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Do "Early Alert" Programs Work? (An Empirical Study of College Algebra Students)

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Do Early Alert Programs Work?

An Empirical Study of College Algebra Students

Presenter
Dr. T David Reese
College of Coastal Georgia
Our Agenda

• Motivation for this study
• Background
• Research Question
• Methodology
• Major Findings
• Discussion
Motivations for this Study

• Concerns regarding retention

• Disproportionate impact of College Algebra on students’ academic progress

• Likelihood of more budget constraints
Motivations (cont’d)

Concerns regarding retention!!!

• Board of Regents of the University System of Georgia (BOR) has given us a mandate to improve retention.
• “Improving student retention and graduation rates were top priorities included among [eleven] goal statements the Board of Regents adopted last September as part of that plan” (Board of Regents of the University System of Georgia, 2002).
• Increasingly public support is tied to institutional retention and graduation rates!
Motivations (cont’d)

Concerns regarding retention and College Algebra!!!

• Given Algebra’s gateway position in most undergraduate program, retention rates for algebra have a disproportionate impact on overall retention rates.

• Attrition rates of 40% to 60% percent are common for first time students attempting college algebra. (Smith, 2002).

“Many students identify this course as one of the toughest courses they take in their undergraduate careers.” (Reyes, 2010).
Motivations (cont’d)

Budgets Concerns!!!

• In January, NYT reports that President Obama proposes a financial aid overhaul that would tie colleges' eligibility for campus-based aid programs to the institutions' success in improving affordability for students. (Lewin, 2012).

• “In FY 2009, educational appropriations per student fell by 4 percent due to the onset of the latest recession . . . as states struggled with massive revenue shortfalls. Appropriations per student remained lower in FY 2009 (in constant dollars) than in most years since FY 1980.” (National Council of State Legislatures’ Fiscal Affairs Programs, 2010).
Motivations (cont’d)

Bottom Line!!!

• Improve Retention and Graduation Rates with fewer resources!

• How??? Make better use of the available resources
Early Alert Programs

Most institutions employ some form of early alert (e.g. mid-term grades) — (Center for Enrollment Research, Policy and Practice, 2011, pp. 8-9)

Early warning programs designed to identify students at risk of poor academic performance can be an effective tool in improving persistence and graduation rates. (Cartnal, 1999; Donnelly, 2010; Eimers, 2000; Geltner, 2001; Goonatilake, 2010; Hudson, 2006; Kelly, 1979; Richie, 2005; Rudmann, 1992; Schwartz, 2010; Smith, 2007)
Our Research Question

Would the use of an ‘early alert’ system in combination with the currently available academic support resources at our college improve the academic performance and 'pass rate' of ‘at risk’ students in college algebra?
At-Risk: A Definition

An ‘at-risk’ student:

• Is not in learning support!
• Attended a minimum of 60% of scheduled classes during the early alert period.
• Took Test # 1 and scored 65% or less.
Data Collection

- Time: Spring Semester 2010
- Course: College Algebra (eight sections)
- Treatment Group: three sections, with three different instructors
- Control Group: five sections with four different instructors
- Only one instructor had both a treatment section and a control section.
Data Collection (cont’d)

• Total Initial Enrollment: 283 students
• Instructors provided attendance records and Test # 1 scores for all students after four weeks
• ‘At-Risk’ students in both the treatment and control sections were identified after four weeks.
Data Collection (cont’d)

• At the end of the semester, Instructors / Registrar provided final grades.

• Registrar provided demographic data for all students in Experimental and Control Group (e.g. age, race, standardized test scores, etc.)
## Description Datasets

<table>
<thead>
<tr>
<th>Racial / Ethnic breakdown of students (count)</th>
<th>All</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # of Observations</td>
<td>283</td>
<td>108</td>
<td>166</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>203</td>
<td>81</td>
<td>122</td>
</tr>
<tr>
<td>Black</td>
<td>60</td>
<td>24</td>
<td>36</td>
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<tr>
<td>Latino</td>
<td>7</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Asian</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>missing</td>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
# Description Datasets

## Racial / Ethnic breakdown of students (%)

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # of Observations</td>
<td>274</td>
<td>108</td>
<td>166</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>74.1%</td>
<td>75.0%</td>
<td>73.5%</td>
</tr>
<tr>
<td>Black</td>
<td>21.9%</td>
<td>22.2%</td>
<td>21.7%</td>
</tr>
<tr>
<td>Latino</td>
<td>2.6%</td>
<td>0.0%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Asian</td>
<td>1.5%</td>
<td>2.8%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

