community college?*

Descriptive statistics were used to show frequencies in book type and purchase type (Buy or Rent) by both age group and gender (Table 16 and Table 17). A Chi-Square test was also conducted to determine whether there was a statistically significant relationship between gender and purchasing decision of textbooks/course materials, and age grouping and purchasing decision of textbooks/course materials.

Table 16

Frequencies of Purchasing Decisions of Textbooks/Course Materials by Age Group

		Book Type																
		No Response		*Course Pack Buy*		*Course Pack Rent*		*E-Book Buy*		*E-Book Rent*		*Other*		*Paper Buy*		*Paper Rent*		*Total*
	18-24	153	58%	810	56%	519	63%	791	59%	22	69%	140	48%	2486	65%	637	62%	5368
Age	25-40	76	29%	453	31%	216	26%	421	31%	6	19%	97	34%	995	26%	261	25%	3651
Group	41-61	29	11%	158	11%	64	8%	100	7%	4	13%	46	16%	254	7%	105	10%	9
	62+	4	2%	8	1%	5	1%	11	1%	0	0%	1	0%	12	0%	8	1%	7
	No Response	1	0%	17	1%	15	2%	15	1%	0	0%	5	2%	66	2%	24	2%	143
Total		263	100%	1446	100%	819	100%	1338	100%	32	100%	289	100%	3813	100%	1035	100%	9178

Table 17

Frequencies of Purchasing Decisions of Textbooks/Course Materials by Gender

		Book Type																
		No Response		*Course Pack Buy*		*Course Pack Rent*		*E-Book Buy*		*E-Book Rent*		*Other*		*Paper Buy*		*Paper Rent*		*Total*
	Female	187	71%	916	63%	501	61%	745	56%	28	88%	209	72%	2167	57%	615	59%	5368
Gender	Male	75	29%	529	37%	316	39%	593	44%	4	13%	80	28%	1637	43%	417	40%	3651
	Neither	1	0%	1	0%	2	0%	0	0%	0	0%	0	0%	3	0%	2	0%	9
	No Response	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	6	0%	1	0%	7
Total		263	100%	1446	100%	819	100%	1338	100%	32	100%	289	100%	3813	100%	1035	100%	9035

The 18-24 age group made up of 58.2% of the total respondents, and females made up of 71.1% of the total respondents. As for textbook type, the most frequent response at 53.66%, were physical paperback/hardcover textbooks. When looking at type of purchase, 73% of respondents purchased their textbooks/course materials.

Figures 5 and 6 visualize the textbook/course material purchase type frequencies for each gender grouping and age grouping, respectively.

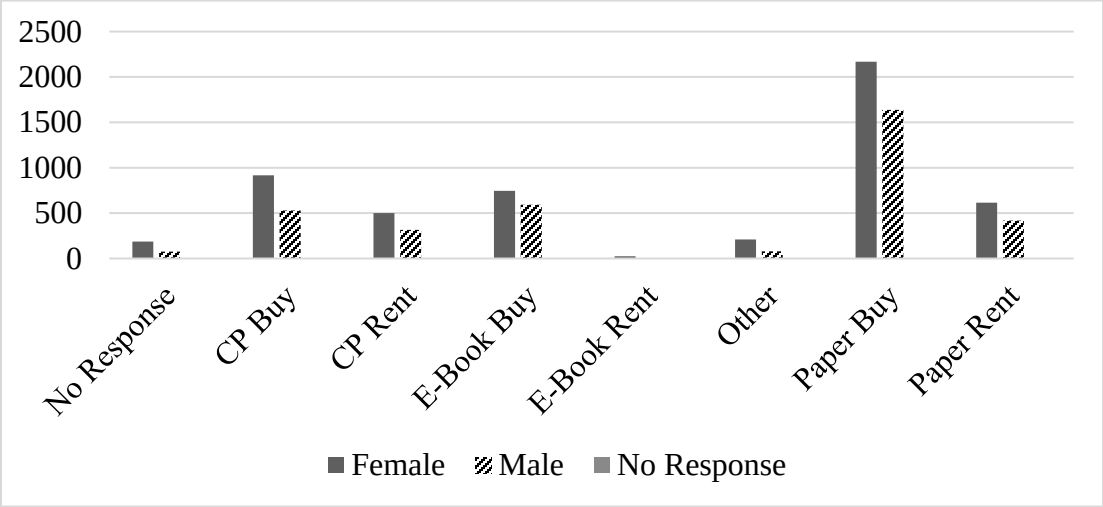

Figure 5. Textbook/course material type and purchase type frequencies by gender

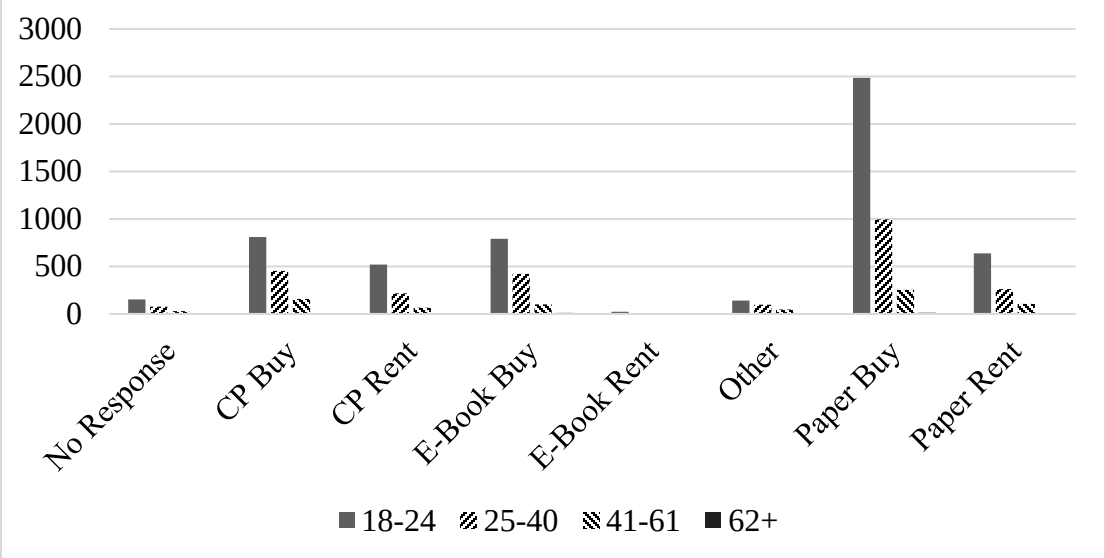

Figure 6. Textbook/course material type and purchase type frequencies by age group

Specifically, within age group, the most popular textbook/course material type for each age group was Paper Buy. The same can also be said for gender as Paper Buy was the most frequent option selected for males, females, and no gender selections.

In the Chi-Square test shown in Table 18, a *p value* (Asymptomatic Significance (2-sided)) of < .001 which is less than the 95% confidence interval of 0.05 was present, so the null hypotheses of "There is no relationship between age group and textbook/course material purchasing decision" could potentially be rejected.

