

The Relationship Between Academic Supplies and Academic Performance

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Abstract

Many students attending college lack the resources for academic supplies to help them achieve academic success. This study was informed by Walberg's Theory of Educational Productivity and Maslow's Hierarchy of Needs to aid in the understanding of how access to academic supplies affects academic achievement as well as graduation and retention rates. This research focused on the access to academic supplies and a student's academic performance. The research was a mixed methods approach with a randomized sample of 75 participants. A hard copy survey was distributed in the highest trafficked areas on a college campus. In addition to the demographic questions, the participants answered questions about their academic performance and access to academic supplies. The data was analyzed through quantitative analysis and qualitative analysis examining the open-ended questions by identifying codes, categories, and collapsing into sizeable themes. Although the quantitative analyses revealed no significant relationship between academic supplies and academic performance, there were findings that supported differences between first-generation students. More than half of the participants who identified as a first-generation student did not know there were free resources available compared to non-first-generation student participants. The crosstabulation revealed students indicated the reason they received below a C in a course was due to textbooks, access codes, and other limited accessibility issues. African American students had the largest percentage within their group who received below a C due to not having access to textbooks (60%; n=6) compared to 13.2% (n=7) of Whites and 12.5% (n=1) of Hispanic/Latinx students. The qualitative analyses revealed three major outcomes: 1) *textbooks are expensive*, 2) *textbooks are sold out quickly* and 3) *financial aid does not flow into students' accounts until later in the semester*. The research provides awareness and informs alternative cost-efficient academic materials to improve student success.

Key words: Academic Achievement, Academic Performance, Academic Supplies, First-generation students.

Introduction

Academic performance is defined as “meeting goals, achievements, and objectives set in a program or course that a student attends” (Lamas, 2015, p. 353). In addition, academic performance is the product given by the students and is usually expressed through school grades (Lamas, 2015, p. 353). Academic achievement is measured by course grades, Grade Point Average (GPA), retention, and persistence rates (York et al., 2015). Academic achievement and student success are affected by multiple factors such as a student’s access to academic supplies. Academic supplies are a hidden cost when attending college. Academic supplies include textbooks, workbooks, access codes for online and in-person classes, lab manuals, and calculators. Students may consider stationery materials such as pens, paper, notebooks, pencils, highlighters, and notecards. The average cost of textbooks and supplies for an undergraduate student is between \$1,200 to \$1,300 per year (Jenkins et al., 2020). In 2020, 65% of students reported not buying course materials due to the increasing prices (Lumpkin, 2020). Furthermore, the cost of attending college has an “annual growth rate of 6.8%” according to Hansen (2021). The average cost of college for all post-secondary institutions for each student in the United States is \$35,720 (Hansen, 2021). In Texas, the average cost of attendance for in-state tuition at public four-year universities is \$19,342, compared to the national average of \$25,615 (Hansen, 2021).

For the purposes of this study, researchers assessed the average cost of attendance at their institution. Tarleton State University is a local public four-year state university with the cost of \$25,065 per year (Tarleton State University, n.d.). According to the Texas Higher Education Accountability System (2021), the university four-year graduation rates data reports 42% of students (33,392) graduated in the fiscal year 2020 from the 2016 Fall cohort, which consisted of 79,424 students statewide. Graduation rates from Tarleton State University are also retrieved from the Texas Higher Education Accountability System’s (2021) four-year graduation rates data report. Of the 2,043 Fall cohort of 2016, 33.6% (687) students graduated within four years in 2020 (Texas Higher Education Accountability System, 2020). The student data population and demographics from Tarleton State University are retrieved from Texan Facts (2021). According to the Student Head Count from Fall 2016 to Fall 2020, the student researcher has found in the Fall of 2020, there were a total of 14,022 students enrolled on all campuses of Tarleton State University (Texan Facts, 2021). Of the total student enrollment population 5,061 were male and 8,961 were female (Texan Facts, 2021). The total student population consists of various ethnic and racial backgrounds including 82 international students (Texan Facts, 2021). Of the total student population 8,858 identified as White, followed by 3,037 students who identified as Hispanic, 191 students who identified as Black, 513 students identified as Two or More Races, 180 students as Asian, 64 students identified as American Indian, 15 as Pacific, and 82 students did not report an ethnic or racial identity (Texan Facts, 2021).

Like many other universities, Tarleton has a food pantry accessible to students. The Tarleton Purple Pantry offers confidential and discreet services by providing groceries, school, and personal care materials (Ellner, 2020). The Purple Pantry relies on donors to help keep the pantry stocked with essentials. Not only does the Pantry provide items on campus, but it also provides resources to find shelter, childcare and other social services. The Purple Pantry is accessible by university ID card swipe. To gain access, students must complete a form to allow them to gain swipe access by their Tarleton ID card since the pantry is open 24 hours a day. Access will then be granted within 24 hours after completing the form (Tarleton State University, 2020a). Students are vulnerable to food insecurity due to a decreased amount of federal aid, limited

financial resources, and the rising cost of college expenses (Zein, 2019). The college population is often overlooked and not included in the poverty count which causes the college population to be left off any graphs or data charts. The reason college students are unreported on graphs or data charts is due to the population not being completely independent from their parents. In terms of financial support, more than half or half of their financial support comes from their parents (Goldrick-Rab, 2016; Regan, 2020). A sizable portion of many students' source of income is student loans or financial aid provided by the university which puts students in debt to pay back in the future or barely covers tuition. Students facing these insecurities tend to feel more stress daily about their next meal. This extra stress can cause students to be distracted and have difficulty focusing on schoolwork as they should be, which can lead students to fail classes, drop Grade Point Average (GPA), and face academic suspension or cause the student to drop out.

Recently the pantry has sought to identify other non-food resources that could be helpful for student academic success. The authors sought to understand the relationship between accessing academic materials/supplies and academic performance from the student perspective. The researchers developed the following research question: How does having access to academic materials impact a student's academic performance? Before collecting data on the distinguished research question, researchers developed two hypotheses:

- H₁: Students academic supplies influence their academic performance.
- H₂: If the price of academic supplies decreases, then students' academic performance will increase.

