Research Study Proposal: The Role of Supplemental Instruction and Peer tutoring

in Improving Retention Rates of Undergraduate Students at NJCU’s STEM Program

Fahima Bacha

New Jersey City University

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**Description of the Study**

Minority groups are underrepresented and have lower participation rates in scientific and technical careers in the United States (Aud, Fox & KewalRamani, 2010). To increase minority groups’ participation in STEM fields, New Jersey City University(NJCU) was awarded 5.7 million dollars from the U.S. Department of Education for a Title V grant for Hispanic Serving Institutions. Thus, NJCU will be starting a STEM program in the Summer of 2017. The STEM program at NJCU will provide an opportunity to students from various cultural backgrounds to participate in STEM education and attract minority groups to STEM careers. NJCU is working to retain more of its undergraduate students in its STEM program using various interventions including supplemental instruction and peer tutoring. The purpose of this study is to investigate the role of supplemental instruction and peer tutoring on retention rates of undergraduate students enrolled in the NJCU’s STEM program. This study will provide insights on the implementation of supplemental and peer tutoring programs in the NJCU’s STEM program and their impact on students' retention.

**Participants**

Participants consist of two groups of undergraduate students enrolled in the NJCU’s STEM program. The sample will be selected randomly following a true experiment process, where students are randomly assigned to either the control or the experimental group such as participant number one will be assigned to the control group (Group A) and participant number two to the experimental group (Group B). Following this process will ensure that there is no bias in assigning participants to either groups (Creswell, 2014).  This random process of selection will guarantee that each participant will have an equal probability to be selected from the population of students enrolled in the STEM program and that a representative sample of the population will be formed (Keppel & Wickens, 2003). The sample size will be based on selecting 10% of the population of students enrolled in the STEM program, A flyer explaining the purpose of the study will be posted in the STEM program building and thought out the NJCU campus to recruit participants.

**Potential Issues**

Potential issues that may emerge in this study are low response rate and students dropping out of the study. Since participation is voluntary, an incentive consisting of Amazon gift cards will be offered to participants at the completion of the selection process and the study. In addition, some participants will be put on a waiting list as a backup plan in case of students dropping out of this study.

**Research Questions**

1.      Does supplemental instruction influence students’ retention at the NJCU’s STEM program?

2.      Does peer tutoring influence students’ retention at the NJCU’s STEM program?

3.      Is there a correlation between supplemental instruction and student’s retention?

4.      Is there a correlation between peer tutoring and student’s retention?

5.      Do grade achievements affect students’ retention rate?

**Need of the Study**

        NJCU’s mission, “is to provide a diverse population with an excellent university education”. Many NJCU’s students’ first language is not English. Its undergraduate program consists of 25% White, 21% Blacks, 35% Hispanic and 9% Asians and its average student is a low income female student, age 24 and from a low-income family making less than $30,000. (Coleman, Farina, & Rabinovich, 2016). Data from the Student Profile and Outcomes retrieved from the NJCU website shows that in 2012, from a cohort of 713 students, the retention rate was 71% for one year, 55% for two years, 53% three years and only 0.1 % graduated. In addition, one year retention percent for first time full time freshmen for the years 2014 and 2015 for Hispanic/Latino went down from 74% to 71% while retention rates for first time transfers went up from 68% to 70% for full time students and 62% to 65% for part time students. For NJCU to increase its retention rate, it needs to support its learners and address their needs and challenges in term of skill deficiencies, acquisition and reinforcement, readiness for college, language barrier and diverse learning styles. This study will help NJCU implement strategies such as peer tutoring and supplemental instruction in the hope of increasing the number of students attaining degrees in STEM fields at NJCU.

**Methodology**

This study consists of a quantitative research design approach. The researcher will investigate the role of supplemental instruction and peer tutoring on improving retention of NJCU’s undergraduate students in the STEM program using group comparisons. The experiment consists on comparing the impact of peer tutoring and supplemental programs on retention rates of NJCU undergraduate students in the STEM Program. The experimental group (Group A) and the control group (Group B) will both take a pretest and a posttest but only Group A will receive the treatment which consist on implementation of peer tutoring and supplemental instruction programs in gateway courses.

Deming’s theory Plan Do Act Study (PDAS) will be used to serve a theoretical framework.  Deming’s theories are used around the world for school quality control and leadership philosophies by government agencies and educational institutions (The W. Edwards Deming Institute, 2016).  First, a plan to increase student retention will be put in place, the plan includes identifying the goal and percent of retention to attain. Second, peer tutoring and supplemental instruction programs will be implemented for Group A. Third, the study will be conducted and numerical data will be collected regarding students’ retention. Retention rates will be tested and monitored for signs of progress. Last close the cycle by using the learning generated by this study to adjust the goal.

The study will answer the following question:

Does Deming’s theory Plan Do Act Study (PDAS) explain the relationships between Peer tutoring and supplemental instruction and retention rates controlling students’ grade achievements?

**Description of Research Questions**

The research questions that will be used in this study will focus on providing information about the role of supplemental instruction and peer tutoring on improving students’ retention in the STEM’s program. The responses to these questions will be utilized to guide in implementation of programs that have the potential of supporting students’ learning and increasing rates.

References

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