Major Commitment as a Predictor of Student Success

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Choosing a Major

• An estimated 20% to 50% of students enter college as “undecided”

• 75% of students change their major at least once before graduation (Gordon & Steele, 2015).

• Approximately one-third of students enter TTU as “undeclared” (TTU Institutional Research, 2015),

• It is unknown how many students change majors at Texas Tech University.
Conflicting Research

• A commonly held assumption in higher education is that students who are undecided or indecisive about a college major are at greater risk for attrition than students with a declared major (Education Advisory Board, 2012).

• However, studies have also shown major-changers have higher graduation rates than students who have not changed majors (Cuseo, 2005).

• “More research is needed to help identify who the major-changers are” (Gordon, 2007, p. 95).
Persistence

• Colleges and universities consistently experience a first to second year persistence rate of only 80% (National Center for Education Statistics, 2015).

• At Texas Tech University, the first-year retention rate has remained somewhat steady from 80-83% for the last 10 years (Texas Tech Institutional Research, 2015).

• While the institutional average is above that of the national average, the university has a Strategic Goal (Priority One) to increase student retention to 85% by the year 2020 (Texas Tech University, 2010).
Significance of the Study

• Student retention is a means of **evaluating institutional performance** (Green, 2002; Metz, 2004).

• Many states, including **Texas**, now use some measure of institutional retention and graduation rates in their funding formulas (Texas Higher Education Coordinating Board, 2012).

• Even the **Federal government** is considering using institutional retention rates in a national system of higher educational accountability (Education Advisory Board, 2012).
Purpose and Objectives

The purpose of this study was to increase understanding of students’ academic major commitment and persistence at Texas Tech University. This research examined the relationship between academic major commitment and persistence through the following objectives:

1. Determine if any statistically significant relationships exist among a student’s academic major commitment and first-year persistence
2. Identify how well pre-entry attributes, major commitment and academic achievement factors combine to predict first-year persistence.
Longitudinal Model of Institutional Departure (Tinto, 2012b)
Context of the Study

Texas Tech University

• Large, public, four-year comprehensive research university
• 150 undergraduate degree programs
• 11 academic colleges
## Participants

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attended Two-Day RRO (Accessible Population)</td>
<td>5,863</td>
</tr>
<tr>
<td>Invalid E-mail Addresses</td>
<td>96</td>
</tr>
<tr>
<td>Responses</td>
<td>1,014</td>
</tr>
<tr>
<td>Submitted Forms</td>
<td>1,001</td>
</tr>
<tr>
<td>Opted Out</td>
<td>13</td>
</tr>
<tr>
<td>Consenters</td>
<td>818</td>
</tr>
<tr>
<td>Excluded Transfers</td>
<td>63</td>
</tr>
<tr>
<td>Study Participants</td>
<td>755</td>
</tr>
</tbody>
</table>
Data Set

• Data assembled after the census date (12\textsuperscript{th} class day) of Fall 2015
• List of consenting participants given to university officials
• De-identified data was returned in a single excel file
Data Analysis

• Descriptive statistics
• Correlation coefficients
• Chi-square and ANOVA
• Logistic regression
Persistence

First-Year Persistence

Yes: 645 (85.4%)
No: 110 (14.6%)

Objective One Results and Discussion
Persistence and Major Changes

Number of Major Changes

- **None**
  - Persisters: 331
  - Non-Persisters: 83
  - Percentage: 54.8%

- **One**
  - Persisters: 270
  - Non-Persisters: 26
  - Percentage: 39.3%

- **Two or more**
  - Persisters: 1
  - Non-Persisters: 44
  - Percentage: 6.0%

Objective One Results and Discussion
## Stepwise Logistic Regression

### Statistically Significant Models that Predict First-Year Persistence

<table>
<thead>
<tr>
<th>Model</th>
<th>Predictors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>Cumulative GPA</td>
</tr>
<tr>
<td>Model 2</td>
<td>Cumulative GPA, Attempted Hours</td>
</tr>
<tr>
<td>Model 3</td>
<td>Number of Changes, Cumulative GPA, Attempted Hours</td>
</tr>
<tr>
<td>Model 4</td>
<td>Transfer Hours, Number of Changes, Cumulative GPA, Attempted Hours</td>
</tr>
<tr>
<td>Model 5</td>
<td>Transfer Hours, Number of Changes, Cumulative GPA, Attempted Hours, Earned Hours</td>
</tr>
</tbody>
</table>
Predicting Persistence