This study aimed to provide data on whether the lack of academic materials for a course decreases a college student's academic success in the course. Academic success is measured by the student's achievement across academic courses. This is measured by classroom performance, graduation rates, GPA, and testing (York et al., 2015). This information is important for universities because it allows the faculty and staff to focus on finding alternatives to costly academic materials. This can, in turn, raise students' academic success throughout the university.

Theoretical Frameworks

The researchers identified two theoretical frameworks related to the research question: Maslow's Hierarchy of Needs and Walberg's Theory of Educational Productivity. Maslow's Hierarchy of Needs is defined as "a motivational theory in psychology using a five-tier model of human needs" (Mcleod, 2020, para 1). Walberg's Theory of Education Productivity is known as the nine factors that promote student learning (Bruinsma et al., 2007).

Maslow's Hierarchy of Needs was developed in 1943, consisting of a five-tier model of human needs that was created by observing the growth and development of students (Maslow, 1943). Maslow created a five-tier model because he was interested in human potential, and how people fulfill their potential (Mcleod, 2020). Maslow (1943) said, "a person's fundamental needs are air, food, clothing, and shelter," which fall under the physiological needs. Next are safety needs, love and belongingness, esteem needs, and self-actualization (Mcleod, 2020). When needs from the first level are not met, then a person cannot progress to achieve higher levels of growth (Maslow, 1943). A study was conducted on students' needs and their ability to meet their needs. The study, "women reported greater importance in meeting psychosocial and physical needs compared to men" (Freitas & Leonard, 2011). Students are focused on meeting their physical needs before they are focused on meeting other needs. Success can be facilitated by providing students with resources and support to help with the cost of physiological needs (Freitas & Leonard, 2011). Providing resources to help with the cost of physiological needs allows students

to become successful academically due to relieving the stress of the cost. For students to succeed academically, students' basic needs such as housing, food, and transportation, must be met. If these needs are not met students face the dilemma of having to choose between meeting their basic needs and purchasing academic materials and supplies to succeed academically.

Walberg's Theory of Educational Productivity (1981) was developed by Herbert J. Walberg and his colleagues over the years. The Theory of Educational Productivity was one of first few theories of academic achievement empirically tested by Walberg himself (McGrew, 2008; Rugutt & Chemosit, 2005). Walberg and his colleagues "demonstrated the importance of the domains of motivational orientations, self-regulated learning strategies, and social/interpersonal abilities in facilitating academic performance" (McGrew, 2008, para 2). There are nine factors concerning students' educational productivity and achievement determined by Walberg (1984): ability, motivation, maturity/development, quality, and quantity of instructional and learning experience, and environmental factors such as the home environment, classroom setting, social groups outside of school, and social media exposure. Each of these nine factors influences students' academic achievement and success. Walberg's Theory of Educational Productivity is crucial to the understanding of students' academic achievement. The theory aids this study in understanding how each of the nine factors mentioned earlier affect students' academic achievement as well as graduation and retention rates among college students. Walberg's Theory of Educational Productivity also reinforces previous articles in relation to the multiple factors affecting student academic achievement and success.

Maslow's Hierarchy of Needs and Walberg's Theory of Educational Productivity both relate to the success of students in their academic needs. Maslow's Hierarchy of Needs relates more to the basic needs of students while Walberg's Theory of Educational Productivity concerns the numerous factors that influence a student's academic success. Furthermore, according to Maslow's Hierarchy of Needs, students are not able to reach their full potential to succeed academically if they do not have access to the basic needs that students must obtain to survive.

Literature Review

The researchers assessed 11 articles having been found to support the theory and inform the developed hypotheses. Of the 11 articles reviewed, four were qualitative, and seven used quantitative methods. The sample size of the population of college students ranged from 705 to 6,000,000 students (about twice the population of Arkansas). The articles were categorized into three concepts: 1) *Costs of Academic Supplies* (Agnibhorthi et al., 2017; Jenkins et al., 2020; Costello et al., 2019), 2) *College Retention and Graduation Rates* (Capaldi et al., 2006; Millet et al., 2018; Eichelberger et al., 2019) and 3) *Resources for Academic Supplies* (Cannon & Brickman, 2015; Carriuolo et al., 2001; Florida Virtual Campus, 2016; Thomas et al., 2018).

Cost of Academic Supplies

Three articles mentioned the increasing price of academic supplies such as textbooks. A poll was conducted on the cost of textbooks and found that 46% believed that supplies were a hidden cost of attending college (College Ave Student Loans, 2017). Another article indicated that 59% of low-income students chose not to buy their textbooks due to the cost (Jenkins et al., 2020). The last article conducted research and found a delay in course outcomes. Due to the cost of course assignments, 67% of students did not purchase the academic content until later which resulted in missing assignments, and lower grades (Agnibhorthi et al., 2017). The articles

provided evidence that academic supply costs are high, and students do not purchase academic supplies which results in lower grades. The following paragraphs are a brief summary of each article in this component.

In the article “Textbook Broke” by Jenkins et al., the authors discuss a survey conducted on undergraduate students at a four-year college in southern California. The survey sample was 705 students. The authors research findings showed that 89% of all students reported feeling additional stress due to the cost of textbooks, 56 % of students reported they did not buy required textbooks due to cost and later felt like it hurt their class performance, 27% of students reported avoiding talking in class, 12% reported dropping the course, and 9% reported failing the course. In addition, this article also discusses that 59% of low-income students did not purchase required textbooks. Moreover, 61% of first-generation students did not purchase required textbooks and emphasized the decision negatively affected their class performance. This survey confirms the cost of textbooks is a barrier to students who have difficulty attaining academic materials.

In the article “Determining textbook cost, formats, and licensing with Google Books” written by Costella et al., the authors discuss the rising costs of textbooks for college students due to open textbooks that allow instructors to use the full supplemental material courses and permit the full repurposing and distribution at no cost. In 2017, the average cost annually for textbooks was \$1,250 for undergraduate students in the United States. The authors conducted research aimed to address the actual cost of college textbooks. The extensive research of courses and required textbooks led to the average full costs of \$3,015 at a higher educational institution in Ireland using Google Book API. Only 20% (596) of the textbooks reported by Google Book API were priced. The research conducted resulted in the average cost of new versions of textbooks in Ireland for one course was \$224.21 amounting to an estimate \$1,086.50 per student each year. Of these textbooks only six were open textbooks.