Table 18

Chi-Square Test of Textbook/Course Material Purchasing Decision and Age Group

Chi-Square Tests			
	Value	*df*	*Asymptotic Significance (2-sided)*
Pearson Chi-Square	124.99[a]	28	0.00
Likelihood Ratio	121.39	28	0.00
N of Valid Cases	9035		

a. 8 cells (20.0%) have expected count less than 5. The minimum expected count is .17.

Typically, with a Chi-Square test, it is assumed that 80% of the cells tested have an expected count of 5 or greater for the test to be accurate. If the expected count is low, it may invalidate the *p* value. However, when running this test, given the large sample size, the minimum expected count is 0.17, so any cell counts greater than 0.17 would be valid. That minimum of 0.17 is not necessary for the age group testing as 80% of the cells tested are equal to or larger than the expected count of 5 or greater.

Conversely, when running a Chi-Square test for gender (Table 19), although the test results in a *p value* (Asymptomatic Significance, 2-sided) of < .001 which is less than the 95% confidence interval of 0.05, it does not meet the assumed count requirements.

Table 19

Chi-Square Test of Textbook/Course Material Purchasing Decision and Gender

Chi-Square Tests			
	Value	*df*	*Asymptotic Significance (2-sided)*
Pearson Chi-Square	87.05[a]	21	0.00
Likelihood Ratio	93.01	21	0.00
N of Valid Cases	9035		

a. 16 cells (50.0%) have expected count less than 5. The minimum expected count is .02.

When looking at the first assumption (80% of cells must have an expected count greater than 5), only 16 or 50% meet that requirement. When accounting for sample size, the minimum expected count shifts to 0.02. That 0.02 does eliminate some of the cells under the threshold, but there were still only 23 out of 32 cells that did not fail the assumption or 71.8%. This means that the Chi-Square test is not reliable for testing to reject the null hypothesis when comparing textbook/course material purchasing decision and gender.

Finally, since the Chi-Square test was able to reject the null hypothesis for age grouping, a test of symmetric measures (Cramer's V) was conducted to measure how strong the effect between the two categories was. Cramer's V values range from 0 to 1, with values closer to 0 having a negligible or small effect, values around 0.3 having a medium effect, and values around 0.5 or greater having a large effect. As seen in Table 20, the Cramer's V value was 0.059,

meaning there is a very small effect on textbook/course materials purchasing decision when associated with age group.

Table 20

Cramer's V Test of Textbook/Course Material Purchasing Decision and Age Group

Symmetric Measures			
		Value	*Approximate Significance*
Nominal by Nominal	Phi	0.12	0.00
	Cramer's V	0.06	0.00
N of Valid Cases		9035	

Research Question 5. *What is the relationship between student purchasing decisions of textbooks/course materials and selected general education course subjects at a Florida community college?*

The data measured specific courses defined as General Education courses in Chapter 1 and tested for comparisons and frequencies in textbook/course material purchase decision and textbook/course material cost grouping. Figure 7 shows the frequency of general education courses within the measured data.

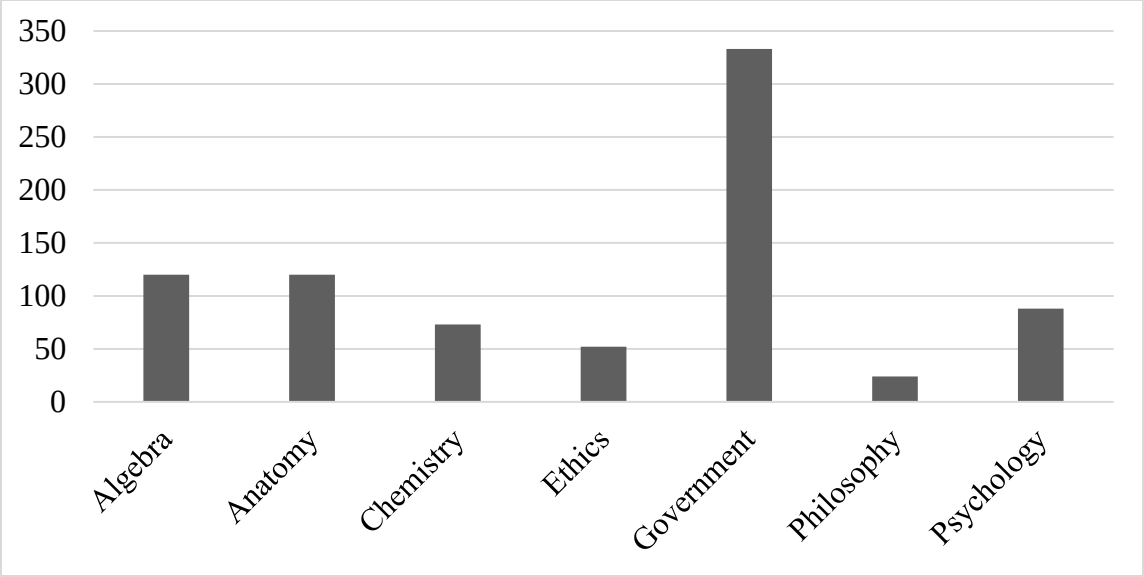

Figure 7. Frequency of general education courses

In Tables 21 and 22, a frequency analysis was presented to show the frequencies of respondents for each course, and the frequencies of each purchase decision within each course.

Table 21

Frequency Analysis of General Education Course

Frequencies					
Gen Ed Course		*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
Valid	Algebra	120	14.8	14.8	14.8
	Anatomy	120	14.8	14.8	29.6
	Chemistry	73	9.0	9.0	38.6
	Ethics	52	6.4	6.4	45.1
	Government	333	41.1	41.1	86.2
	Philosophy	24	3.0	3.0	89.1
	Psychology	88	10.9	10.9	100.0
	Total	810	100.0	100.0	

Table 22

Frequency Analysis of Textbook/Course Material Purchase Decision within General Education Course

Frequencies						
Gen Ed Course Decision		*Purchase*	*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
Algebra	Valid	Course Pack Buy	24	20.0	20.0	20.0
		Course Pack Rent	31	25.8	25.8	45.8
		E-Book Buy	23	19.2	19.2	65.0
		Paper Buy	42	35.0	35.0	100.0
		Total	120	100.0	100.0	
Anatomy	Valid	Course Pack Buy	34	28.3	28.3	28.3
		Paper Buy	86	71.7	71.7	100.0
		Total	120	100.0	100.0	
Chemistry	Valid	Course Pack Buy	51	69.9	69.9	69.9
		Frequencies	22	30.1	30.1	100.0
		Total	73	100.0	100.0	
Ethics	Valid	Paper Rent	52	100.0	100.0	100.0
Government	Valid	Course Pack Buy	83	24.9	24.9	24.9
		Course Pack Rent	11	3.3	3.3	28.2
		OTHER	42	12.6	12.6	40.8
		Paper Buy	149	44.7	44.7	85.6
		Paper Rent	48	14.4	14.4	100.0
		Total	333	100.0	100.0	
Philosophy	Valid	Course Pack Rent	24	100.0	100.0	100.0
Psychology	Valid	0	71	80.7	80.7	80.7
		Paper Buy	17	19.3	19.3	100.0
		Total	88	100.0	100.0	

Government made up 41.1% of the total respondents, followed by Algebra and Anatomy at 14.8% each. Within each course general education course, the Paper Buy textbook/course

material decision was the most frequent, appearing as the most common choice in four of the seven courses. When looking at Table 23, this data translates as Paper Buy was the most frequent purchasing decision at 36.3%.

