High School GPA and ACT Scores as Predictors of ‘On-Time’ Graduation

Donald M. Johnson, University of Arkansas
Catherine W. Shoulders, University of Arkansas
Leslie D. Edgar, University of Georgia
Background

Graduation Rates, 2006 and 2010 Cohorts

USDE, 2018
Objectives

• Describe composite ACT (CACT), high school GPA (HSGPA), and four-year graduation trends for FTFSF entering AFLS from 1998 to 2012;
• Determine the extent to which year of entry and student pre-entry characteristics (HSGPA and CACT) can predict four-year graduation for FTFSF entering AFLS from 1998 to 2012.
Methods

• Population: All FTFSF entering AFLS from fall 1998 to fall 2012 (N = 2755)
• IRB approval; data obtained from Office of Institutional Research
• SAS 9.4 – Descriptive statistics and logistic regression
  • Graduates vs. non-graduates
    • HSGPA and CACT converted to z scores
Results
Four-Year Graduation Rates, 1998 – 2012 Cohorts

Mean Four-Year Graduation Rate = 43.1%
Mean CACT Score and HSGPA, 1998-2012 and Overall

CACT

\[ y = 0.0586x + 24.065 \]

\[ R^2 = 0.1781 \]

HSGPA

\[ y = 7E-05x + 3.5268 \]

\[ R^2 = 2E-05 \]

\[ M = 24.49, SD = 3.67 \]

\[ M = 3.53, SD = 0.44 \]
Logistic Regression Results

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>( B ) (SE)</th>
<th>( \chi^2 )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1</td>
<td>-0.86 (0.10)</td>
<td>79.51</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>HSGPA</td>
<td>1</td>
<td>0.78 (0.06)</td>
<td>172.52</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>CACT</td>
<td>1</td>
<td>0.11 (0.05)</td>
<td>4.57</td>
<td>.032</td>
</tr>
<tr>
<td>Year</td>
<td>1</td>
<td>0.06 (0.01)</td>
<td>39.96</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Wald \( \chi^2 \) (3) = 319.62, \( p < .001 \);

Association of Predicted and Actual Outcome
- Concordant pairs = 71.1%
- Discordant pairs = 28.6%
- Tied pairs = 0.3%

(Total pairs = 1534 non-grads x 1193 grads = 1,830,062)
Conclusions and Recommendations

• The relative odds of FTFSF graduating in four years increased by:
  • 118% for each SD (0.44) increase in HSGPA
  • 12% for each SD (3.67) increase in CACT
  • 6% for each subsequent year of entry

Recruit high-GPA freshmen

Use results to identify and provide services to lower-HSGPA students

Focus more on HSGPA and less on CACT

Incremental improvement is occurring
Conclusions and Recommendations

• Pre-entry academic variables produced relatively robust prediction of four-year graduation for FTFSF in AFLS

Further research is needed to identify additional predictors of four-year graduation
Thank You!