Direct and Indirect Effects of Engagement on Grades

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NSSE national survey of student engagement

Abstract

Grades are perhaps the best predictor of a attaining a college diploma. Using NSSE data from nearly 20,000 first-year and senior students in 2012 and matched year-end grades from 42 participating institutions, the authors tested path models to determine the direct and indirect effects of student background, engagement, and campus environment on end of year grades. Total effects on GPA show that time spent studying, the use of learning strategies, and courses where faculty used effective teaching strategies had positive overall effects on grades. Coursework involving quantitative reasoning had a negative effect, probably due to the added rigor of STEM courses.

Background

At most institutions grades are the key to graduation and graduate/professional school admission, and many employers consider grades an important indicator of competency in hiring decisions.[a] Moreover, grades at the end of the first year of college are strongly related to student persistence and often believed to be the most important factor in the decision to drop out of college.[b]

However, many students struggle academically to attain the needed credential for a successful career. Though studies have investigated the factors associated with college GPA, results have been inconsistent and at times contradictory. This study provides additional clarity to the questions regarding the effects of student engagement on GPA

Method

Data and Sample

NSSE 2012 pilot data

Using data from a pilot study for the updated version of NSSE in 2012, the authors tested path models to determine the interrelationships among student background variables (SAT/ACT, gender, parent's education, and STEM majors), engagement measures (time devoted to studying, learning strategies, quantitative reasoning, and relationships with faculty), environment measures (institutional emphasis on scholarly work), and also a measure related to poorer academic performance—time spent relaxing and socializing.