Table 23

Frequency Analysis of Textbook/Course Material Purchase Decision

Frequencies					
Purchase Decision		*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
Valid	Course Pack Buy	192	23.7	23.7	23.7
	Course Pack Rent	88	10.9	10.9	34.6
	E-Book Buy	23	2.8	2.8	37.4
	OTHER	113	14.0	14.0	51.4
	Paper Buy	294	36.3	36.3	87.7
	Paper Rent	100	12.3	12.3	100.0
	Total	810	100.0	100.0	

Finally, textbook/course material cost was measured within these general education courses. In Table 24, each course is shown with the corresponding frequency of textbook/course material cost grouping. Every course except Government and Ethics had a majority of textbook/course materials purchased exceed $100.

Table 24

Frequency Analysis of Textbook/Course Material Cost Grouping within General Education Course

Frequencies						
Gen Ed Course Group		*Cost*	*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
Algebra	Valid	50-99.99	31	25.8	25.8	25.8
		100-149.99	57	47.5	47.5	73.3
		150+	32	26.7	26.7	100.0
		Total	120	100.0	100.0	
Anatomy	Valid	50-99.99	40	33.3	33.3	33.3
		100-149.99	10	8.3	8.3	41.7
		150+	70	58.3	58.3	100.0
		Total	120	100.0	100.0	
Chemistry	Valid	150+	73	100.0	100.0	100.0
Ethics	Valid	25-49.99	35	67.3	67.3	67.3
		50-99.99	17	32.7	32.7	100.0
		Total	52	100.0	100.0	
Government	Valid	0-24.99	42	12.6	12.6	12.6
		25-49.99	93	27.9	27.9	40.5
		50-99.99	123	36.9	36.9	77.5
		100-149.99	75	22.5	22.5	100.0
		Total	333	100.0	100.0	
Philosophy	Valid	150+	24	100.0	100.0	100.0
Psychology	Valid	100-149.99	71	80.7	80.7	80.7
		150+	17	19.3	19.3	100.0
		Total	88	100.0	100.0	

In Table 25, the total frequency analysis of cost grouping was presented across all of the selected general education courses. The data presented in Table 23 is represented here, however, the majority is not nearly as drastic. 53% of textbooks/course materials purchased for the selected general education courses exceeded the $100 threshold.

Table 25

Frequency Analysis of Textbook/Course Material Cost Grouping

Frequencies						
Cost Group		*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*	
Valid	0-24.99	42	5.2	5.2		5.2
	100-149.99	213	26.3	26.3		31.5
	150+	216	26.7	26.7		58.1
	25-49.99	128	15.8	15.8		74.0
	50-99.99	211	26.0	26.0		100.0
	Total	810	100.0	100.0		

Research Question 6. *What is the relationship between cost of textbooks/course materials and course success (final grade) at a Florida community college?*

This research question measured data from both dataset 1 and 2. The data used in dataset 1 were participant actual course grade and cost grouping from bookstore record of textbook/course material purchase. The data used in dataset 2 were cost grouping from student self-reported textbook/course material purchase and self-reported course grade.

Along with descriptive statistics, ANOVA statistical tests and corresponding post-hoc tests were run to measure textbook/course material cost in relation to course success. Each table type in this section is represented twice, once for dataset 1 and once for dataset 2. Table 26 is reflective of dataset 1 using actual bookstore records and students' actual course grades. Table 27 is reflective of dataset 2 using students' self-reported textbook/course material costs and self-reported course grades. The means represented in both tables are the course grade (measured in a grade point scale, 0=F to A=4).

Table 26

GPA Score by Book Cost Group

Descriptive Statistics								
					95% CI			
	N	*Mean*	*SD*	*SE*	*Lower Bound*	*Upper Bound*	*Min*	*Max*
Free	10	2.70	0.95	0.30	2.02	3.38	1	4
0-24.99	835	3.30	0.99	0.03	3.24	3.37	0	4
25-49.99	1025	3.28	0.99	0.03	3.22	3.34	0	4
50-99.99	2831	3.22	1.06	0.02	3.18	3.26	0	4
100-149.99	2229	3.06	1.12	0.02	3.02	3.11	0	4
150+	2105	2.89	1.18	0.03	2.84	2.94	0	4
Total	9035	3.12	1.1	0.01	3.10	3.14	0	4

In Table 26, there were 9035 total responses. The highest frequency of responses (31.33%) were the $50-$99.99 range, and 47.9% of all responses were in the $100 and over range for textbooks/course materials.

Table 27

Dataset 2 Counts by Book Cost Group

Descriptive Statistics								
					95% CI			
	N	*Mean*	*SD*	*SE*	*Lower Bound*	*Upper Bound*	*Min*	*Max*
No Response	465	2.77	1.87	0.09	2.60	2.94	-1 (No Resp.)	4
0-24.99	82	3.72	0.87	0.1	3.53	3.91	-1 (No Resp.)	4
25-49.99	253	3.56	0.73	0.05	3.47	3.65	-1 (No Resp.)	4
50-99.99	610	3.46	0.88	0.04	3.39	3.53	-1 (No Resp.)	4
100-149.99	936	3.29	1.03	0.03	3.23	3.36	-1 (No Resp.)	4
150+	480	3.28	1.03	0.05	3.19	3.37	-1 (No Resp.)	4
Total	2826	3.28	1.18	0.02	3.23	3.32	-1 (No Resp.)	4

In Table 27, there were 2826 total responses. The highest frequency of responses (33.12%) were within the $100-$149.99 range. The majority (50.1%) of responses indicated costs over $100 on textbooks/course materials. If the "No Response" responses are removed from the total population, the percentage of responses indicating costs of $100 or higher rose to 59.97%.

Tables 28 and 29 represent the Test of Homogeneity of Variances run for both datasets 1 and 2 respectively, to measure whether it is possible to reject the null hypothesis which states: "There is no difference in course grade in relation to textbook/course materials cost." The *p value* (Sig.) for both tables was < .001 which is less than the 95% confidence interval of 0.05, so the null hypothesis can be rejected.

