Hispanic Serving Institution: Gender, Major, and Technology Influences on Academic Success

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Abstract: The following research will assist in better understanding if gender, major, and technology use influences success rates among the Latino-ethnic undergraduate students in a Hispanic Serving Institution. The site chosen to be studied was located in a southern region of Texas and in a highly impoverished area. A previously administered instrument was administered after permission to use the instrument was sought out and granted. The Kolmogorov-Smirnov test was utilized due to its assumption requirements. A convenient sample was created. Findings indicate more females, criminal justice majors, who used technology at higher rates, had higher grade point averages. PSPP posed a limitation and future researchers should seek out mixed methods to better understand the variables that influence success rates among Latino-ethnic students in college. Specifically, how technology assists with success rates, how gender influences success rates, and how and why criminal justice majors have higher success rates in higher education institutions.

Keywords: Hispanic serving institution, Latino, higher education

Introduction

Variables that influence academic success at the college level must be better understood (Sanchez, Thorton, & Usinger, 2015). The need to further investigate processes and mechanisms between-group differences that increase college attainment is evident (Ovink, 2014). This research study will specifically attempt to better understand whether gender, major, and technology use influences academic success in a Hispanic Serving Institution. The study will include a survey used to gather data from undergraduate students in the Fall and Spring Semesters. To further understand the findings, conflict theory will be included to better understand the dynamics involved.

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Literature Review

This research study will attempt to better understand whether gender, major, and technology use, by undergraduate students, influences academic success amongst students in a Hispanic Serving Institution. Gender is a positive influential factor on academic success rates (Brown, Holland, Kupczynski, & Uriegas, 2014). Additionally, stratified success rates can also be found when comparing students from different majors (Ghasemi & Hassani, 2016). Furthermore, knowledge and collaboration between students and faculty increase with the use of technology (Amemado, 2014). Despite research findings indicating gender, majors, and technology influence success rates, recommendations to further study students in Hispanic Serving Institutions and influences on academic success rates are still emphasized (Sanchez, et al., 2015).

Gender, Major, and Technology

Various researchers have found gender differences among academic success rates (Brown et al., 2014; Ovink, 2014; Olagbaju & Nnorom, 2019). Specifically, Ovink (2014) found women are more likely to succeed in college and attain higher degrees due to familial influences. Women are more likely than men to be influenced and become independent and successful due to the patriarchy system (Ovink, 2014). Brown et al. (2014) found the support system female Latinas attain from other undergraduate students benefit the academic success rates among Latinas students compared to the success rates among Latino students. Researchers continue to recommend further exploring to better understand the influence of gender among the Latino undergraduate's success rates (Brown et al., 2014; Ovink, 2014).

Continuously, Latino undergraduate students' academic success are influenced by the major they chose to pursue (Amaya, Betancourt, Collins, Corona, & Hinojosa, 2018; Tovar, 2015). Amaya et al. (2018) found certain majors, provided mentors for students in that major. The mentorship opportunities increased the confidence and a heightened awareness about majoring in certain fields. The academic success among Latino students was credited to the mentorship opportunities. Tovar (2015) suggests Latino students should pursue a major. Specifically, support programs and agents involved in attaining a degree contributed to academic success among Latino students and their academic success.

Latinos' academic success have been influenced by technology (Baterna et al., 2020; Bixler, 2019; Benitez & Dearo, 2004; Flores & Flores, 2018). A review of literature revealed a need to study technology and its relationship to Latino academic success rates (Flores & Flores, 2018). Regardless of the limited research in this field, Flores and Flores (2018) found more than half of the literature focused on Latino's success rates in college, included technology did contribute to Latinos' academic success rates. Benitez and Dearo (2004) specifically found e-portfolios allow a clear view of goals that then enhanced the learning experiences among Latino students. Further data must be collected to understand how to increase academic success rates among Latino students (Benitez & Dearo, 2004; Flores & Flores, 2018).