The authors Agnihotri et al., discusses the differences between students who purchased the connect system content (2.6 million students). The students who purchased the system right away and those who did a free trial of two weeks eventually then converted to buying the content. The connect content is a learning environment that contains courses and assignments. The authors’ findings reported 75% of students purchased right away and 80% converted two weeks later. “Students who gained access overnight had an 89% of total score meanwhile those who waited had 67% score. The students who had 67% had missing assignments because the content was purchased too late. Overall, students who could not purchase on time did not show to have a higher over score than those who did purchase on time.

College Retention and Graduation Rates

The student researchers reviewed additional articles that provided information on graduation and retention rates of college students. Each article included both quantitative and qualitative methods. One article mentioned factors such as college entrance exam scores, Scholastic Aptitude Test (SAT) and American College Test (ACT), the student’s own individual attributes, university spending on library resources, student involvement and engagement, as well as financial aid and classroom experience. These factors impact the graduation and retention rates for college students. In another study conducted by Eichelberger et al. (2019), the authors

concluded students who attended a financial literacy course had higher graduation and retention rates than those who did not attend. Financial aid was a factor that was identified in all three studies, with Miller et al. (2018) revealing that many parents from low-income families were concerned their students were not prepared enough for college. Overall, each of the articles provided evidence that financial aid, student's academic preparedness, physical and social environment, and behavioral and attitudinal characteristics affect a student's academic performance and success. The following paragraphs are a brief summary of each article in this component.

In the article "Examining how college promise programs promote students' academic and financial readiness" by Millet et al., the authors reported seven out of ten children worry about college finances. In a survey, 64% of low-income parents believe their children are "somewhat" or "not too" prepared for college ready work. More than one quarter of low-income students enrolled in a 4-year college drop out within the first two years. By examining promise programs, it illustrated that would improve graduation rates are prioritizing underserved populations and revising eligibility requirements and maintaining in the program.

In the article "Financial Education, College Retention, and Graduation Rates" by Eichelberger, the authors discuss the relationship between students who attend a financial literacy course and those who do not. The students who attended a financial literacy course were better prepared to budget and reduced their financial stress than those who did not attend a financial literacy course. College retention and graduation rates increased in the students who attended a financial literacy course.

In the article "Improving graduation rates" by Capaldi et al., the authors focus on issues related to graduation rates in public colleges and universities in the United States. The rate of graduation at even the best of the public colleges and universities in the country is only about 42%. In large public universities, students often get confused about the streams or courses that they should opt for, considering the variety of choices available. If students can take admission without choosing their majors, they can later do so after exploring what courses relate to their interest and capabilities.

Resources for Academic Supplies

The last concept was resources for college students for access to academic supplies. Studies provided information on how to keep the cost of textbook prices low, the importance of helping low income and minority students, and the use of programs to help the cost of academic supplies. According to Florida Student Textbook Survey, "66.6% of the 22,000 students (about the seating capacity of Madison Square Garden) surveyed did not purchase the required textbook, and of those, 37.6% earned a poor grade and 19.8% failed the course" (Florida Virtual Campus Office of Distance Learning & Student Services, 2016, p. 5). These percentages indicated that individuals who are not purchasing the required textbooks have decreased academic success in their courses. Using resources allows a reduction in the cost of attending college and increases the opportunity for academic success (Thomas & Bernhardt, 2018, p. 3). The following paragraphs are a summary of each article in this component.

In the article by Thomas and Bernhardt, “Helping keep the cost of textbooks for students down,” librarians at East Carolina University and the University of North Carolina at Greensboro received a two-year grant to support a combined alternative textbook project. This project engages in a two-pronged approach to reduce students’ textbook costs and increase their academic engagement. One strategy is to award departmental faculty mini grants to use materials that would have no cost to their students, including OER (Open Education Resources) or library resources. The second strategy is to identify required texts that the library already owns or can purchase as unlimited-user e-books. Benefits to students include reduced costs and an increased opportunity for engagement and academic success.

The article “Textbooks and supplies rank as most surprising college costs” by College Ave, discusses the data shared pertaining to textbooks and supplies at the college level. The authors collected the data through a Twitter Poll which received 17,532 votes, and of those votes 46% of respondents believe textbooks and supplies are the most surprising costs when looking at college expenses. According to The College Board, the average cost of course materials for the 2016-2017 academic year will run up to \$1,250 for one year at a four-year university. The cost does not include the technology needed to complete the course. In addition, college students are more worried about where their next meal comes from rather than where they are going to find the money for these course materials.

The article “Helping low income and Minority students' success in college” by Carriuolo et al., discusses the precollege programs that have proven to be effective in helping students understand the realities of attending college for the first time. Then negotiating the intricacies of college life and cost. However, additional government programs and university partnerships need to be developed to support greater numbers of low-income students currently not being served. Most importantly, information regarding financial aid must be plainly stated and widely accessible. The quality of financial aid also needs to be changed. For instance, students need to know in advance what types of aid they will receive and how long it will last. A \$1,000 grant does not mean much to a student who can afford college, but that grant can mean a great deal to a low-income student. Low-income students need more grant-based aid to place a reasonable ceiling on their student loan borrowing. Low-income students are understandably wary of loans. Very simply, the more hospitable and committed a college is to a student, the more likely the student will enroll and persist until graduation

The article “Helping students save: Assigning textbooks early on” by Cannon et al., examines a study conducted by Jeffrey B. Cannon and Peggy Brickman. The authors reported that students could save about 20-33% on science textbooks alone from Amazon.com if they were purchased early. One quarter of first year students did not purchase textbooks compared to one-third of seniors due to the cost of textbooks. The authors suggested that instructors should send their enrolled students the list of required textbooks during the class registration period. The study was conducted using science course textbooks from the University of Georgia dating from the spring semester of 2013 retrieved in mid-December 2012. The authors concluded that buying textbooks at the end of the previous semester before their course begins students could save up to \$452 over the course of their degree.