Table 28

Dataset 1 Test of Homogeneity of Variances

Test of Homogeneity of Variances			
Levene Statistic	*df1*	*df2*	*p*
11.560	5	9029	< .001

Table 29

Dataset *2 Test of Homogeneity of Variances*

Test of Homogeneity of Variances			
Levene Statistic	*df1*	*df2*	*p*
87.516	5	2820	< .001

An ANOVA test was then conducted for datasets 1 and 2, comparing the six textbook/course material cost groups within each dataset. For dataset 1, the ANOVA was significant, F (5, 9029) = 34.11, p = .00. For dataset 2, the ANOVA was significant, F, (5, 2820)

= 25.89, p = .00. The *p values* of .00 indicate there is greater than 99% confidence that there is a difference in actual course grade (dataset 1) and self-reported course grade (dataset 2) in relation to textbook/course material cost.

Since the P value was less than 0.05, multiple comparisons were then run using Tukey HSD to identify the specific cost groups where there was a significant difference in actual course grade (dataset 1) and self-reported course grade (dataset 2) compared to other cost groups. As outlined in Table 30 (dataset 1) and Table 31 (dataset 2), there were 14 statistically significant results for actual grade in relation to cost group from dataset 1, and 18 statistically significant results for self-reported grade in relation to cost group from dataset 2.

Table 30

Dataset 1 Multiple Comparisons Test of Course Grade Related and Textbook/Course Material Cost Grouping

Multiple Comparisons						
		Mean Difference (I-J)	*SE*	*p*	*95% CI*	
Book Paid Group					*Lower Bound*	*Upper Bound*
Free	No Response	-0.60	0.35	0.51	-1.59	0.38
	25-49.99	-0.58	0.35	0.54	-1.57	0.40
	50-99.99	-0.52	0.35	0.66	-1.50	0.46
	100-149.99	-0.36	0.35	0.90	-1.35	0.62
	150+	-0.19	0.35	0.99	-1.18	0.79
0-24.99	Free	0.60	0.35	0.51	-0.38	1.59
	25-49.99	0.02	0.05	1.00	-0.12	0.16
	50-99.99	0.08	0.04	0.40	-0.04	0.20
	100-149.99	.24*	0.04	<.001	0.12	0.37
	150+	.41*	0.05	<.001	0.28	0.54
25-49.99	Free	0.58	0.35	0.54	-0.40	1.57
	0-24.99	-0.02	0.05	1.00	-0.16	0.12

Table 30

Continued

	50-99.99	0.06	0.04	0.63	-0.05	0.17
	100-149.99	.22*	0.04	<.001	0.10	0.34
	150+	.39*	0.04	<.001	0.27	0.51
50-99.99	Free	0.52	0.35	0.66	-0.46	1.50
	0-24.99	-0.08	0.04	0.40	-0.20	0.04
	25-49.99	-0.06	0.04	0.63	-0.17	0.05
	100-149.99	.16*	0.03	<.001	0.07	0.25
	150+	.33*	0.03	<.001	0.24	0.42
100-149.99	Free	0.36	0.35	0.90	-0.62	1.35
	0-24.99	-.24*	0.04	<.001	-0.37	-0.12
	25-49.99	-.22*	0.04	<.001	-0.34	-0.10
	50-99.99	-.16*	0.03	<.001	-0.25	-0.07
	150+	.17*	0.03	<.001	0.07	0.26
150+	Free	0.19	0.35	0.99	-0.79	1.18
	0-24.99	-.41*	0.05	<.001	-0.54	-0.28
	25-49.99	-.39*	0.04	<.001	-0.51	-0.27
	50-99.99	-.33*	0.03	<.001	-0.42	-0.24
	100-149.99	-.17*	0.03	<.001	-0.26	-0.07

*. The mean difference is significant at the 0.05 level.

The largest statistically significant change in grade in relation to cost grouping existed when comparing a $150+ textbook/course material to a textbook/course material costing less than $25. The change in grade was a lesser score by .41 points.

Table 31

Dataset 2 Multiple Comparisons Test of Self-Reported Course Grade Related and Textbook/Course Material Cost Grouping

Multiple Comparisons						
					95% CI	
Book Paid Group		*Mean Difference (I-J)*	*SE*	*p*	*Lower Bound*	*Upper Bound*
No Response	0-24.99	-.95*	0.14	<.001	-1.34	-0.55
	25-49.99	-.79*	0.09	<.001	-1.05	-0.53
	50-99.99	-.68*	0.07	<.001	-0.88	-0.48
	100-149.99	-.52*	0.07	<.001	-0.71	-0.33
	150+	-.51*	0.08	<.001	-0.72	-0.29
0-24.99	No Response	.95*	0.14	<.001	0.55	1.34
	25-49.99	0.16	0.15	0.89	-0.26	0.58
	50-99.99	0.26	0.14	0.38	-0.12	0.65
	100-149.99	.43*	0.13	<.05	0.05	0.81
	150+	.44*	0.14	<.05	0.04	0.83
25-49.99	No Response	.79*	0.09	<.001	0.53	1.05
	0-24.99	-0.16	0.15	0.89	-0.58	0.26
	50-99.99	0.11	0.09	0.83	-0.14	0.35
	100-149.99	.27*	0.08	<.05	0.03	0.50
	150+	.28*	0.09	<.05	0.02	0.54
50-99.99	No Response	.68*	0.07	<.001	0.48	0.88
	0-24.99	-0.26	0.14	0.38	-0.65	0.12
	25-49.99	-0.11	0.09	0.83	-0.35	0.14
	100-149.99	0.16	0.06	0.08	-0.01	0.33
	150+	0.17	0.07	0.13	-0.03	0.38
100-149.99	No Response	.52*	0.07	<.001	0.33	0.71
	0-24.99	-.43*	0.13	<.05	-0.81	-0.05

Table 31

Continued

	25-49.99	-.27*	0.08	<.05	-0.50	-0.03
	50-99.99	-0.16	0.06	0.08	-0.33	0.01
	150+	0.01	0.07	1.00	-0.17	0.20
150+	No Response	.51*	0.08	<.001	0.29	0.72
	0-24.99	-.44*	0.14	<.05	-0.83	-0.04
	25-49.99	-.28*	0.09	<.05	-0.54	-0.02
	50-99.99	-0.17	0.07	0.13	-0.38	0.03
	100-149.99	-0.01	0.07	1.00	-0.20	0.17

*. The mean difference is significant at the 0.05 level.

For every "No Response", there was a statistically significant decrease in self-reported grade when compared to the other cost groupings. The largest statistically significant difference (.44*) in self-reported course grade, excluding the "No Response" occurred when comparing a $150+ textbook/course material to a textbook/course material costing less than $25 (which was also the case in dataset 1).

Research Question 7. *What is the relationship between cost of textbooks/course materials and course satisfaction at a Florida community college?*

This research question utilized dataset 2. It focused on self-reported textbook/course material cost and course satisfaction (1-5 Likert scale) as reported in the college's Auxiliary Services Satisfaction Survey.

Along with descriptive statistics, ANOVA statistical tests and corresponding post-hoc tests were run to measure student purchasing decisions in relation to course satisfaction.

