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Journal 5

ADS830

Treadway

5/6/22

Yue, H., Rico, R. S., Vang, M. K., & Giuffrida, T. A. (2018). Supplemental instruction: Helping
disadvantaged students reduce performance gap. *Journal of Developmental Education*, *41*(2),
18–25. http://www.jstor.org/stable/44987748

I.   *Overall questions*: How can disadvantaged and marginalized students benefit from
supplemental instruction (SI)? Does SI reduce the performance gap between
disadvantaged and non-disadvantaged students? What kind of performance
improvements can be attributed to SI?

   a.   *What is the research question?* "How does the number of SI visits affect students'
course performance? How do SI visits help traditionally disadvantaged students
reduce the performance gap?" (Yue et al., 2018, p. 20).

   b.   *Why is it important?* SI can be a form of academic equity by reducing the
performance gap between students who might be underprepared for college for a
variety of reasons, thus decreasing the achievement gap and improving the higher
education outcome of students who are first generation, minorities, low-income, or
remedial.

II.   *Theory*: Geometric Model of Student Persistence and Achievement (Swail, 2004)
using data visualization and statistical modeling (content analysis)

   a.   *Is the theory logically consistent?* Yes – identifies risk factors associated with
retention and matriculation including the key demographic factors identified by Yue
et al. in their study

   b.   *What assumptions does the theory make about human nature? About organizations?
How tenable are those assumptions?* Assumes that higher education organizations

want to not only improve retention and matriculation rates but actually help students from a variety of backgrounds persist and succeed. Generally, institutions (particularly smaller private institutions or those who serve diverse populations) are cognizant of the academic disparity and different levels of preparedness, want to know potential causes of academic failures/challenges, and want to improve for the wellbeing of the students and the institution

c. *Is the theory compelling? Do you buy it? Explain.* Yes – people who work in higher education tend to care about success, academics, and retention rates, want to know the potential cause of student concerns/challenges, and seek out solutions

d. *Is the paper well integrated into the literature? Which literature? Explain.* Yue et al. are proposing a slightly modified SI model that identifies students who might be challenged rather than courses that might be challenging. Because of this, the paper isn't necessarily integrated into too many other SI studies at this point, but is still cited in 30+ papers.

e. *What is the basic formulation of the theory (independent variables, dependent variables, and relationship between them).* Dependent variable – SI course grades. Independent variables – total number of SI visits, student "disadvantaged status" which includes underrepresented/minority, first generation, Pell eligibility, remedial status (Yue et al., 2018, p. 20). Examining how independent variables impact dependent variable and to what extent.

III. *Research Design (for empirical papers)*

a. *What is the design? (e.g., experimental, qualitative)*: Data visualization and statistical modeling (content analysis)

b. *What is the sample? Is it appropriate?* Sample consists of 16, 297 undergraduate students enrolled in 22 courses with SI support. The SI courses cover multiple subjects and disciplines, with a majority being introductory level STEM courses. However, there are also some upper level courses represented as well as non-STEM courses. Demographic information was gathered, particularly surrounding the "disadvantaged status." 66.2% identified as underrepresented/minority, 66.8% identified as first-gen, 60.6% were Pell eligible, and 51.5% needed remedial courses

when they first started college. Strong representation of various factors impacting college success.

    c. *How well is the data analyzed? Is the data interpretation adequate?* Data is analyzed extremely well with visualization and modeling explained in relation to the model proposed by Swail (2004) and tables outlining specific factors and overall claims

    d. *What are your overall conclusions about the design of the study?* The study takes an interesting approach to analyzing the success/impact of SI courses on a population of students that would benefit most from additional support

IV.   *Results (for empirical papers)*

    a. *What were the results?* Academic performance improved with increased SI visits and the change in academic performance was larger for students who were coded as "more" disadvantaged (coded by demographic information). Attendance also had an impact on performance improvement and those who attended regularly had a better chance of closing the performance gap.

    b. *Were they credible?* Yes – findings were supported by data and analysis and then connected to implications and recommendations

V.

    a. *What are the strengths and weaknesses of this work?* Strengths: large sample size, cohesive research questions, analyzing SI from an often underrepresented population (especially within SI research), suggests important areas for the research to continue beyond the institution and SI. Weaknesses: SI studies are difficult because of self-selection (students who would naturally do better in courses will probably attend SI sessions because they are told to do so – potentially skews results but difficult to control), "disadvantaged status" does not necessarily consider mental or physical illness or disability and also cannot account for unexpected emergency situations that might occur during the semester – could potentially skew results as well

    b. *At the time the study was published, did the results add to our knowledge of the topic?* Clarified potential areas for additional student support models and highlighted an area for SI application growth

c. *What are the theoretical and practical implications of this work?* Identifies a common group of challenges that incoming students might face and the manner in which colleges can attempt to support them through SI. Provides an example of data modeling to determine the success of particular support programs.

d. *What is a question that can help your peers extend this work/procedure/method into their own?* Is there a population that would benefit most from the study you are developing? What is a potential solution that would have the most impact on a vulnerable or underrepresented population within your field?