In the article from Florida Virtual Campus, the authors conducted a survey on textbooks and materials for courses. The study had a sample size of 22,000 students (about the seating

capacity of Madison Square Garden) from all 40 public colleges and universities located in Florida. According to Florida Student Textbook Survey, 66.6% of the 22,000 students surveyed reported they did not purchase the required textbook, and of those, 37.6% earned a poor grade and 19.8% failed the course” (Florida Virtual Campus Office of Distance Learning & Student Services, 2016, p. 5). This shows that individuals who do not purchase the required textbooks reduce their academic success in the class.

Research and Design

This study was an exploratory research design analyzing the relationship between access to academic supplies, graduation and drop-out rates, and a need for students’ access to academic supplies. The researchers used a mixed methods approach with an equal emphasis on qualitative and quantitative questions on a predeveloped survey. The researchers used a non-probability purposive sampling method to identify and recruit participants. The researchers requested face to face participation from a diverse array of students on a college campus of over 9,000 students. Student participants received a hardcopy survey to complete and were provided with a consent form for the participant to read. Researchers directed participants to a location to complete the survey. All data collected was anonymous with no identifying markers on the survey.

The survey instrument consisted of 15 questions including demographics, dropping a course, first generation students (traditional versus nontraditional students), classification, course materials, grade point average, and resources for academic supplies. The answers to these questions consisted of close ended options of yes or no, multiple choice options, short answers, and a Likert Scale from 1 to 5. There were four questions that focused on academic supplies and materials, two questions inquiring about dropping or failing a course, two demographic questions of race and age, one question concerning students’ awareness of a particular university resource, and one question about student GPA knowledge. The survey took about 10 minutes for participants to complete.

Data Collection and Plan

The researchers completed data collection during a six-week period during Fall of 2021. The data collection took place at the highest-trafficked areas on the university campus, such as the student center and university library. All collected data was processed into a spreadsheet using Google Sheets (compatible MS Excel version) and the Statistical Package for Social Sciences (SPSS) which was used for researchers to analyze all data.

Demographic Results

There was a total of 75 participants from the ages of 18 to 29, and an age range of 11 years. The mean age in this study was 20.84 years old with a standard deviation of 2.0027 and a variance of 4.001 (see Table 1).

Table 1

Age Statistics

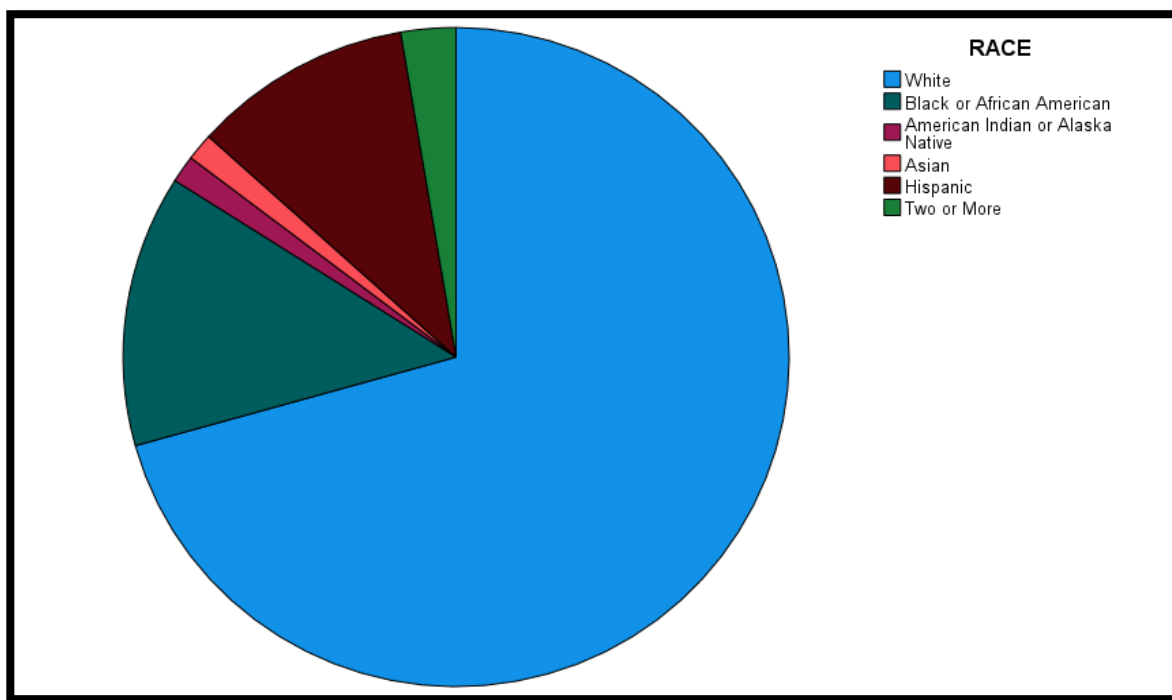
Mean	20.84
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Median	21
Mode	21

Female participants made up 73.3% (n=55) of the total participant population. Most of the participants were White, making up 70.7% (n=53) of the total participant population, followed by 13.3% who were African American (n=10), 10.7% who were Hispanic (n=8), 2.7% who identified as two or more ethnicities (n=2). The Asian and American Indian/Alaskan Native were equal, 1.3% (n=1) each (*see Figure 1*).