Table 32

Course Satisfaction by Book Cost Group Descriptive Statistics

Descriptive Statistics								
					95% CI			
Book Cost Group	*N*	*Mean*	*SD*	*SE*	*Lower Bound*	*Upper Bound*	*Min*	*Max*
No Response	391	3.46	1.25	0.06	3.33	3.58	1	5
0-24.99	81	3.47	1.44	0.16	3.15	3.79	1	5
25-49.99	253	3.51	1.21	0.08	3.36	3.66	1	5
50-99.99	604	3.53	1.26	0.05	3.43	3.64	1	5
100-149.99	928	3.25	1.24	0.04	3.17	3.33	1	5
150+	478	3.43	1.25	0.06	3.32	3.55	1	5
Total	2735	3.41	1.26	0.02	3.36	3.45	1	5

In Table 32, there were 2,735 total responses with the highest frequency of responses (33.93%) in the $100-$149.99 book cost range. The majority (50.4%) of responses indicated cost of textbook/course materials over $100. If the "No Response" are removed from the total population, responses indicating costs over $100 jump to 59.98%.

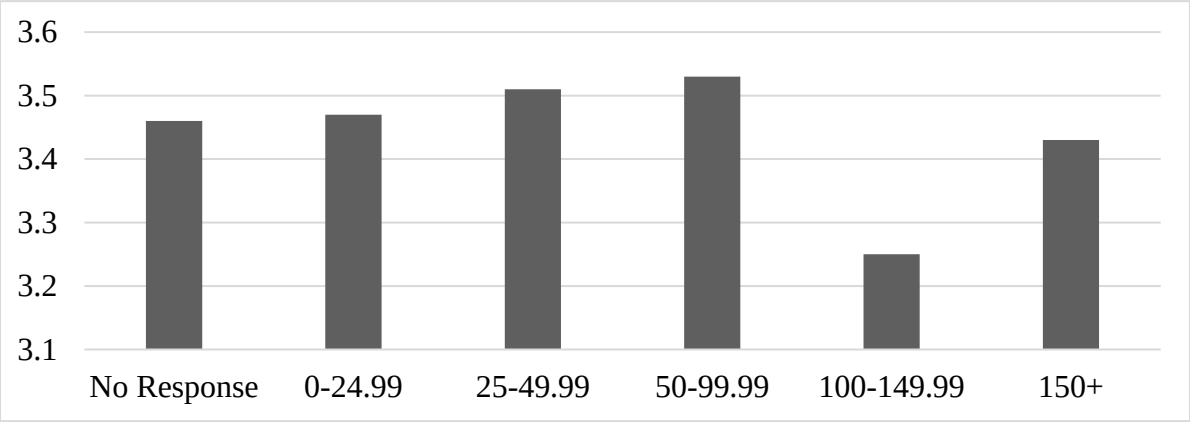

Figure 8. Mean satisfaction score by cost group

These results are similar to those in dataset 2 for research question 6 regarding textbook/course material cost. Most of the respondents would have been present in both research questions. There was also minimal difference in mean satisfaction scores, with the lowest and highest mean scores being separated by only 0.28 points on a five-point scale (3.53 to 3.25).

Table 33

Test of Homogeneity of Variances

Test of Homogeneity of Variances			
Levene Statistic	*df1*	*df2*	*p*
5.18	5	2729	0.00

Table 33 represents the Test of Homogeneity of Variances that was run for research question 7, to measure whether it is possible to reject the null hypothesis which states: "There is no difference in course satisfaction in relation to textbook/course materials cost." The *p value* (Sig.) was < .001 which is less than the 95% confidence interval of 0.05, so the null hypothesis can be rejected.

An ANOVA test was then conducted to compare the six textbook/course material cost groups. The ANOVA was significant, F (5, 2729) = 4.65, p = .000. The significance score of < .001 indicates there is greater than 99% confidence that there is a difference in course satisfaction in relation to textbook/course material cost.

Since the P value was less than 0.05, multiple comparisons were then run to identify the specific cost groups where there was a significant difference in course satisfaction score compared to other cost groups. Table 34 shows there were four statistically significant differences in course satisfaction in relation to cost group. In all instances the statistically

significant satisfaction score difference was higher for textbook/course material cost groups in lower cost groups than higher cost groups. Respondents show a 0.258 increase in satisfaction score for courses with a $25-$49.99 textbook/course material cost compared to a $100-$149.99 textbook/course material cost, and a 0.283 increase in satisfaction score for courses with a $50-$99.99 textbook/course material cost compared to a $100-$149.99 textbook/course material cost.

Table 34

Multiple Comparisons Test of Course Satisfaction Related and Textbook/Course Material Cost Grouping

Multiple Comparisons						
					95% CI	
Book Cost Group		*Mean Difference (I-J)*	*SE*	*p*	*Lower Bound*	*Upper Bound*
No Response	0-24.99	-0.01	0.15	1.00	-0.45	0.42
	25-49.99	-0.06	0.10	0.99	-0.34	0.23
	50-99.99	-0.08	0.08	0.92	-0.31	0.15
	100-149.99	0.20	0.08	0.08	-0.01	0.42
	150+	0.02	0.09	1.00	-0.22	0.27
0-24.99	No Response	0.01	0.15	1.00	-0.42	0.45
	25-49.99	-0.04	0.16	1.00	-0.50	0.41
	50-99.99	-0.07	0.15	1.00	-0.49	0.36
	100-149.99	0.22	0.15	0.67	-0.20	0.63
	150+	0.04	0.15	1.00	-0.39	0.46
25-49.99	No Response	0.06	0.10	0.99	-0.23	0.34
	0-24.99	0.04	0.16	1.00	-0.41	0.50
	50-99.99	-0.03	0.09	1.00	-0.29	0.24
	100-149.99	.26*	0.09	<.05	0.00	0.51
	150+	0.08	0.10	0.97	-0.20	0.35
50-99.99	No Response	0.08	0.08	0.92	-0.15	0.31
	0-24.99	0.07	0.15	1.00	-0.36	0.49
	25-49.99	0.03	0.09	1.00	-0.24	0.29
	100-149.99	.28*	0.07	<.001	0.10	0.47

Table 34

Continued

	150+	0.10	0.08	0.77	-0.12	0.32
100-149.99	No Response	-0.20	0.08	0.08	-0.42	0.01
	0-24.99	-0.22	0.15	0.67	-0.63	0.20
	25-49.99	-.26*	0.09	0.04	-0.51	0.00
	50-99.99	-.28*	0.07	<.001	-0.47	-0.10
	150+	-0.18	0.07	0.11	-0.38	0.02
150+	No Response	-0.02	0.09	1.00	-0.27	0.22
	0-24.99	-0.04	0.15	1.00	-0.46	0.39
	25-49.99	-0.08	0.10	0.97	-0.35	0.20
	50-99.99	-0.10	0.08	0.77	-0.32	0.12
	100-149.99	0.18	0.07	0.11	-0.02	0.38

*. The mean difference is significant at the 0.05 level.

The final chapter will discuss the findings presented in this chapter, along with their practical implications. Further research recommendations will be provided, a summarization will be provided to conclude the study.

