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J. N. Andrews Honors Program

Andrews University

HONS 497

Honors Thesis

Identifying the Relationship Between Supplementary Educational Tools and Black
Undergraduate Academic Performance

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30 April 2020

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Abstract

What is the relationship between supplementary educational tools and the success of undergraduate minority students of Black descent at Andrews University? About a third of all students who attend a private, non-profit, four-year college or university do not complete a degree in six years (Digest of Education Statistics, 2017). Andrews University is a Seventh-Day Adventist, private university, and thus is able to provide a greater quality of education as compared to public colleges and universities (Scholarships.com, 2020). This is reflected in higher six-year graduation rates of private universities, as well as higher grade point averages. Unfortunately, minorities, and specifically Black students, yield lower graduation rates and GPAs as compared to their Caucasian counterparts. Black students at Andrews University perform better than the national data, but they still follow this trend (The Chronicle of Higher Education, 2013). The participant pool was Black undergraduate students from various departments and disciplines at Andrews University. Participants completed a survey in which they indicated the degree to which they participate in academic performance-improving actions we called supplementary educational tools. Participants reported that supplementary educational tools, specifically study groups and tutoring, improved academic performance. All supplementary educational tools were helpful in reducing students' anxiety and improving their understanding. We could not determine if duration and frequency of use were factors in this. Still, these tools were reported as being helpful in improving students' academic performance, and we should make an effort to implement them systematically across the campus to improve the academic and professional success of Black students.

Keywords: self-efficacy, academic performance, supplementary educational tools

Identifying the Relationship Between Supplementary Educational Tools and Black Undergraduate Academic Performance

In the United States over 19 million people are enrolled in a public college or university, about 5 million of those being in a private institution (Duffin, 2019). Unfortunately, the system is imperfect, and not all of these students graduate. Of all enrolled students, only a little over fifty percent of them graduation within six years. This pattern carries over into the private sector as well, where approximately a third of students attending a private, non-profit, four-year college or university do not receive a degree within six years (Digest of Education Statistics, 2017). With both public and private institutions, people of color, and specifically those of Black descent, show considerably lower six year graduation rates as compared to data on Caucasian students. At public institutions, Black students show a 40 percent graduation rate, as compared to a 62 percent graduation rate for Caucasian students. At private, nonprofit institutions, graduation rates are slightly higher, with Black students at a 43 percent graduation rate, and Caucasian students at a 69 percent graduation rate (Indicator 23: Postsecondary Graduation Rates, 2019).

Andrews University is a Seventh - day Adventist, private university, and thus is able to provide a greater quality of education as compared to public colleges and universities (Scholarships.com, 2020). This is reflected in higher six-year graduation rates of private universities, as well as higher grade point averages. Unfortunately, as is the trend at higher education institutions across the nation, minorities, and specifically Black students, yield lower graduation rates and GPAs as compared to their Caucasian counterparts. Black students at Andrews University perform better than the national data, but they still follow this trend (The Chronicle of Higher Education, 2013). James Earl Davis (1994) analyzed how campus environment affects academic achievement for African American males. In his paper, he stated

that perceived support from their university plays a critical role in African American students seeking informal academic assistance from their professors. This interaction outside of the classroom fosters a relationship between professor and student, which he says leads to better academic performance. He references a paper (Allen, 1987) that discusses the difference in experience of Black students at historically black colleges/universities (HBCUs) and predominantly white institutions (PWIs). Allen states that African American students are more likely to interact with their professors outside of the classroom when they feel supported by their school. African American males at PWIs, Davis (1994) says, often do not feel supported by their school, and therefore do not foster these relationships, leading to poor academic performance.

Literature Review

Supplementary Educational Tools (SETs): Improving Academic Performance

Outside of the classroom, there are various supplementary educational tools students may use to improve performance. These include, but are not limited to: tutoring, mentoring, and study groups. Past studies have looked into the relationship between some of these tools and academic performance, as well as self-efficacy. Several studies have looked into the effect of mentoring on academic performance. There are two main forms of mentoring: peer mentoring and faculty mentoring. Studies have shown that both of these have a positive effect on academic performance and achievement, based on personal assessment and GPA (Asgari & Carter Jr, 2016; DeFreitas & Bravo Jr, 2012). A study by Leidenfrost, Strassnig, Schütz, Carbon & Schabmann (2014) found that there was not much of a difference caused by different mentoring styles, but those who received mentoring, no matter the type, performed better academically as compared to students who received no mentoring.