Figure 1

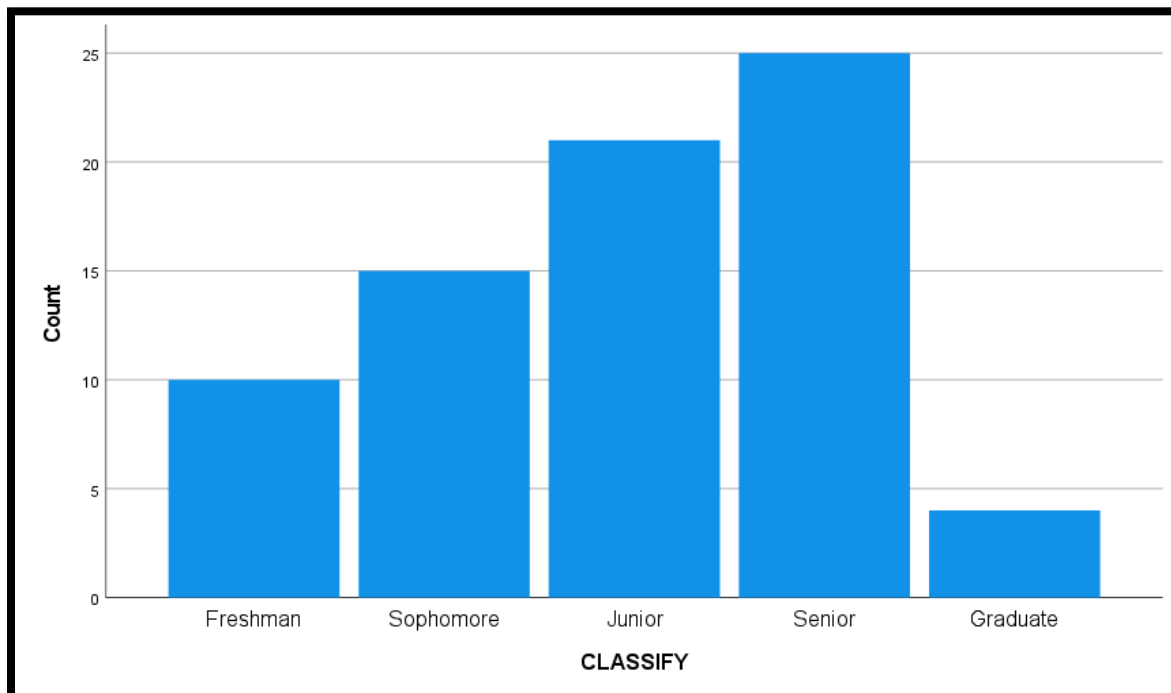
Race/Ethnicity Pie Chart



Of the 75 participants, 33.3% were classified as seniors (n=25), followed by 28% juniors (n=21), 20% sophomores (n=15), 13.3% freshmen (n=10) and graduate students who made up 5.3% (n=4) of the student participants. The researchers determined more than half of the student population to be first-generation students (52%; n=35), students whose parents did not complete a bachelor's degree.

Figure 3

Classification



Quantitative Results

Researchers analyzed two developed hypotheses and conducted tests on each of them.

- *H₁: Students' academic supplies influence their academic performance.*

When conducting tests for *H₁*, researchers ran Pearson correlations between the overall GPA/grades of a student and whether students received below a C in a course. The correlations test revealed a weak to moderate relationship ($p=.105$; $r=.217$) between students' overall grades and whether students received below a C in course due to not having access to academic materials. Researchers also ran Pearson correlations test to determine the relationship between overall GPA/grades and the student's difficulty level in obtaining course materials. The correlations test also revealed a weak to moderate relationship ($p=.029$; $r=.254$) between the difficulty in obtaining course materials and overall GPA/grades. Therefore, researchers rejected the null hypothesis, and concluded that academic supplies affect student's academic performance based on the correlations test between overall GPA/grades and the student's difficulty level in obtaining course materials.

- *H₂: If one decreases the price of academic supplies, then students' academic performance will increase.*

For the second hypothesis, researchers ran Pearson correlations test between students' knowledge of free resources available and overall GPA/grades. The Pearson's correlations test revealed there is little to no relationship ($p=.551$; $r=.07$) between students' knowledge of free resources available and their overall GPA/grades.

A crosstabulation test was also conducted to determine who withdrew from a course and the reason the student withdrew. The most meaningful results of why students withdrew from a course were the answer choices of not meeting academic requirements, financial reasons, and other. Researchers determined 32% ($n=24$) students withdrew from a course. Out of the 32% of students who withdrew from a course, 29.16% ($n=7$) reported the reason they withdrew from a course was because they did not meet the academic requirements, more than one-third of

students (37.5%; n=9) reported they withdrew due to financial reasons, and 33.33% (n=8) participants reported "other." The researchers found that over one-third of the 32% of students who withdrew from a course withdrew due to financial reasons.

Researchers conducted independent t-tests to explore the relationship between classification and the student's difficulty level in obtaining textbooks. The first independent t-test conducted was examining the relationship between students classified as freshmen and sophomores and their difficulty in obtaining textbooks. The results revealed $t=.411$ ($p=.685$), therefore, there is no statistical significance between freshmen and sophomore participants and their difficulty in obtaining textbooks. The second independent t-test between juniors and seniors and their difficulty in obtaining textbooks revealed $t=-.981$ ($p=.332$) and resulted in no statistical significance between juniors and seniors and their difficulty in obtaining textbooks. The third independent t-test between seniors and graduate students also resulted in no statistical significance ($t=.107$; $p=.916$) between the two classifications and their difficulty in obtaining textbooks.

Researchers ran various crosstabulations tests on multiple variables that provided more in-depth results. Roughly 23 % (n=21) of participants received below a C due to not having access to academic materials. Of those students there were an equal number of participants under each classification of undergraduate participants (n=4) who answered yes and one graduate student. Over one-third (36.8%; n=14) of these students were first-generation students. Furthermore, more than half of the participants (n=24) who identified as a first-generation student did not know there were free resources available, including more than three-fourths (77.1%; n=27) of non-first-generation student participants. Researchers also ran crosstabulation on overall GPA/grades and students' difficulty in obtaining course materials. The results revealed only 29.3% (n=22) of the participants found it difficult to obtain course materials resulting in a weak to moderate relationship between the two variables. Furthermore, for participants who received below a C in a course, 63% (n=14) reported this was due to not having access to textbooks, 45% (n=10) were due to not having access to access codes and 27% (n=6) were due to not having access to a computer.