CHAPTER 5

DISCUSSION AND CONCLUSION

The purpose of this study was to utilize secondary data analysis to describe the relationship of student textbook/course material purchasing practices and student success and satisfaction in selected general education undergraduate courses in a community college in southwest Florida. Also, the study measured demographic data and its relation to student purchasing practices of textbooks/course materials. Finally, the study measured the cost of textbooks/course materials in relation to specific courses, as well as to course satisfaction and success. This chapter discusses the findings of the study in relation to the seven research questions and an additional supplemental data collection point. This chapter also provides recommendations for potential further research and practice, as well as final thoughts and conclusions from the author, and a study conclusion.

Discussion of Research Question Findings

Findings related to each of the seven research questions are presented in this section, along with a brief commentary on the findings.

Research Question 1

What is the relationship between student use of various textbook/course materials acquired through the college bookstore and student course success, measured by final grade (A, B, C, D, F) at a Florida community college?

This question was created to attempt to determine if there was a statistically significant relationship between the various textbook/course material types purchased through the college bookstore and the actual grade a student receives in a given class. College bookstores and publishers alike, tout numerous media through which students can receive their textbook/course material content, as well as numerous means by which those media can be procured by students.

Students succeed academically at different levels and measuring more successful students against less successful students would be challenging given the assumption that a higher achiever may need less resources to be successful in a course than a lower achieving student. For this reason, the analysis was done both comparing all students, as well as breaking the students into the three GPA groupings (High, Average, Low).

When looking at the entire population, five of the eight textbook purchase type groups had statistically significant differences in course grade, however, four of those five were .13 GPA points or less, or a difference that is smaller than the difference between a B+ and B grade. The lone major decrease that was present across all students was a .56 GPA point decrease in relation to students that rented E-Books. Immediately, the two potential factors that stand out as to the justification behind the decrease would be the annotation challenges and device distractions. The other four results represented minimal change as there are many variables involved when comparing all students.

When looking at the three grade groupings, two of the three (High and Average) saw statistically significant differences in course grade, when comparing rented materials to purchased materials. Rented materials appeared to be related to lower course grades as compared to materials purchased. This was more pronounced in the Average group than the High group.

Looking at the Low group, there were no statistically significant differences in course grade between book type or purchase type. However, when looking at the results, there were differences in grade when comparing renting versus purchasing, as noted with the other two grade groupings.

Why students choose to buy or rent textbooks/course materials and how they utilize those materials may influence the differences observed. For example, students may be less likely to write in a rented textbook out of fear of not getting a full rental value back. If their normal study habits are to drastically mark up a textbook, this could be detrimental to their course success.

For students who purchased E-books, there was more than 0.7 points difference in course grade. Again, two potential factors that may influence these differences would be annotation challenges and device distractions. Students may still be trying to figure out how to take notes electronically, so compared to keeping paper notes or hand-written markups, digital annotation may be harder. Elmore (2016) mentioned that with new mediums for learning came potential new learning curves for all parties involved (student, faculty, staff members) pertaining to their use.

As for device distractions, students can elect to view an E-Book on many different platforms; most, however, will choose their cell phones. The ability to switch between reading an E-Book and clicking on an email or social media notification could create hurdles when a

student is trying to focus on course reading. It is much easier to focus on reading from a textbook when you don't receive an email alert that pops up in the middle of your screen.

Research Question 2

What is the relationship between student purchasing decisions of textbooks/course materials and student course satisfaction at a Florida community college?

The focus of this question was to identify if textbook/course material purchasing decisions influenced student-reported course satisfaction. Textbooks have recently become a sensitive issue for higher education, mostly concerning their rising costs.

Statistically significant differences in course satisfaction were present when comparing traditional mediums (paperback or hardcover textbooks) to non-traditional mediums (audiobooks, E-Books, online course packs, or combinations). Lower scoring mediums can have higher costs, and if not higher costs, a lower perceived value since they cannot be re-sold. Course packs and combinations (some form of paper textbook and online code accompaniment) also typically run at a higher cost than a traditional paperback or hardcover textbook.

Elmore (2016) discussed the costs associated with electronic textbook course materials. The article did not go into detail regarding course satisfaction, but rather textbook/course material value. Given the lack of options for resale with many electronic textbooks/course materials, a students' overall satisfaction may decrease partially to a decreased perceived value in the textbook/course material. This research question provided results to support the claim that electronic textbooks/course materials scored lower in course satisfaction that those of traditional textbook/course material formats.

Research Question 3

What is the relationship between student purchasing decisions of textbooks/course materials and students' success, measured by student success perception (via self-reported grade) (A, B, C, D, F), in selected general education courses within the context of this study at a Florida community college?

This research question mirrored research question 1, but it focused on dataset 2 (survey results) with intent to look at specific general education courses. It was determined that the ability to isolate general education courses within dataset 2 was not going to be feasible, as the responses were too erratic. The major difference with research question 3 versus research question 1 was that this question was able to measure responses regarding how a student acquired a textbook/course material, whereas in research question 1, the data were limited to a specific textbook/course material type and "purchase" or "rent". Another difference in research question 3 was that since there was no way to identify an existing course grade at the time the survey was completed, there was no way to place students into course grade groupings like in research question 1.

When comparing responses where the student elected not to purchase any textbook for a course that required one, those responses averaged 2.203 grade points lower than any acquisition method that resulted in the student having access to a textbook/course material in some capacity. This 2.203-point difference was not affected by textbook/course material type. McKenzie (2017) mentioned that students' grades could suffer as a result of not purchasing textbooks/course materials. This research question came to a similar conclusion in that there was statistically significant data to show grade decreases in relation to textbooks/course materials not being acquired for a course that required them.

Research Question 4

What is the relationship between student purchasing decisions of textbooks/course materials and students' age and gender at a Florida community college?

This question was formed to measure textbook/course material purchasing decisions against student age groups and gender classifications, as well as against the college's overall population. When looking at the responses from the survey in comparison to the college's student body population breakdown, there are similarities. However, Table 10 must also be considered as that provides the counts per individual user (datasets 1 and 2 both could have multiple responses for a single user).

The college's student population gender breakdown is 62% female, 38% male. The age breakdown is 71% 24 and under, and 29% 25 or older. Within the respondent data overall, dataset 1 had 59.4% female respondents, and 64.1% 24 and under respondents. Within the data collected for research question 4, female responses made up 59.4%, and 24 and under responses made up 61.5%. Figures 4 and 5 show the percentages by population.