Similar results were found in studies focused on tutoring, based on self-report data. Students who participated in peer tutoring experienced enhanced academic performance (Fantuzzo, Riggio, Connelly & Dimeff, 1989; Franklin, Griffin & Perry, 1994). Fantuzzo et al. (1989) focused their study on the effect of tutoring on academic achievement, as well as psychological adjustment, of undergraduate college students at California State University. They found that academic achievement was most improved when the tutor-tutee relationship had assigned, structured procedures. The self-report data also found that tutoring resulted in decreased academic distress from the participants.

SETs: Why Do They Work?

The reason these supplementary tools improve academic performance may be due to their effect on students' self-efficacy. Self-efficacy is one's own measure of their ability. In other words, it is an individual's belief in their own ability to perform. Higher self-efficacy is associated with better performance, as well as quicker recovery from failure. Individuals with high self-efficacy attribute failure to things that can be improved—insufficient study time and deficient knowledge—rather than a lack of ability (Bandura, 2010). Low efficacy can decrease the effort put in to a specific task, be it studying or taking a test (Bandura, 2000). Studies have focused on the relationship between self-efficacy, self-esteem, and academic performance. A paper by Lane, Lane, & Kyprianou (2004) supports the assertion made by Bandura that self-efficacy and performance are positively correlated. While their study was focused on post-graduate students, the results can be used to make inferences about undergraduate students. One study focused on the effect of mentoring on African American and Latino undergraduate students' self-efficacy, and found that faculty mentoring did indeed lead to greater academic

achievement, and that it was, at least in part, mediated by self-efficacy (DeFreitas & Bravo Jr, 2012).

This study focused on three supplementary educational tools: tutoring, mentoring, and study groups. No literature was found on the effect study groups have on academic performance, but it was included since this is a common study tool used by students. The purpose of this inclusion was to compare its effectiveness against other previously studied tools. This study used a survey-design to determine student usage of these resources, as well as their perceived effectiveness in terms of grade improvement, reduced anxiety, and increased understanding of the material. It also assessed what percent of Black undergraduate students from the sample pool utilize them, in order to ascertain the relationship between those factors and the performance of these Black college students. These supplementary tools may not only increase knowledge, but also increase self-efficacy, or the individual's belief in their abilities.

This study sought to test the primary hypothesis that these outside factors such as tutoring and study groups can help increase academic performance among minority undergraduate students of Black descent. For the purposes of this study, the definition of academic performance is an improvement in grades. One of the reasons for this increased academic performance may be increased self-efficacy. The secondary hypothesis was that the more time spent using these supplementary educational tools, the more effective they are in improving academic performance. Of interest was which of these supplementary educational tools is of greater importance to academic success. The goal is to gain more information on these tools to make recommendations on how to help improve the academic performance of Black undergraduates.

In order to test these hypotheses, a survey was used to measure the effectiveness of the following supplementary educational tools: tutoring, mentoring, and study groups. For each

factor, the participants indicated the level at which that tool improved their grades, reduced their anxiety, and increased their understanding. They also indicated the duration they spent using each applicable tool. If duration was a factor, those who use these supplementary educational tools more frequently would report improved grades, reduced anxiety, and higher levels of increased understanding. They were also measured on a self-efficacy scale to determine if there was a relationship between their scores on the self-efficacy scale and their academic performance.

Materials and Methods

Recruitment

Subjects were recruited from the students at Andrews University, that are 18 years of age or older, of Black descent, and use any of the outlined supplementary educational tools. Any person not enrolled at Andrews University was excluded. Subjects were recruited through various Andrews University clubs with high levels of Black membership, namely the Black Student Christian Forum, the Caribbean Club, the African Club, and Adelante. The members of these clubs received emails from their club officers asking for participation in the study. Those that chose to participate clicked the link provided and began the procedure. Of the 30 total responses, one was under the age of 18, so their responses were discarded. Another response left much of the demographics section blank, but did report on their usage of the SETs. This was a convenience sample, making up about 10% of the total Black undergraduate student body at Andrews University (Undergraduate Ethnic Diversity at Andrews University, 2020).

Instruments

Subjects completed a 42-question survey in order to test the hypotheses. The first 15 questions collected demographic information on the subjects. This included, but was not limited

to, age, gender, ethnicity, country of origin, SAT/ACT scores, GPA after their first semester, and current GPA. The next 27 questions collected data on the usage of the aforementioned supplementary educational tools. Below are some sample questions:

How often do you receive tutorial support?

On a scale from 1-10, how effective is the mentor program at improving your grades?

In the past month, how many times did you miss class? This includes lectures, labs, and required small groups.