Recently, researchers that focused on gender have overall found female students are more successful in higher education institutions than their male counterparts. However, indications that parent's education level also influence the female students' success rates in higher education (Cerdeira, Nunes, & Reis, 2018; Engstrom, 2018). Additionally, researchers have recently found major does influence academic success rates. However, additional services such as Peer Supplemental Instruction (PSI) (Achat-Mendes, Anfuso, Awong-Taylor, D'Costa, Dekhane, Hurst-Kennedy, Johnson, Leader, Pinzon, Pursell, Runck, Savage, Shepler, Simmons, & Sudduth, 2020) or Enhanced Academic Success Experience (EASE) (McPartlan, Sato, Solanki, & Xu, 2019). Specifically, programs like EASE increased retention amongst students in the STEM field. Lastly, technology does play a role in higher education academic success. Researchers have found new methods of instructional web-enhanced technologies certainly does increase academic success rates (Brink & Ohei, 2020). Although, Duart, Hinojosa-Becerra, and Torres-Diaz (2018) stated technology does not increase academic success, they did find technology use for academic activities decreased the tendencies to plagiarize. Throughout literature very limited research was focused on gender, major, and technological impact on higher education success. That said, it was less likely to find research focused on the Latino-ethnic student population in higher education. Throughout recent research, mostly questionnaires were used to gather data about gender (Engstrom, 2018), major (McPartlan et al., 2019), or technology (Brink & Ohei, 2020; Duart, Hinojosa-Becerra, & Torres-Diaz, 2018). This research will attempt to study gender, major, and technology using one survey.

Conflict Theory

Theoretical frameworks assist researchers to better understand dynamics involved between variables through providing explanations or perspectives (Henslin, 2017). In this particular study, the focus was to better understand whether gender, major, and technology use influenced academic success amongst the Latino-ethnic students. Conflict theory explains any phenomenon as two macro groups fighting for scarce resources (Henslin, 2017). For example, higher education students who are financially stable have more advantages than students who are not financially stable (Henslin, 2017). Typically, students who are from the minority groups have more financial burdens than the majority counterpart (Henslin, 2017). Thus, these macro groups would be fighting to attain a degree in higher education to better compete for elite jobs requiring higher education degrees (Henslin, 2017).

Method

Research Design

This research study will assist in understanding whether gender, major, and technology use, influences academic success amongst the Latino-ethnic students. A previously developed survey will be used, please see appendix A. The researchers who developed the instrument were contacted and permission to utilize the survey was provided. This instrument was previously tested for validity and reliability, thus eliminating the need to do so. The instrument items measured college students in a Hispanic Serving Institute and gender, major, technology preferences, and grade point averages. Before contacting any participant, permission was attained from the Internal Review Board. This study will be guided by the following:

To what extent, if any, does gender, major, and technology use increase academic success among the Latino-ethnic students in higher education?
$H1_0$: There will be no difference between gender, major, and technology use and academic success among college students in a Hispanic Serving Institution.
$H1_a$: There will be a difference between gender, major, and technology use and academic success among college students in a Hispanic Serving Institution.

Population and Sample

The Latino-ethnic student population was sought out due to the recommendations made to further study variables influencing higher education success in the Latino-ethnic population (Flores & Flores, 2018; Sanchez et al., 2015). The population utilized for this study was targeted from a south region of the state of Texas. A sole institution was identified to have high rates of Latino-ethnic students enrolled. Faculty from different fields were contacted to assist with data collection and the research design was explained to increase participation rates. The instrument was sent out with two follow-up reminders. Data was analyzed using the Kolmogorov-Smirnov (K-S) Test using PSPP.

Results and Discussion

Gender for the Spring Semester showed on PSPP as, $D(236) = 6.60$, $p < .001$, Major for the Spring showed, $D (237) = 4.22$, $p < .001$. Grade point average for the Spring showed $D (213) = 6.72$, $p < .001$. Technology has a Positive Change on Students for the Spring showed, $D (236) = 4.04$, $p < .001$. Technology Helps the Learning Process for the Spring showed $D (234) = 4.36$, $p < .001$. These data demonstrate all variables were significant. Data were compared to histograms and normal distribution was not found.

The purpose of this study is to understand how gender, majors, and technology play a role in success rates among the Latino-ethnic students. These variables were measured and found to significantly influence the grade point averages. Based on the histograms measuring for normal distributions, more females, criminal justice majors, who used technology, had higher grade point averages of 3.0 or above. The data implies these variables are significantly influencing grade point averages in Hispanic Serving Institutions. This study administered an

instrument to a convenient sample and the results are not representative of the population. Future researchers should continue to research these variables and others to better understand how to help increase education rates among Latino-ethnic students in higher education. Future researchers should use random samples to better understand data that is representative of the Latino-ethnic population.

Limitations

Due to having only access to PSPP the Shapiro-Wilk test was not applied, which would have been great to substantiate the significance levels. The Shapiro-Wilk test has more power to detect normality differences (Field, 2009). PSPP only allowed for standard deviations in the output rather than degrees of freedom, so a hand calculation of the degrees of freedom was produced. The sample was large which must be noted, due to Kolmogorov-Smirnov being notorious for false positives with large samples. The representation of the data is limited to this sample alone, due to not using a random sample.