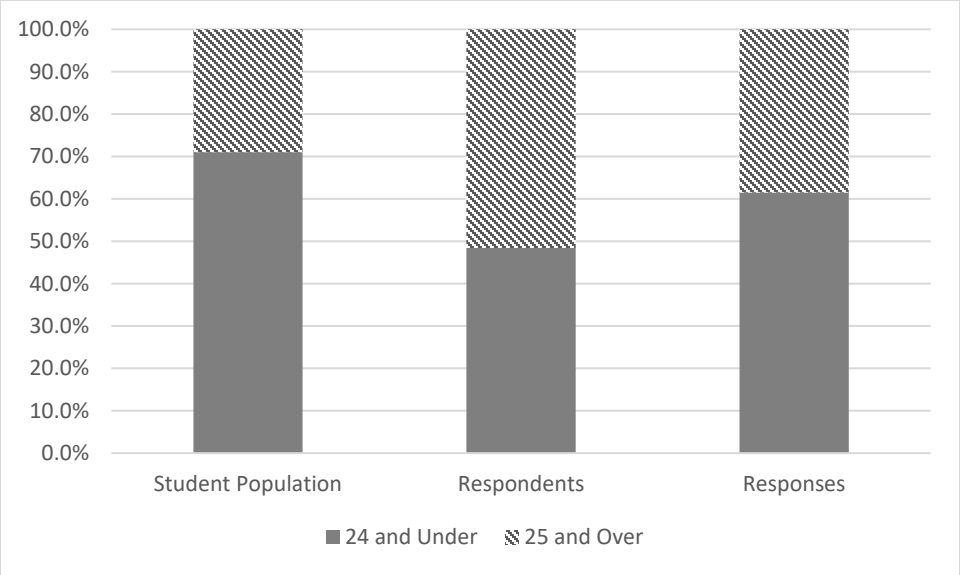

Figure 9. Age group percentages by population type

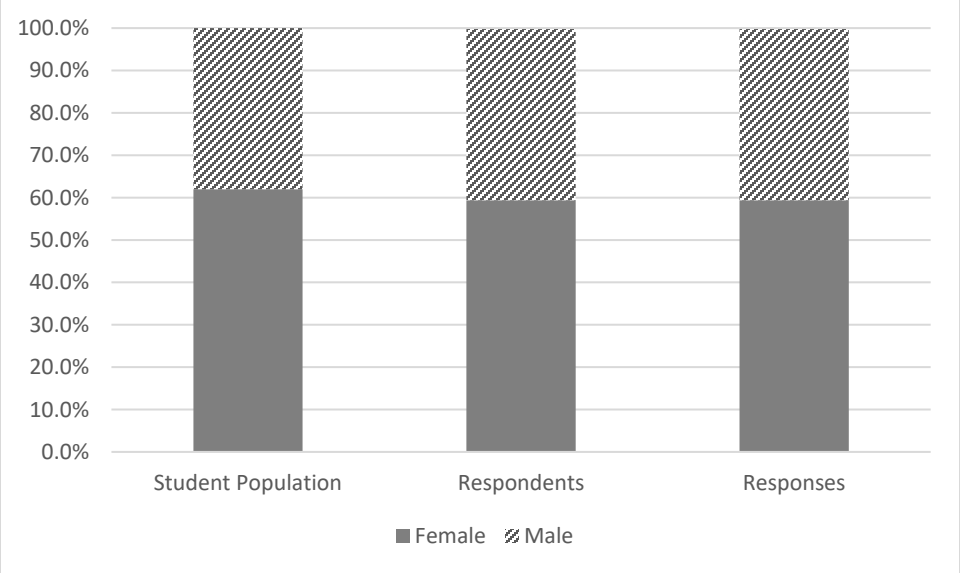

Figure 10. Gender percentages by population type

The percentages for age and gender maintained their consistency for each purchase category. The only data that stood out was that regardless of age or gender, buying a traditional

paper textbook was still the most frequent option selected at over 53%. This percentage is less than the percentage (75%) found by Jhangiani, Dastur, Le Grand, and Penner (2018). This could simply be a matter of a lower percentage of paper textbook/course material options adopted at the college that was the focus of this study compared to the college studied in their article. Given all the digital options available today, this number could be assumed to have started dropping drastically over the last decade. Prior to online or electronic resources being available to students, this category was 100%, so there has been a shift in market share at the college being studied.

Finally, Chi-square tests were run to measure if there was any effect on purchase decision as a result of age or gender. The result concluded that there was a significant effect, but the effect was so miniscule, you could not safely assume any change in textbook decision as a result of age or gender category.

A review of age and gender statistical analyses pertaining to textbooks/course materials was not present in the literature considered in the literature review. Given the minimal effect age or gender had on purchase decision, and the many variables that would have a much greater impact on a purchasing decision, it would make sense that research comparing those relationships would be sparse.

Research Question 5

What is the relationship between student purchasing decisions of textbooks/course materials and selected general education course subjects at a Florida community college?

Traditional textbooks (paperback or hardcover print) were the most frequently selected options among students registered in the selected general education courses. When a paper

option was available for one of the selected general education courses, it was the most frequently selected option.

Stone and Baker-Eveleth (2013) discussed students' preference to still purchase paper textbooks/course materials when given the opportunity. Results of this research question also found that traditional textbooks/course materials were the most frequently selected options when a choice was presented in general education courses.

This question also provided an opportunity to look at textbook/course material cost in relation to the corresponding general education course. Overall, more than half of the textbook/course materials purchased cost at least $100. Only the ethics course had a textbook/course material price under $100. Textbook/course material prices have been on the rise (Woody, Daniel, & Baker, 2010); this research question shows that over 85% of general education courses at the college being studied have a textbook/course material cost of $100 or greater.

Research Question 6

What is the relationship between cost of textbooks/course materials and course success (final grade) at a Florida community college?

This question was created to look at both datasets to measure relationship between textbook/course material costs and student grades. Nearly half of the records from dataset 1 (47.9%) paid $100 or more for books, while over half in dataset 2 (50.1%) paid $100 or more. Initially, these percentages are close, but given dataset 2 was self-reported data from respondents, could those prices be somewhat inflated as a result of perceived value? For example, if a respondent pays $97 for a textbook, are they more likely to say that textbook cost

$50-$99 or $100 and over if filling out a survey several weeks after they made the purchase? Response spill-over into the higher categories could be possible, and if a respondent already has negative feelings towards textbook costs, they may inflate the book's actual cost.

Another observation within the data presented from this question was that the self-reported grade records in dataset 2 were .16 points higher than those of the actuals presented in dataset 1.

When measuring for statistical significance in differences in price in comparison to course grade, the analysis conducted revealed that there were multiple differences. First, in dataset 1 the difference in course grade for a respondent who paid in excess of $150 for a textbook/course material was nearly half a grade point (.41) as compared to a respondent who paid less than $25 for textbook/course material. Financial stress is often mentioned as a factor affecting student success/retention/matriculation. To students who may be struggling to get by, that additional $125+ in textbook/course material cost could be a major stressor. A similar result was found in dataset 2. When comparing the same price points for textbooks/course materials, there was a .438 difference in course grade for those that purchased the $150+ option compared to those that purchased the less than $25 option. Both of these results were statistically significant.

In an article by Woody, Daniel, and Baker (2010), increased textbook/course material costs were discussed as a potential risk to students academically. The analysis of this research question showed that there was in fact a relationship between higher costs and lower grades, as they suggested could be the case.