In addition to the previous tests, researchers also ran crosstabulation tests on demographics such as race and classification to determine the relationship of race and classification to the reason students received below a course due to not having access to textbooks, access codes, and other. Results the crosstabulation test to determine the relationship between race and the reason students received below a C due to textbooks, access codes, and other, revealed 13.2% (n=7 out of 53) of White students received below a C due not having access to textbooks. 60% (n=6 out of 10) of Black or African American students received below a C due not having access to textbooks, and 12.5% (n=1 out of 8) of Hispanic students reported receiving below a C due to not having access to textbooks. Students who received below a C in a course due to not having access to an access code were 5.6% (n=3) White, 60% (n=6) Black or African American, and 12.5% (n=1) Hispanic. Those who received below a C and reported other were 37.7% (n=20) White, 10% (n=1) Black or African American, 100% (n=1 out of one) Asian, 12.5% (n=1) Hispanic, and 50% (n=1 out two) Two or More races.

Results of the crosstabulation tests to determine the relationship between classification and the reason students received below a C due to textbooks, access codes, and other, revealed 20% (n=2) Freshmen, 26.6% (n=4) Sophomore, 19% (n=4) Juniors, and 16% (n=4) Seniors reported they received below a C due to not having access to textbooks. Students who reported they received below a C due to not having access to access codes were 20% (n=2) Freshmen,

20% (n=3) Sophomore, 14.2% (n=3) Juniors, 4% (n=1) Senior, and 25% (n=1) Graduate. There were 30% (n=3) Freshmen, 33.33% (n=5) Sophomore, 9.5% (n=2) Juniors, 52% (n=13) Senior, and 50% (n=2) Graduate who received below a C due to other.

Qualitative Results

The last type of analysis dealt with the qualitative portion of the survey. The qualitative coding process consisted of inputting written answers into the Excel data spreadsheet. The researchers analyzed the qualitative responses from the question that inquired reasons participants could not obtain textbook materials. "Please explain the reason it was difficult to obtain textbooks." There were 24 qualitative responses out of 75 surveys. The researchers reviewed all of the responses to the question and highlighted the different reasons indicated. From the 24 responses, the researchers identified 15 different responses or codes. The 15 codes were reviewed again by the researchers and placed and color coded into four categories of textbooks being expensive, bookstore orders, not being able to access the textbook, and financial aid. After further review, the last two categories were combined together making three themes of: 1) *textbooks are expensive*, 2) *textbooks are sold out quickly* and 3) *other external factors*.

Theme 1 consisted of multiple responses that emphasized that textbooks are expensive. Roughly 46% of the responses fell under Theme 1 (n=11).

- *"They are expensive, and I try to find the cheapest option."*- 20-year-old White female who is classified as a senior with 90 or more hours.
- *"Can't always buy a textbook immediately. Textbooks can be too expensive and i need money for others like groceries."* -19 year old White females who is classified as a sophomore with 30 to 59 hours.
- *"Pricing."*-23 year old White female who is classified as a graduate student.

Theme 2 included responses that indicated academic materials sell out frequently. These responses related heavily to the bookstore not having enough books in stock. Twenty five percent of the 24 responses were placed in the second theme (n = 6).

- *"Most university specific textbooks and lab manuals are sold out quickly."*- 21-year-old White female who is classified as a senior with 90 or more hours.
- *"It takes a while to receive textbooks."*-21 year old multiracial female of two or more races who is classified as a senior with 90 or more hours.
- *"Too many...students, not enough books. Have to order more; takes about 2 weeks to get in"*- 21 year old White female who is classified as a junior with 60 to 89 hours.

Theme 3 contained responses related to other external factors such as not receiving their financial aid in a timely manner to purchase academic materials, restricted access by the publishing company of academic material, and even teacher errors causing inaccessibility to material. About 29% (n=7) of the responses fell under this last theme.

- *"Money doesn't start flowing in till later in the semester. Books need to be bought by the 2nd week."*-21-year-old African American female who is classified as a junior with 60 to 89 hours.
- *"I also have been given the wrong access code to a class."*- 19 year old White female who is classified as a sophomore with 30 to 59 hours.
- *"[Publishing company] keeps locking me out every time I try to buy a lab."*- 18 year old White female who is classified as a freshman with less than 30 hours.

Overall, these themes provided researchers with better insight into the student perspective of academic materials.

Strengths & Limitations

The researchers identified two strengths of this study. The first strength was the distribution of the survey. The researchers used the university library and the university student center for distribution of the survey. These two places had the most student traffic on campus. The researchers were able to collect 75 surveys. The researchers' survey instrument was on paper, so they were not able to send out a link for completion, which is why the researchers made it a priority to distribute the survey in the highest student traffic locations. The next strength of this study was having a diverse population. The researchers were able to obtain a diverse amount of participation throughout classification, age, and race. The researchers were able to collect data from freshmen, sophomores, juniors, seniors, and graduate students. The survey had the option of doctoral classification; however, no participants selected that option. The most occurring age the researchers found was 21 years of age, and the age range was between 18 to 29 years old. Most of the participants were White, followed by African American, Hispanic, two or more ethnicities, Asian, and American Indian or Alaskan Native. Focusing on high population areas allowed the researchers to collect a diverse population sample.

The researchers also identified two limitations of this study. The first limitation was failing to include Hispanic as an ethnic identity. Individuals who identified as Hispanic filled out the survey and informed the researchers the question did not include an option for Hispanic, and they added it to the bottom of the question. This exclusion was a limitation because the researchers did not add Hispanic into their coding for SPSS to run tests on race. The researchers then added Hispanic to the variables to identify if there were any statistically significant relationships between race/ethnicity and other variables on the survey. The next limitation was the number of males and females that completed the survey. Majority of the population were females. There was not a comparable amount of male and females making the outcome skewed. The researchers found that during survey distribution more female individuals were open to completing the survey compared to males. When the researchers asked males to complete the survey, majority of males would not complete all questions on the survey. The researchers had to remove the uncompleted surveys.