The data included nearly 20,000 first- year students and seniors from 42 institutions who participated in the pilot study. The institutions supplied the year-end grades to the researchers in the fall after survey data were collected.
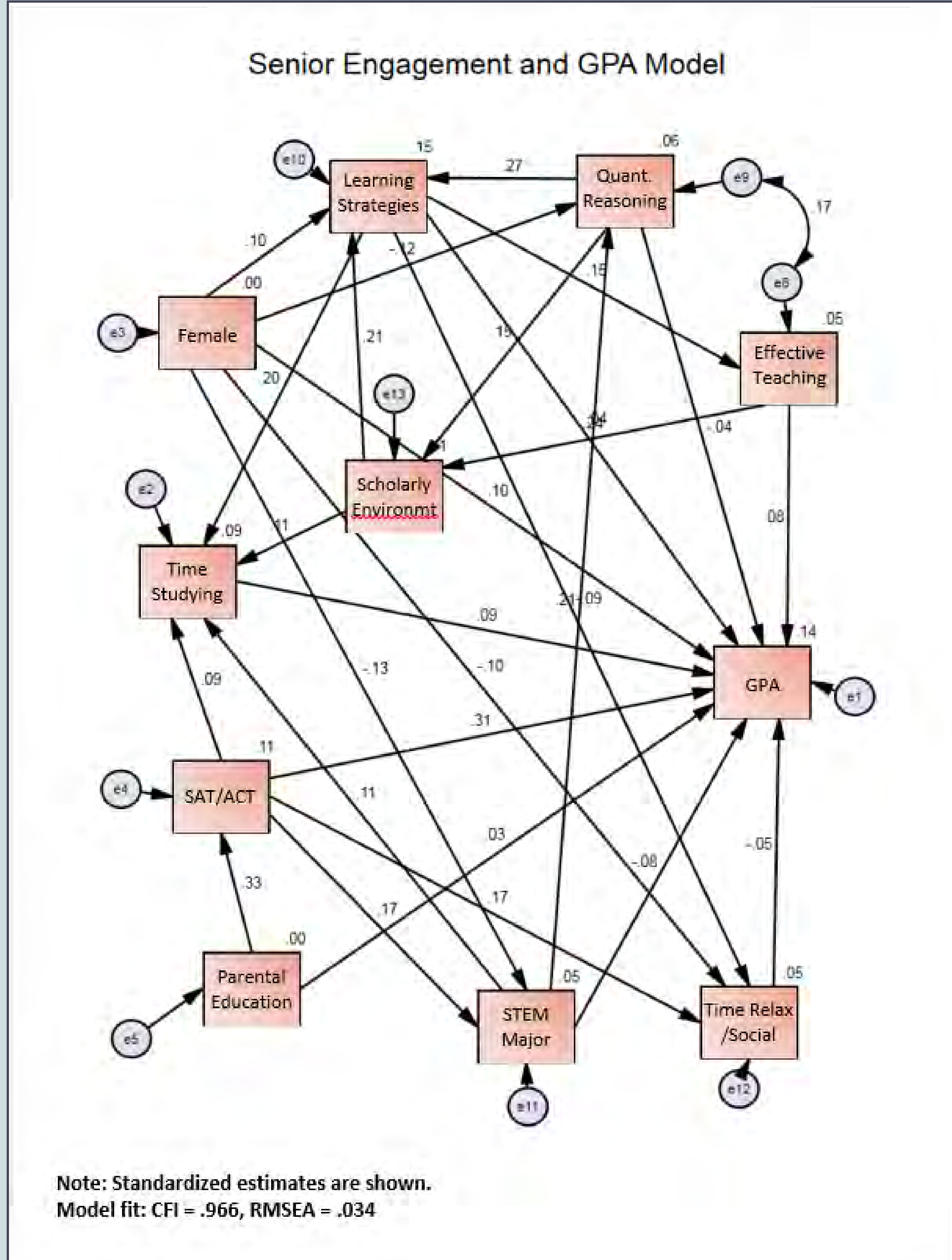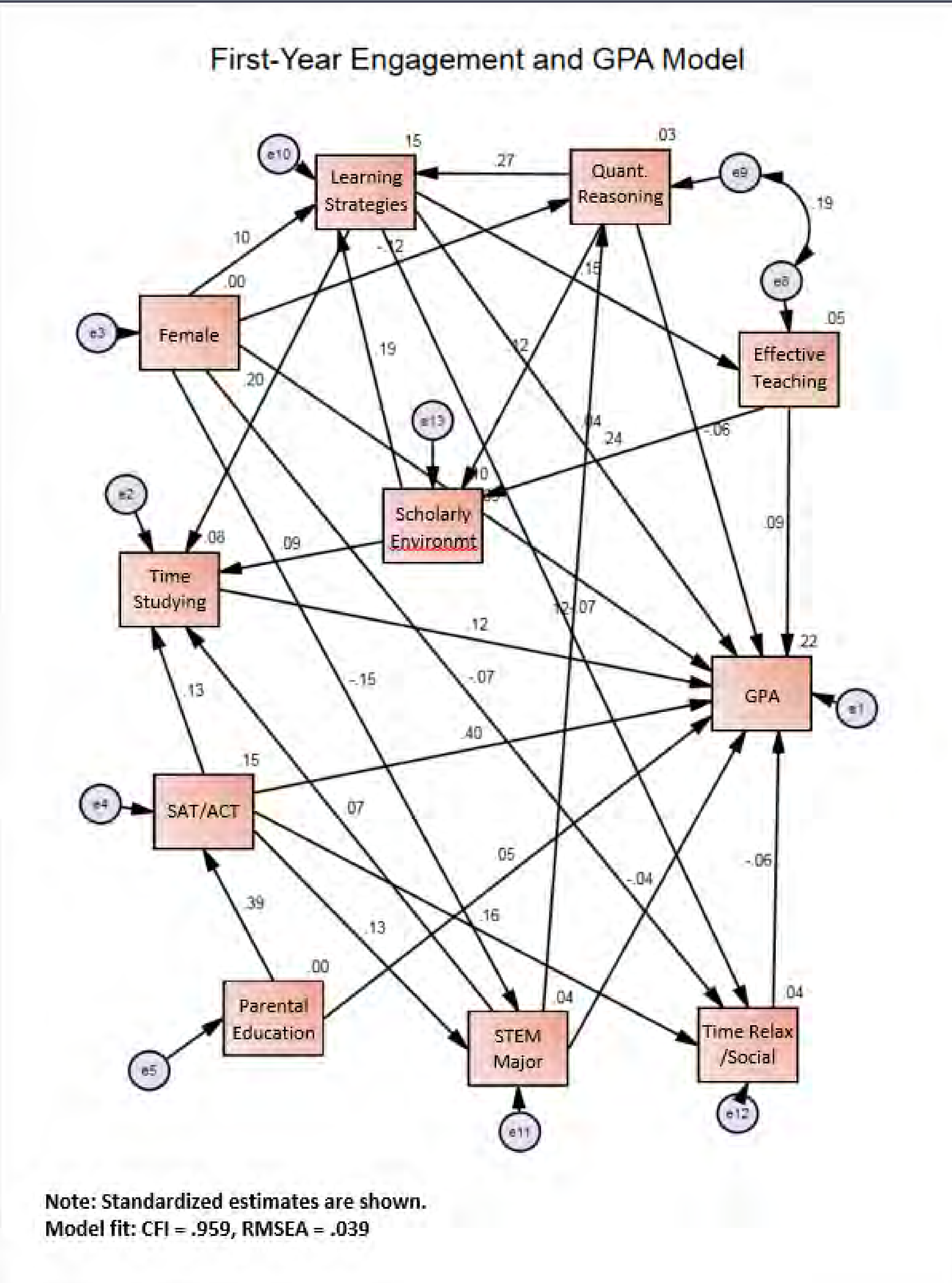
Analysis

Path analysis

Path analysis models were fit for first-year students and seniors separately, using SPSS AMOS. The models showed excellent fit statistics. The first-year model produced a CFI of .959 and RMSEA of .039, and the senior model stats were .966 and .034 respectively. The squared multiple correlations for GPA were .22 for first-year model and .14 for the senior model.

References

a. Baird, L. L. (1985). Do grades and tests predict adult accomplishment? *Research in Higher Education, 23*(1), 3-85; Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students. Findings and Insights from Twenty Years of Research.* San Francisco: Jossey-Bass.

b. Tinto, V. (2007). *Taking student retention seriously.* Syracuse University.

Main Findings

1. For both models, learning strategies and time spent studying had direct, positive effects on GPA

2. Engaging in quantitative reasoning had a small negative effect, probably due to the greater challenge in achieving higher grades in STEM courses

3. Student GPA's increased when they were exposed to effective teaching strategies in both models

First-Year Engagement and GPA Model

Note: Standardized estimates are shown.
Model fit: CFI = .959, RMSEA = .039

Senior Engagement and GPA Model

Note: Standardized estimates are shown.
Model fit: CFI = .966, RMSEA = .034

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