

The Influence of Students' pre-College Characteristics, High School Experiences, and Expectations about College on Persistence and Degree Attainment

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GARY R. PIKE
EXECUTIVE DIRECTOR
INFORMATION MANAGEMENT AND INSTITUTIONAL RESEARCH
PIKEG@IUPUI.EDU

MICHELE J HANSEN
EXECUTIVE DIRECTOR
RESEARCH, PLANNING, & EVALUATION, UNIVERSITY COLLEGE
MJHANSEN@IUPUI.EDU

JANICE E. CHILDRESS
DATA ADMINISTRATOR
RESEARCH, PLANNING, & EVALUATION, UNIVERSITY COLLEGE
JCHILDRE@IUPUI.EDU

INDIANA UNIVERSITY PURDUE UNIVERSITY INDIANAPOLIS (IUPUI)

Purpose of Present Study



- Examine the extent to which pre-college characteristics, high school experiences, and expectations about college were related to persistence and graduation.
- Determine if pre-matriculation data can be used to identify at-risk students, identify risk factors, and provide institution-specific benchmarks for evaluating efforts to improve persistence and degree attainment.

Background



- Improving educational attainment in the US has become a major policy initiative.
- President Obama set a goal that by 2020 the United States will have a higher proportion of adults with college degrees than any other country in the world.

Background



- Increasing degree attainment to the level required will necessitate increasing the number of high school graduates who attend college and substantially improving college completion rates (Hauptman, 2011)
- Research demonstrated that models of student success based on pre-matriculation measures can be used to identify at-risk students, identify risk factors, and assess the effectiveness of efforts to improve persistence and degree attainment (Astin & Oseguera, 2007; DeAngelo et al., 2011).
- Previous research based on CIRP Freshman Survey, and utilized a national dataset.

Data Sources



The Data Sources



- Previous research has identified three clusters of pre-matriculation variables that are related to student success: (1) pre-college characteristics, (2) high school experiences, and (3) expectations about college and initial enrollment characteristics.
- Present research required the creation of a data file that included institutional data and survey specific information collected prior to enrollment.
- Participants' admission applications, *ACT Compass* survey responses, and institutional records.

ACT-COMPASS Entering Student Survey



- Administered during math placement testing.
- Entering Student Survey Designed to Collect Information on the Following:
 - Academic Goals
 - Expectations (e.g., various types of help students might need in college such as financial aid, writing skills, math skills, etc.)
 - High School Experiences
 - Expected Academic and Non-Academic Time Commitments
 - Intentions to Transfer

The Participants



- 4006 baccalaureate degree seeking students who first enrolled at IUPUI in either the Fall 2004 or Fall 2005 and completed the *ACT Compass* survey.
- Students in the IUPUI honors program were not included in the study because they did not complete the survey.

Outcome Measures



- **Four dichotomous outcome measures:**
 1. One-year persistence indicating whether or not a student was enrolled the Fall semester after they began matriculating.
 2. Whether students had graduated in four years or less.
 3. Whether students had graduated in five years or less.
 4. Whether students had graduated in six years or less.

Methods and Results



Research Question



- *To what extent are measures of students' pre-college characteristics, high school experiences, initial college enrollments, and expectations about college related to persistence to the second year and degree attainment in four, five, and six years?*

Data Analyses



- Logistic regression was used to identify relationships between outcomes and students' pre-college characteristics, high school experiences, initial enrollment characteristics, and expectations about college.

Missing Data Concern



- More than three-in-ten students had missing data on one or more variables.
 - Listwise deletion is the most conservative approach, but it involves sacrificing all data from any student with missing data.
 - Other approaches avoid the loss of data, but produce biased standard errors for the effect parameters.
 - With other approaches the standard errors for the effect parameters will be too small and can increase the likelihood of Type I error.

Multiple Imputation



- Multiple imputation (Stata12) was used to estimate missing data.
 - Multivariate normal (MVN) multiple imputation procedures were used because they have been shown to be robust to departures from normality for individual variables.
 - 30 imputations were conducted to ensure efficient estimation of logistic regression estimates.
 - Monte Carlo error estimates were calculated to assess the reproducibility of the logistic regression results.

Results: Student Pre-college Characteristics



- Entering Ability (SAT/ACT Score)
 - Positively related to all four outcome measures.
- First-Generation Status
 - Negatively related to all of the outcome measures, except graduating in four years or less.
- Being a Non-Traditional Age Student
 - Not significantly related to persistence or four-year degree attainment, but negatively related to degree attainment in five or six years.

Results: High School Experiences



- High School Academic Intensity
 - Positively related to persistence to the second year of college, as well as graduation in four or five years.
- Class Percentile Rank
 - Positively related to all four outcome measures.
- Understood and Completed Assignments
 - Positively related to all four outcome measures.

Results: Students' College Expectations



- Students' Estimates of the Hours they Expected to Devote to Non-Academic Activities (Work, Spending Time with Family, Volunteering, Socializing)
 - Negatively related to all four measures of persistence and degree attainment.

Results: Initial Enrollment Variables



- Enrolled Full-Time During First Semester
 - Positively related to all four outcome measures.
- Summer Bridge Program
 - Positively related to all of the outcome measures, except four-year degree attainment.
- First-Year Seminar or Learning Community
 - Positively related to all of the outcome measures, except four-year degree attainment.

Implications



Identifying Risk Factors



- Possible to identify students who are at risk of not being successful, even before they come to college.
- Important to conduct institution-specific research on student success.
- Factors related to student success are influenced to some extent by the types of students attending an institution, as well as by the institutional context.

The Educational Context and Improving Student Success



- Orient first-generation students and parents to the demands of college.
- Provide additional need-based aid, work study opportunities, and other forms of on-campus employment.
- Build strong relationships “feeder” high schools.
- Work with prospective students at an early age so students will follow a rigorous curriculum, be actively engaged, and excel academically in high school.

Innovative Programs



- Implement innovative programs that address the needs of all students, particularly students with risk-factors.
- Consider summer bridge programs to enhance enhance readiness, expose students to college expectations, and increase academic/social integration.
- Consider first-year seminars or learning communities as early intervention strategies.

Conclusions



- Improving college student success requires attention to what happens to students before they come to college.
- Achieving goals will require colleges and universities to be more accessible and more effective in educating and credentialing students.
- Improving persistence and degree attainment will require conducting rigorous outcome studies to determine what programs/interventions are effective.
- College completions must not come at the expense of student learning.

Questions and Discussion