Finally, as previously discussed in research question 3, in every instance in dataset 2 where "No Response" was provided for textbook/course material cost, there was a statistically

significant difference in relation to self-reported course grade. It cannot be assumed that every one of these instances is a "did not purchase", but from the data review overall, there are data points that show a number of respondents did, in fact, not purchase any form of textbook/course material for specific courses when there was a requirement for said materials.

Research Question 7

What is the relationship between cost of textbooks/course materials and course satisfaction at a Florida community college?

Lastly, research question 7 was designed to measure textbook/course material costs in relation to student satisfaction. In general, people tend to be more satisfied when either receiving something of value (which will be addressed in the supplemental results) or receiving a fair price or discount on an item.

The data analysis for research question 7 was able to identify four statistically significant differences in satisfaction score in relation to textbook/course material cost. In all four of those instances, the lower cost textbook/course material had a higher satisfaction score than the higher cost textbook/course material.

Skinner and Howes (2013) textbook costs and course satisfaction were presented as a perceived value. Students found that the textbook was a means to an end (final passing grade) and getting to that end was the only goal. They proposed that students would not necessarily be satisfied or dissatisfied in a specific course because of a textbook, but rather indifferent. Results of this research question identified lower satisfaction scores with higher costs, which could supplement the Skinner and Howes article as the scores presented in this research question trended closer to a mid-range score (indifference) rather than a higher score (satisfied).

Recommendations for Potential Further Research

There could be an opportunity to conduct a thematic analysis to analyze open-ended responses from the survey to identify trends in student responses. The survey contains optional short answer questions that are available for students to identify changes, challenges, and additional information they would like to provide pertaining to auxiliary services or their textbook buying process. Each service area within the survey has a section for these responses. Open ended responses were gathered as part of the survey used in dataset 2. Those responses (over 100) could be reviewed via thematic analysis. The respondents could be classified based on criteria that would categorize them into a specific purchaser grouping. Two groups or delineators could be created for the open-ended response analysis for this study: Community College – Undergraduate Student– Book purchaser and Community College – Undergraduate Student – Non-book purchaser. There is also a potential that the open-ended response themes could be compared between these two groups to see if there are commonalities or differences.

Additionally, a more expansive breakdown of GPA groupings within specific fields of study could be measured. By doing this you could compare many of the same research questions that utilized dataset 1 within specific fields of study. For example, all chemistry majors or all history majors could be reviewed.

This study could also be expanded to a greater population to better serve the analysis when comparing data within specific fields of study. Given that many colleges and universities in the state of Florida follow a uniform course coding system; expanding this study to multiple institutions will grow the sample size and allow for a greater ability to review within a specific field or fields of study. Also, within a given region, there may be an adjunct professor that

teaches the same course at multiple schools, so the extraneous variable of being at different institutions could be somewhat controlled. Regardless, the option to review these research questions at a more granular level exists when the population reviewed is expanded.

Finally, to expand on the research conducted on digital content versus traditional paper content, a qualitative study could be conducted on today's students' study habits. What are students being taught about studying digital content, and how do they feel it has benefited or created challenges in their academic careers? Do students feel like there is a direct correlation in the materials they have to study with and their course success or course satisfaction?

Reflections and Conclusion

The topic of this study was selected due to the researcher's career in higher education, primarily in business and auxiliary services operations. One of his roles has been oversight of college bookstores. He has worked with both self-operated bookstores as well as third-party managed bookstores. He also serves as an adjunct faculty member teaching *Introduction to Public Speaking*, which he does not require a paid textbook. As mentioned in the introduction, textbook affordability is a very sensitive topic in higher education, as well as at the operations level with discussions between college bookstores and their corresponding college partners. This study looked at student textbook purchasing decisions and their relationship to student success and satisfaction in selected general education undergraduate courses in a community college. Results appear to support the claim that textbooks/course materials are major factors in students' college/university experience. The consensus has been that textbooks/course materials are too expensive; at the same time, students have many useful options to choose from when it comes to accessing their required course materials.

The most interesting finding from this study was the strength of the traditional paper textbook compared to other mediums. Today, everything is digital; everything is done on a phone or computer, and society expects that students live their lives the same way. Outside of the classroom they may, but the findings from this study suggest that students still prefer to purchase traditional paper textbooks.

Textbook/course material costs are high according to students who responded to the survey. In some instances, students will elect not to purchase textbooks/course materials. If a student thinks graduating regardless of GPA is acceptable, skipping out on a $150 textbook may be an adequate result for that student.

Students that do elect to purchase that $150 textbook may feel less satisfied in a course by taking on added financial stress. There were many instances in the findings of the study where a high cost textbook had a correlation to a lower grade or lower satisfaction score. It was never the other way around.

Much of the rise in costs of textbooks can be attributed to the increase in single use course codes that can accompany a paper textbook (as mentioned in chapter 2). The benefits of the course codes oftentimes benefit the faculty member more than the student. By eliminating that course code, and sticking to a single paper text, the cost of that one title comes down every term it is used, and students may potentially perform better and be more satisfied in the course.

If removing of course codes is not an option, which in most cases in higher education it is not, moving to an inclusive model that has the college or university build the cost of textbooks into their tuition rate, providing the college or university the ability to negotiate costs with publishers, is an option. This creates a transparent cost to students, eliminating one of the factors that could affect their academic experience.

Free/open source textbooks/course materials are the most ideal for all parties, but this study shows that a paper option should be at least available for purchase for students that work better with paper (most free or open source materials exist in digital form).

One of the main goals of colleges and universities is to increase or maintain enrollment. Prohibitive textbook costs can negatively affect enrollment numbers. Currently, the average bookstore sell for non-tuition inclusive programs is less than 50% (Bell, 2017). If a college with an undergraduate FTE of 10,000 maintains their existing book selling structure (whether self-operated or third-party managed), they may look to make about $375,000 per semester in profit or commissions respectively given average sell through amounts (NACS, n.d.). That same college could build in textbook/course material costs into tuition with a $7.50 mark-up per course and make the same $375,000 per semester, saving their students hundreds of dollars on a full-time load.

It is imperative that colleges and universities survey their students each semester on textbook/course materials, not just course evaluation. Textbook/course materials are rarely adopted with the student in mind, unless considering cost; they have valuable input as the end users. Questions from material usefulness, to price, to functionality within the specific course will provide valuable data for future textbook adoption decisions. This will also help with courses taught by adjunct instructors who often have no input in textbook adoptions. Many times, these courses are assigned a textbook by the department. What if the instructor has no intention of using a textbook? These surveys might identify those instances and allow better planning for departments when assigning textbooks to future course sections.

As a higher education administrator who works closely with both academic departments and the college bookstore, I recognize that there are many moving parts in the adoption lifecycle

that can be challenging to coordinate with the many moving parts of a college or university. The more student data that can be provided to all parties involved in the adoption process, the better chance each student will have to succeed because of it. Textbook adoptions may seem like a small task in the daily operations of a college or university, but this study shows that each textbook/course material can have an effect on a student's academic success and course satisfaction.

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