Subjects then completed a 10-item self-efficacy scale. The General Self-Efficacy Scale is scored on a scale from 10-40, with higher scores indicating higher self-efficacy (Schwarzer & Jerusalem, 1995). Subjects were directed to complete the scale, add up their responses, and report their scores.

Procedure

Andrews University students who were members of the Black Student Christian Forum, Caribbean Club, the African Club, and Adelante were emailed information on the study and a link to the survey on Google Forms. Those who decided to participate clicked the link and completed the survey. The first page of the survey was a consent form which informed the participants that they could end the survey at any time. For those who chose to continue and complete the survey, the results were automatically reported to the researcher once the subjects submitted their responses. Participants were also able to enter into a raffle to receive a \$15 Amazon gift card. The recipient of this gift card was randomly selected at the conclusion of the study.

Data was used from 29 students that were enrolled at Andrews University at the time of the study. After looking at the raffle responses, however, it was revealed that two of the

participants completed the survey more than once in an effort to increase their chances of getting the raffle prize. Unfortunately, it is impossible to determine which responses on the survey are duplicated since it was anonymous. Therefore, all responses were included in data analysis, but the existence of duplicated responses should be kept in mind.

Results

Subject Demographics

Participant #1 did not report their gender, but other than that participant, there were 14 male and 14 female participants. Participants were between 18-26 years of age, with a good spread over the class standings. There were 6 freshmen, 6 sophomores, 7 juniors, and 10 seniors. The majority of participants were African American (44.8%) and 24.1% of participants were mixed race. Afro-Caribbeans made up 20.7% of the sample. Afro-Latinx, Afro-Asian, and African each had 3.4% representation in the sample. The majority of the participants (58.6%) were from the United States. Jamaica was the country of origin for 10.3% of participants. Mexico and Kenya was the country of origin for 6.9% of participants each. China, Canada, Haiti, Peru, and Ghana each had 3.4% of participants in this sample.

SET Usage

Only 13.8% of the subjects used tutoring, which could be due to the barriers to use it. Unlike the other supplementary educational tools which are free to use, tutoring usually requires payment, either to a private tutor or through Student Success. Still, 75% of students who did receive tutoring reported at least a half letter grade improvement. One subject failed to respond. A larger percentage (24.1%) were a part of some mentor program. Two of the participants were both a mentor and a mentee. Two were only mentees. Three were only mentors. With both mentors and mentees, we got a lot of incomplete responses, and basically none of them answered

on grade improvement. Study groups had the most participation out of the three, with 44.8% of participants reporting being in a study group, either as a personal choice or as a class requirement. Most of these (92.3%) were personal choice. Over 90% of subjects in study groups reported at least a half letter grade improvement. Regardless of duration, 91.7% of subjects who used either tutoring or study groups reported some letter grade improvement. The subjects who used mentoring also used other SETs, so despite the fact they did not answer for mentoring, they did report letter grade improvement overall. A negligible correlation (0.12) between general self-efficacy (GSE) and academic performance was determined using Pearson's r , based on the data.

Discussion

Based on this data, it was determined that using the supplementary educational tools improved grades. A large majority of subjects (91.7%) who used at least tutoring or study groups reported at least a half letter grade increase. For the purposes of this study, the definition of academic performance is an improvement in grades. Based on the self-report data from this study, the first hypothesis is supported. Unfortunately, due to the nature of the data from this study (non-linear), it could not be determined if duration was a factor, so the second hypothesis is not supported. Subjects were given choices to select for grade improvement ('zero', 'half letter grade', 'full letter grade', 'more than a full letter grade', and 'not applicable'), rather than letting them manually enter their letter grade improvement. Longitudinal studies may be beneficial in answering this question.

This study collected self-report data on the effectiveness of these supplementary educational tools, but it could not determine any statistical significance. Limitations a relatively small sample size, compared to the total Black undergraduates at Andrews University. This study's sample made up about 10% of the population it was drawn from. Future studies could

increase the sample size, as well as edit the study design to collect quantitative data. Further studies need to be done to determine to what extent each tool improves grades and which tool is most effective. A longitudinal study that measured students before using the tools and then after a certain amount of time (one week, one month, one semester, etc.) would be helpful to determine the level of effectiveness of each tool. This would also be useful to determine how much, if at all, these tools increase self-efficacy. The Self-Regulated Learning scale of the Multidimensional Scales of Perceived Self-Efficacy (Bandura, 1990) may be a better self-efficacy scale to use in future studies, since it focuses on academic self-efficacy. This is the scale used in the DeFreitas & Bravo Jr (2012) study. Still, the results of this study show that a majority of students who used supplementary educational tools found them helpful in improving their grades.

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