Predicting long-term success in college

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(Phys.org) —Long-term success in college may be better predicted with Advanced Placement (AP) exams and personality traits in combination with standard admission practices, according to new research from the Georgia Institute of Technology and Rice University.

The study showed that prediction of student graduation may be significantly improved by including in the college admission process consideration of AP exam performance and a small set of personality traits, along with traditional indicators of student abilities and high school grades.

The research also revealed that, on average, males and females who changed their college major from a field in science, technology, engineering or math (STEM) identified different reasons for doing so. Women who changed from a STEM major tended to have lower "self-concepts" in math and science—they were less likely to view themselves in these fields. Men tended to have lower levels of orientation toward "mastery and organization."

"There has been significant discussion in the domains of educational research and public policy about the difficulties in both attracting and retaining students in STEM majors," said Margaret Beier, associate professor of psychology at Rice and the study's co-author. "We're very interested to know how the role of personality traits and domain knowledge influences the selection and retention of talented students and accounts for gender differences in STEM and non-STEM majors in a selective undergraduate institution."

Phillip Ackerman, a professor of psychology at the Georgia Institute of Technology and the study's lead author, said that they also hope university admissions officers consider taking into account what applicants "know," in addition to their grades and standardized test scores.

"Given that over half of the AP exams are completed prior to the students' senior year of high school, their actual exam scores could be part of the formal selection process and assist in identifying students most likely to graduate from college/university," Ackerman said.

The study tracked individual trait measures (such as personality, self-concept and motivation) of 589 undergraduate students at the Georgia Institute of Technology from 2000 to 2008. The selected students were enrolled in Psychology 1000, a one-credit elective course for freshmen undergraduate students. Questionnaires assessing these trait measures were distributed to approximately 1,100 of the 1,196 students enrolled in the course in fall 2000, and 589 students completed the survey.

The researchers hope their research will help students, counselors and other stakeholders better match high school elective options to student interests and personal characteristics. They also hope that university admissions officers consider taking into account what applicants "know" (for example, what they learned in their high school elective classes), in addition to their grades and standardized test scores.

Ruth Kanfer, a professor of psychology at the Georgia Institute of Technology, co-authored the study with Ackerman and Beier.

The study, "Trait Complex, Cognitive Ability and Domain Knowledge Predictors of Baccalaureate Success, STEM Persistence and Gender Differences," was funded by the Georgia Institute of Technology and is available online at psycnet.apa.org/psycinfo/2013-14499-001