Ethical Considerations

To promote ethical principles the researchers completed two training courses with the Collaborative Institutional Training Initiative (CITI). Ethical guidelines seek to document widely held principles of research and to identify the factors that obstruct implementation. (Social Research Association [SRA], 2003). The training courses completed were Social and Behavioral Research and Responsible Conduct of Research. In addition, this research project obtained exempt status from the Institutional Review Board (IRB). The researchers abided by ethical procedures to data collection. The researchers approached random students at highly trafficked areas across campus. The researchers asked if they would like to participate in a study of the relationship between academic supplies and academic performance. Participants were informed that all collected data is anonymous and kept confidential and protected. The survey had no identifying markers and took approximately 10 minutes to complete. In addition, the researchers acted with integrity and competence (National Association of Social Work [NASW (National Association of Social Work)], 2021) when conducting the research. Students respected all

participants and provided them with a consent form. The consent form contained information about this study and informed there was minimal to no risk when completing the survey. Participants were allowed to stop the survey at any time. The researchers showed competence in this project to provide a new perspective in academia and its area of improvement for ensuring students have access to academic resources to increase academic success.

Discussion

The results yield implications on the micro, mezzo, and macro levels of future social work research. At the micro level, researchers can meet with individuals who are acquiring resources with diverse needs such as basic needs, food insecurities, childcare, transportation, etc. In this study, the participants represented various demographic backgrounds and had negative outcomes due to academic resources within each demographic whether by age, race, or gender. By focusing on individuals' needs other than academics, researchers can observe what else individuals need assistance. Once college students express their needs one on one, each campus can consider what to provide for their students. At the mezzo level, researchers can establish ways of reaching out to first-year students on campus about resources in the community and on campus. Since it is their first year on the campus, they are learning the ins and outs of the university. Being able to provide first year students ahead of time with resources on campus and outside of campus allows individuals to have the knowledge of what is provided to them when they arrive on campus. Although there were no statistical differences between first year students and other students, data still showed negative outcomes taking place amongst all groups.

The researchers found that 40% (n=4) of freshmen did not know there were resources on campus. Making these resources more accessible as well as increasing the awareness on college campuses is critical for positive impact on students. By advocating for policies that focus on professors requiring affordable academic materials for their class or alternative resources for individuals that cannot afford the required materials. As well as having guidelines on when required materials are needed for the class or providing the students with outside resources if they are not able to purchase the required materials. Identifying and applying for local, state, and federal funding serves as additional avenues to support purchasing/providing academic materials for students. Grants would benefit the student users in gaining access to funds for academic materials to be successful in college. In addition, it can provide access to support needs such as technology. Grant initiatives can assist financially for students to overcome barriers that stunt student academic success. Particularly for low income and first-generation students grants provide and support necessary accommodation of the range of students needs and ambitions after high school to improve the overall outcomes for all students when they enter college. This study results revealed many of the students withdrew from courses or were making below Cs because of the costs of learning materials. Targeting first generational students who need academic supplies will help aid their completion of courses.

References

- Agnihorti, L, Essa, A and Baker, R. (2017). Impact of student choice of content adoption delay on course outcomes. *Proceedings of the seventh international learning analytics & Knowledge conference*, 16-20. <https://doi.org/10.1145/3027385.3027437>
- Bartholomay, D. J. (2022). A time to adapt, not “Return to Normal”: Lessons in compassion and accessibility from teaching during COVID-19. *Teaching Sociology*, 50(1), 62–72. <https://doi.org/10.1177/0092055X211053376>
- Bruinsma, M., & Jansen, E.P.W.A. (2007). Educational productivity in higher education: An examination of part of Walberg educational productivity model. *School effectiveness & school improvement*. 18(1), 45-65. <https://www.tandfonline.com/doi/abs/10.1080/09243450600797711>
- Carriuolo, N. E., Rodgers, A., & Stout, C. M. (2001). Helping Low-Income and Minority Students Succeed in College: An Interview with Blenda Wilson. *Journal of Developmental Education*, 25(1), 26–28 <http://www.jstor.org/stable/42775843>
- Center For First-Generation Student Success. (2020). Are You First-Generation Student? <https://firstgen.naspa.org/why-first-gen/students/are-you-a-first-generation-student>
- Clinton, V., & Khan, S. (2019). Efficacy of open textbook adoption on learning performance and course withdrawal rates: A meta-analysis. *AERA Open*. <https://doi.org/10.1177/2332858419872212>
- College Ave Student Loans. (June 2017). 6 overlooked expenses of college. <https://www.collegeavestudentloans.com/blog/6-overlooked-expenses-of-college/>
- Eichelberger, B., Gerbing, D., & Gillpatrick, T. (2019). Financial education, college retention and graduation rates. *College Student Journal*, 53(4), 479-489. <https://link.gale.com/apps/doc/A612581079/ITOF?u=txshracd2559&sid=ITOF&xid=1f72b7cb>
- Exploring your mind. (2021). *Walberg's theory of educational productivity*. <https://exploringyourmind.com/walbergs-theory-of-educational-productivity/>
- Florida Virtual Campus. (2016). *2016 Student Textbook & Course Materials Survey*. <https://www.flvc.org/documents/96858/931951/2016+Student+Textbook+Survey.pdf/591cf5b0-bbe8-406d-acd8-b23d89b8577f>
- Freitas, F. A., & Leonard, L. J. (2011). Maslow's hierarchy of needs and student academic success. *Teaching and Learning in Nursing*, 6(1), 9–13. <https://doi.org/10.1016/j.teln.2010.07.004>
- Hansen, M. (2021, November 15). *Average cost of college and tuition*. Education Data. <https://educationdata.org/average-cost-of-college#texas>
- Jenkins, J. J., Sánchez, L, A., Schraedley, M.A., Hassans, J., Navick, N., & Young, J. (2020). Textbook broke: Textbook affordability as a social justice issue. *Journal of Interactive Media in Education*, 1(3), 1-13. <http://doi.org/10.5334/jime.549>
- Lamas, H. (2015). School performance. *Propósitos y Representaciones*. 3(1), 313- 386. <https://files.eric.ed.gov/fulltext/EJ1135350.pdf>
- Learn.org. (2021). *How much does college supplies cost for a typical student*. [https://learn.org/articles/How Much Do College Supplies Cost for a Typical Student.html](https://learn.org/articles/How_Much_Do_College_Supplies_Cost_for_a_Typical_Student.html)
- Lumpkin, L. (2020, January 17). Textbooks are pricey. So, students are getting creative. *The Washington Post*. https://www.washingtonpost.com/local/education/textbooks-keep-getting-pricier-so-students-are-getting-creative/2020/01/17/4e1306b8-30b9-11ea-91fd-82d4e04a3fac_story.html

- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370–396. <https://doi.org/10.1037/h0054346>
- McGrew, K.S. (2008, January 7). 2.2.1 Walberg's theory of educational productivity. <http://www.iapsych.com/acmcewok/Walberg%27stheoryofeducationalproductivity.html>
- McLeod, S. (2020, December 29). *Maslow's Hierarchy of Needs*. Simply Psychology. <https://www.simplypsychology.org/maslow.html>.
- Millett, C. M., Saunders, S. R., & Fishstein, D. (2018). Examining how college promise programs promote student academic and financial readiness (Research Report No. RR-18-41). *Princeton, NJ: Educational Testing Service*. <https://doi.org/10.1002/ets2.12229>
- National Association of Social Workers. (2021). *Code of Ethics*. <https://www.socialworkers.org/About/Ethics/Code-of-Ethics/Code-of-Ethics-English>
- National Center for Education Statistics (NCES). *Digest of Education Statistics, 2020*. National Center for Education Statistics (NCES) Home Page, a part of the U.S. Department of Education. https://nces.ed.gov/programs/digest/d20/tables/dt20_326.10.asp.
- Rugutt, J. K. & Chemosit, C. C. (2005). A Study of Factors that Influence College Academic Achievement: A Structural Equation Modeling Approach. *Journal of educational research & Policy studies* 5(1) 67-90. <https://files.eric.ed.gov/fulltext/EJ846830.pdf>
- Spica, E., & Biddix, J. (2021). Prices they pay: Academic achievement and progress to graduation barriers experienced by community college students due to the cost of course materials. *Innovative Higher Education*, 46, 643–662. <https://doi.org/10.1007/s10755-021-09557-7>
- Surprising College Costs, Finds College Ave Student Loans Social Media Poll. Business Social Research Association. (2003). *Ethical guidelines*. <https://the-sra.org.uk/common/Uploaded files/ethical guidelines 2003.pdf>
<https://the-sra.org.uk/common/Uploaded%20files/ethical%20guidelines%202003.pdf>
- Tarleton State University. About us. (n.d.). <https://www.tarleton.edu/about/index.html>
- Texas Higher Education Coordinating Board. (2020). *Select Report: Graduation Rates*. THECB Accountability System. <http://www.txhigheredaccountability.org/AcctPublic/InteractiveReport/Predefined>.
- Thomas, W. J., & Bernhardt, B. R. (2018). Helping Keep the Costs of Textbooks for Students Down: Two Approaches. *Technical services quarterly*, 35(3), 257–268. <https://doi.org/10.1080/07317131.2018.1456844>
<https://doi.org/10.1080/07317131.2018.1456844>
- Walberg, H. J. (1984). Improving the Productivity of America's Schools. 19-27. http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_198405_walberg.pdf
- York, T., Gibson, C., Rankin, S. (2015). Defining and measuring academic success. Practical assessment, research, and evaluation. 20(5). <https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1260&context=pars>

Appendix A

Academic Success Survey

Demographics

1. Biological Sex:
 - Male
 - Female
 - Prefer Not to Say

2. Age:
 - _____

3. Race/ Ethnicity (check all that apply):
 - White
 - Black or African American
 - American Indian or Alaska Native
 - Asian
 - Native Hawaiian or Pacific Islander

4. What is your classification?
 - Freshman (completed 29 hours or less)
 - Sophomore (completed 30 to 59 hours)
 - Junior (completed 60 to 89 hours)
 - Senior (completed 90 hours or more)
 - Graduate Student
 - Doctoral Student

5. Are you a first-generation college student? (*a student whose parent(s) did not complete a four-year college or university degree*)
 - Yes
 - No
 - Unknown

6. What was your parent relationship status during most of your childhood through adolescent years?
 - Married
 - Remarried
 - Single
 - Widowed
 - Divorced
 - Unknown

7. Have you ever withdrawn from a course at Tarleton State University?
 - Yes
 - No

8. If answered Yes, what was the reason. (Check all that apply)

<input type="checkbox"/> Did not meet academic requirements	<input type="checkbox"/> Military duty
<input type="checkbox"/> Employment	<input type="checkbox"/> No longer interested
<input type="checkbox"/> Family responsibilities	<input type="checkbox"/> Transferred to another institution
<input type="checkbox"/> Financial issues	<input type="checkbox"/> Other Personal Matter
<input type="checkbox"/> Health related problems	
<input type="checkbox"/> Other: _____	

9. Have you ever received below a C in a course due to not having access to the following?
(Check all that apply)

- Writing materials (pens, pencils, highlighters, dry erase makers, colored pencils, etc.)
- Notebooks
- Scantrons
- Clicker
- Textbooks
- Access code
- Computer
- Other: _____

10. On a scale of 1 to 5 how difficult is it to obtain textbook materials for a course at Tarleton State University?

- 1- Very Difficult
- 2- Somewhat Difficult
- 3- Neutral
- 4- Somewhat Easy
- 5- Easy

11. If you chose "very difficult" or "somewhat difficult" please explain the reason it was difficult.

12. How do you receive access to course textbooks for Tarleton State University courses?

- Rent
- Buy
- E-Book Rental
- Library
- Professor
- Other: _____

13. What average grades do you receive in your courses at Tarleton State University?

- A
- B
- C
- Below C

14. Do you know where to find free resources for academic supplies? (Pencils, Scantrons, Notebooks, Highlighters, Folders, Binders, Computers, Textbooks)

- Yes
- No
- I did not know there were resources available.

15. Tarleton State University Purple Pantry is an on-campus pantry available for students, staff, and faculty. They have food, personal care items, academic supplies and much more to offer. Before taking this survey, had you ever heard of the Purple Pantry?

- Yes
- No

Thank you for completing this survey.