### Statistical Significance and Variance Explained by Stepwise Logistic Regression Models Predicting First-Year Persistence

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>$p$</th>
<th>-2 LL</th>
<th>Nagelkerke $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>138.541</td>
<td>.00*</td>
<td>440.094</td>
<td>31.6%</td>
</tr>
<tr>
<td>Model 2</td>
<td>191.022</td>
<td>.00*</td>
<td>387.612</td>
<td>42.1%</td>
</tr>
<tr>
<td>Model 3</td>
<td>206.540</td>
<td>.00*</td>
<td>372.095</td>
<td>45.1%</td>
</tr>
<tr>
<td>Model 4</td>
<td>214.48</td>
<td>.00*</td>
<td>364.587</td>
<td>46.5%</td>
</tr>
<tr>
<td>Model 5</td>
<td>222.519</td>
<td>.00*</td>
<td>356.116</td>
<td>48.0%</td>
</tr>
</tbody>
</table>

* $p < .05$
## Final Model

### Percent Classification Accuracy

<table>
<thead>
<tr>
<th>Observed</th>
<th>Non-Persister</th>
<th>Persister</th>
<th>% Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Persisters</td>
<td>46</td>
<td>53</td>
<td>46.5</td>
</tr>
<tr>
<td>Persisters</td>
<td>13</td>
<td>615</td>
<td>97.9</td>
</tr>
<tr>
<td>Overall</td>
<td>13</td>
<td>615</td>
<td>90.9</td>
</tr>
<tr>
<td>Constant Only</td>
<td>86.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Final Model

### Logistic Regression Predicting the Likelihood of Persistence

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>p</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer Hours</td>
<td>.042</td>
<td>.015</td>
<td>7.718</td>
<td>.01*</td>
<td>1.043</td>
</tr>
<tr>
<td>Number of Changes</td>
<td>.817</td>
<td>.263</td>
<td>9.625</td>
<td>.00*</td>
<td>2.264</td>
</tr>
<tr>
<td>Cumulative GPA</td>
<td>.627</td>
<td>.203</td>
<td>9.541</td>
<td>.00*</td>
<td>1.872</td>
</tr>
<tr>
<td>Attempted Hours</td>
<td>.003</td>
<td>.001</td>
<td>15.313</td>
<td>.00*</td>
<td>1.003</td>
</tr>
<tr>
<td>Earned Hours</td>
<td>.066</td>
<td>.025</td>
<td>7.114</td>
<td>.01*</td>
<td>1.068</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.586</td>
<td>.613</td>
<td>55.951</td>
<td>.00*</td>
<td>.010</td>
</tr>
</tbody>
</table>

*Note: * indicates statistical significance at the 0.05 level.
Implications for Practice

• This research shows that the group of students who changed majors were not more “at-risk” than their peers who remained in their first declared major.

• Cuseo (2005) states that it is unfortunate there is a perception that undecided students are more attrition-prone.

• Some institutions treat major changing as a deficiency in student development rather than as an expected part of the complex process of personal growth” (Tinto, 2012).

• A shift in the major change culture is warranted. Practitioners should encourage, not discourage, exploratory choices and major changing.
Implications for Practice

• Because so many students in this study changed majors during their first year, practitioners should promote career exploration and early academic planning early in their academic careers.
Recommendations for Research

• Much of the prior published research on student persistence has focused on the first year of college.

• The results of this study are a snapshot of one point in time for the participants and does not capture the longitudinal effects and influences.

• A longitudinal, quantitative and qualitative study is recommended to build on the present study.
Recommendations for Research

• This study focused on student persistence for first-time freshman, since the first year has been proven to be a critical time (Tinto 2012b).

• However, community colleges have become an important and increasingly popular entry point for postsecondary education in Texas (Texas Higher Education Coordinating Board, 2010).

• Continued research should focus on the persistence of transfer students at the university level.
Recommendations for Research

• Future researchers are encouraged to replicate this study with a multiple institution sample.

• This would give a more accurate picture of student persistence, as opposed to the institutional retention rates.

• In addition, obtaining a larger sample size would allow researchers to isolate analysis of one academic college or particular major.
Recommendations for Research

• As the literature has shown, students change majors for a variety of reasons.

• It would be beneficial to explore the motivating factors that influence students changed their major or for researchers to delve into student’s decision making process when selecting an academic major.