Social Networks in Science: The effects of peer-to-peer social interactions on academic success in a genetics course

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Background

Even though there are a growing number of opportunities to engage in the STEM field on a professional level, there are very few individuals equipped with the knowledge necessary to fill these spots. Many students often fail to complete STEM majors in college, and according to a study published in the Chronicle for Higher Education this was due in large part by “poor teaching”. Yet, it is unclear how successful students navigate these difficult learning environments. A growing number of studies are beginning to identify the ways in which students navigate difficult learning environments. Social networks are an important determinant of access to academic resources and student success (Center for Higher Education Policy Analysis).

Central Aim

Determine whether social interactions between college aged students both in-person or online correlate with academic performance in STEM courses

Methods

Population
Principles of Genetics (n=79)
Study Intervention
Google Forms Survey [15 Questions]

Data Analysis
Microsoft Excel

Study Summary
Distribute Surveys
Collect Course Grades

Population

Data Analysis

Methods

Figure 1. Number of students in study group.
Students were asked: “How many people do you study with?”. Overall, students study alone. Letter grades in the legend represent final grade received in the course.

Figure 2. Strategy used to identify the members of the study group. Students were asked: “How did you identify the member(s) of your study group?”. Letter grades in the legend represent final grade received in the course.

Figure 3. Strategy used to identify resources to help with challenging course material. Students were asked to respond to the following: “When challenged with difficult course material, I am more likely to...”. Letter grades in the legend represent final grade received in the course.

Results

Academic Performance: General Social Strategies

Academic Performance: Social Media

I) Types of social media outlets used based on final grade
   a) YouTube
      - A 29.17%
      - B 50.00%
      - C 20.83%
      - D 12.50%
   b) Khan Academy
      - A 20.83%
      - B 50.00%
      - C 29.17%
      - D 10.00%
   c) Facebook
      - A 50.00%
      - B 50.00%
      - C 0.00%
      - D 0.00%
   d) Blackboard
      - A 50.00%
      - B 50.00%
      - C 0.00%
      - D 0.00%

II) Top 3 most commonly used social media apps and final grade breakdown for each app
   a) YouTube
      - Grade A
      - Grade B
      - Grade C
      - Grade D
   b) Khan Academy
      - Grade A
      - Grade B
      - Grade C
      - Grade D
   c) Facebook
      - Grade A
      - Grade B
      - Grade C
      - Grade D
   d) Blackboard
      - Grade A
      - Grade B
      - Grade C
      - Grade D

Future Directions

- investigate how parents and older siblings influence academic performance
- Understand how access to resources influence academic performance
- Assess how timing (i.e: when students access resources) influences academic performance

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