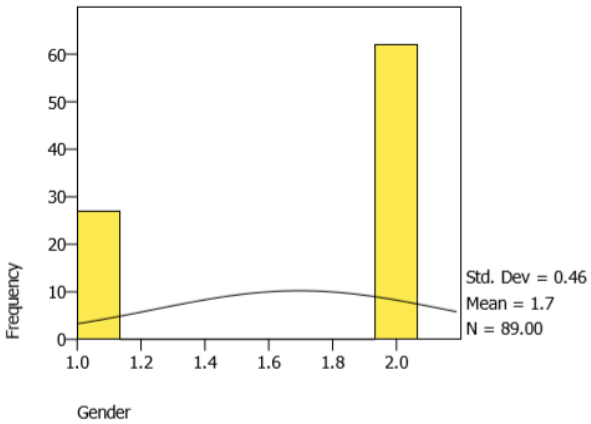

Figure 1. Gender Histogram

Conclusion

Despite the limitations, this research study was able to understand how gender, major, and technology influences Latino-ethnic students in higher education institutions. Researchers have attempted to understand these variables, separately, and to the general population (Brink & Ohei, 2020; Duart, Hinojosa-Becerra, & Torres-Diaz, 2018; Engstrom, 2018; McPartlan et al., 2019). The research used a questionnaire, as did many researchers in the past, but gathered data for gender, major, and technological use among the Latino-ethnic student population in a Hispanic Serving Institute. The Kolmogorov-Smirnov test was used to assess the data gathered. Data found the Latino-ethnic female, Criminal Justice majors, who used technology had high success rates.

Recommendations

Should finances allow, future researchers should use SPSS instead of PSPP to double check the significance levels. Also, a random sample would allow for better statistical testing and population referencing. Future researchers should consider different research methods when collecting data to understand what variables influence the success rates among the Latino-ethnic students. Focus groups and interviews would allow some insights. However, in order to measure the impact of significant relationships quantitative approaches continue to be needed.

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Appendix A: Survey Instrument

ICT Integration into Teaching Survey

This survey explores your perception and practice of ICT integration into teaching and your perception of ICT use to improve teaching. This survey will require 10 minutes or less of your time. Please note that this survey is completely anonymous and voluntary.

Section 1: Background Information

Please select an answer for each question.
1. Gender:
_____ Male
_____ Female

2. Teaching Discipline (check all that apply):
____ Arts
____ Business
____ Humanities
____ Health
____ Social Sciences (Communications, Criminal Justice, Education, History, Political Science, Sociology)
____ Natural & Applied Sciences and Engineering Technology
____ Behavioral Sciences (Anthropology, Psychology)
____ Other, Please Specify: _____

3. Average number of courses taught per semester at all colleges where you've taught over the past three years (select one)
____ 1
____ 2
____ 3
____ 4
____ 5
____ 6+

4. Years of total teaching experience: (Please round to the nearest whole number)
_____

Section 2: Current Practice of ICT Use in Teaching

Please select the answer that best describes your current practice of technology use to support your teaching. (1) Never, (2) Sometimes (Few times per semester/quarter), (3) Often (1-3 times per Month), (4) Very Often (1-3 times per Week). ICT Tools/Applications

a. Productivity tools (e.g., Word Processing, Spreadsheet, Database)
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

b. Multimedia presentation tools (e.g., PowerPoint, Flash, Video etc.)
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

c. Internet, web applications
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

d. Web Authoring Tools (e.g., Dreamweaver)
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

e. Content specific software
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

f. Podcasting/Vodcasting/Screencasting
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

g. Reference software
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

h. Drill and practice
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

i. Games and simulations
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

j. Desktop publishing
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

k. Wireless handheld devices (e.g., PDA, iPhone, etc.)
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

l. Course website
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

m. Learning management system (e.g., Moodle, BlackBoard, WebCT)
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

n. Imaging Devices (e.g., scanners, digital cameras, video cameras)
____ (1) Never
____ (2) Sometimes
____ (3) Often

____ (4) Very Often

o. Computer projection device
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

p. Email or other Internet communication tool for assignment/project feedback.
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

q. Teach in computer classroom
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

r. Ask students to use technology to demonstrate learning
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

s. Ask students to use technology for communication
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

t. Ask students to use technology for collaboration
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

u. Ask student to use technology to create content
____ (1) Never
____ (2) Sometimes
____ (3) Often
____ (4) Very Often

Section 3: Perception of ICT Use in Teaching

Please select the answer that best describes your perception of technology use in teaching: (1) Strongly Agree, (2) Agree, (3) Disagree, (4) Strongly Disagree.

