What role do individual differences play in attrition for high school students in a STEM Curriculum?

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Demand

The demand for STEM graduates has increased, but the number of students completing STEM courses has declined over the past years.

Stayers

Research Variables as predictors of attrition

- Students who are passionate about STEM
- Students who are competitive would be more successful in STEM
- A student who is disciplined would be more successful in STEM
- Someone who is confident would be more successful in STEM
- Someone who is motivated

Leavers

Research Variables as predictors of attrition

- Students who are unpassionate about STEM
- Students who are not competitive
- A student who is less disciplined
- Someone who is less confident would be less successful in STEM
- Someone who is not motivated

Purpose of the Proposed Study

The proposed study will utilize a variety of individual difference measures related to perceptions of ability and performance, motivation, and identity as predictors of which high school students would change from the initially enrolled curriculum within the first year.

Research Design

The research design will use SPSS on students divided into two groups, “per sisters” who remained in the STEM curriculum during the entire four years and “leavers” who did not complete the STEM curriculum.

An analysis of covariance (ANCOVA) will be conducted using groups as a between subject variable to identify differences on continuous variables.

These results will contribute to the discussion of individual differences and persistence as how it correlates with attrition in STEM curriculums.

Literature Review

- Examination of Factors that Predict Academic Adjustment and Success of Community College Transfer Students in STEM at 4-Year Institutions.

Authors: Lopez, Carlos; Jones, Stephanie J. (2018)

- Which Cognitive Abilities Make the Difference? Predicting Academic Achievements in Advanced STEM Studies.

Authors: Berkowitz, Michal; Stern, Elsbeth (2013)

- Predicting high school students' interest in majoring in a STEM field: Insight into high school students' postsecondary plans.

Authors: Lichtenberger, E., & George-Jackson, C. (2017)

- A single-item measure for assessing STEM identity.

Authors: McDonald, M. M., Zeigler-Hill, V., Vrabel, J. K., & Escobar, M. (2019)

Questions?