a. Technology helps me to get more involved into teaching.
____ (1) Strongly Agree
____ (2) Agree
____ (3) Disagree
____ (4) Strongly Disagree

b. Technology integration is an important aspect of teaching career.
____ (1) Strongly Agree
____ (2) Agree
____ (3) Disagree
____ (4) Strongly Disagree

c. Technology can be integrated to foster effective teaching and learning environment.
____ (1) Strongly Agree

____ (2) Agree
____ (3) Disagree
____ (4) Strongly Disagree

d. Technology integration can be a positive change agent in student learning.
____ (1) Strongly Agree
____ (2) Agree
____ (3) Disagree
____ (4) Strongly Disagree

e. Technology integration provides greater access to learning resources.
____ (1) Strongly Agree
____ (2) Agree
____ (3) Disagree
____ (4) Strongly Disagree

f. Technology integration makes teaching and learning more exciting.
____ (1) Strongly Agree
____ (2) Agree
____ (3) Disagree
____ (4) Strongly Disagree

g. Technology integration makes teaching and learning more interactive.
____ (1) Strongly Agree
____ (2) Agree
____ (3) Disagree
____ (4) Strongly Disagree

h. Technology integration improves communication between students and instructor.
____ (1) Strongly Agree
____ (2) Agree
____ (3) Disagree
____ (4) Strongly Disagree

i. Technology integration disrupts teaching especially if the computer system crashes or there is general computer network congestion.
____ (1) Strongly Agree
____ (2) Agree
____ (3) Disagree
____ (4) Strongly Disagree

j. Technology integration creates learning problems, such as trying to find information from the World Wide Web (www).
____ (1) Strongly Agree
____ (2) Agree
____ (3) Disagree
____ (4) Strongly Disagree

k. Technology integration takes time away from actual classroom instruction.
____ (1) Strongly Agree
____ (2) Agree
____ (3) Disagree
____ (4) Strongly Disagree

l. Technology integration slows my teaching process for various reasons.
____ (1) Strongly Agree
____ (2) Agree
____ (3) Disagree
____ (4) Strongly Disagree

Section 4: Perceived Major Barriers that Limit Faculty Use of Computer Technologies:

For each statement, please indicate the extent to which you agree or disagree with the statement.
____ (1) Strongly Disagree

____ (2) Disagree
____ (3) Neither agree nor disagree
____ (4) Agree
____ (5) Strongly Agree

Some of the barriers that limit faculty use of computer technologies include:

1. Increase workload for instructors.
____ (1) Strongly Disagree
____ (2) Disagree
____ (3) Neither agree nor disagree
____ (4) Agree
____ (5) Strongly Agree

2. Lack of equipment and infrastructure.
____ (1) Strongly Disagree
____ (2) Disagree
____ (3) Neither agree nor disagree
____ (4) Agree
____ (5) Strongly Agree

3. Lack of software.
____ (1) Strongly Disagree
____ (2) Disagree
____ (3) Neither agree nor disagree
____ (4) Agree
____ (5) Strongly Agree

4. Lack of time of learning about computer technologies.
____ (1) Strongly Disagree
____ (2) Disagree
____ (3) Neither agree nor disagree
____ (4) Agree
____ (5) Strongly Agree

5. Lack of effective training.
____ (1) Strongly Disagree
____ (2) Disagree
____ (3) Neither agree nor disagree
____ (4) Agree
____ (5) Strongly Agree

6. Lack of technical support.
____ (1) Strongly Disagree
____ (2) Disagree
____ (3) Neither agree nor disagree
____ (4) Agree
____ (5) Strongly Agree

7. Lack of administrative support.
____ (1) Strongly Disagree
____ (2) Disagree
____ (3) Neither agree nor disagree
____ (4) Agree
____ (5) Strongly Agree

8. Lack of collegial support and interaction.
____ (1) Strongly Disagree
____ (2) Disagree
____ (3) Neither agree nor disagree
____ (4) Agree
____ (5) Strongly Agree

9. Lack of designing interaction activities between instructors and students in my course.
___ (1) Strongly Disagree
____ (2) Disagree
____ (3) Neither agree nor disagree
____ (4) Agree
____ (5) Strongly Agree

10. Lack of self-confidence.
____ (1) Strongly Disagree
____ (2) Disagree
____ (3) Neither agree nor disagree
____ (4) Agree
____ (5) Strongly Agree

11. Lack of personal interest.
____ (1) Strongly Disagree
____ (2) Disagree
____ (3) Neither agree nor disagree
____ (4) Agree
____ (5) Strongly Agree

12. Reduced course quality.
____ (1) Strongly Disagree
____ (2) Disagree
____ (3) Neither agree nor disagree
____ (4) Agree
____ (5) Strongly Agree