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Description Datasets

Traditional / Non-Traditional breakdown of students
(Non-traditional students are 24 years old and older)

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # of Observations</td>
<td>283</td>
<td>114</td>
<td>169</td>
</tr>
<tr>
<td>Non-Traditional</td>
<td>32.9%</td>
<td>23.7%</td>
<td>39.1%</td>
</tr>
<tr>
<td>Traditional</td>
<td>67.1%</td>
<td>76.3%</td>
<td>60.9%</td>
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</tbody>
</table>
### Gender breakdown of students (%)

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # of Observations</td>
<td>283</td>
<td>114</td>
<td>169</td>
</tr>
<tr>
<td>Male</td>
<td>36.7%</td>
<td>38.6%</td>
<td>35.5%</td>
</tr>
<tr>
<td>Female</td>
<td>62.9%</td>
<td>60.5%</td>
<td>64.5%</td>
</tr>
</tbody>
</table>

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**Description Datasets**

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Description Datasets

“At-Risk” breakdown of students (%)

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # of Observations</td>
<td>283</td>
<td>114</td>
<td>169</td>
</tr>
<tr>
<td>At-Risk</td>
<td>20.1%</td>
<td>27.2%</td>
<td>15.4%</td>
</tr>
<tr>
<td>Not-At-Risk</td>
<td>79.9%</td>
<td>72.8%</td>
<td>84.6%</td>
</tr>
</tbody>
</table>
## Major Findings

### Mean Final Grade for ‘At-Risk’ Students

(using a 4.0 scale)

<table>
<thead>
<tr>
<th></th>
<th>Treatment</th>
<th>Control</th>
<th>Sig. (2-tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # of Observations</td>
<td>31</td>
<td>26</td>
<td>0.075</td>
</tr>
<tr>
<td>Mean</td>
<td>0.8387</td>
<td>0.4231</td>
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</tr>
<tr>
<td>Std. Deviation</td>
<td>0.96943</td>
<td>0.757533</td>
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<tr>
<td>Std. Mean Error</td>
<td>0.17411</td>
<td>0.14856</td>
<td></td>
</tr>
</tbody>
</table>

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## Major Findings

### Pass Rate for ‘At-Risk’ Students

(Percentage of ‘At-Risk’ Students earning a “C” or better)

<table>
<thead>
<tr>
<th></th>
<th>Treatment</th>
<th>Control</th>
<th>Sig. (2-tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # of Observations</td>
<td>31</td>
<td>26</td>
<td>0.337</td>
</tr>
<tr>
<td>Pass Rate</td>
<td>25.8%</td>
<td>15.4%</td>
<td></td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>0.44480</td>
<td>0.36795</td>
<td></td>
</tr>
<tr>
<td>Std. Mean Error</td>
<td>0.07989</td>
<td>0.07216</td>
<td></td>
</tr>
</tbody>
</table>

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## Major Findings

### Final Grade Distribution for students

(using Letter Grades - %)

<table>
<thead>
<tr>
<th></th>
<th>Treatment</th>
<th>Control</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations #</td>
<td>31</td>
<td>26</td>
<td>57</td>
</tr>
<tr>
<td>“Bs”</td>
<td>6.5%</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>“Cs”</td>
<td>19.4%</td>
<td>15.4%</td>
<td></td>
</tr>
<tr>
<td>“Ds”</td>
<td>25.8%</td>
<td>11.5%</td>
<td></td>
</tr>
<tr>
<td>“Fs”</td>
<td>41.9%</td>
<td>46.2%</td>
<td></td>
</tr>
<tr>
<td>“Ws”</td>
<td>6.5%</td>
<td>26.9%</td>
<td></td>
</tr>
</tbody>
</table>
Our Findings

Our Research Question:
Would the use of an ‘early alert’ system in combination with the currently available academic support resources at our college improve the academic performance and 'pass rate' of ‘at risk’ students in college algebra?

Answer: YES, a modest difference.
Acknowledgements

• Elizabeth Rackley DeSalvo, Research Assistant

• ‘Early Alert’ Sub-committee members
  – Dr. Karen Hambright, Dean, School of Arts, Humanities and Social Studies
  – Ms. Stacy Howe, Coordinator of Academic Advising, The University Center
  – Ms. Lisa Lesseig, Registrar
  – Ms. Ricky Weaver, Assistant Professor of English and Learning Support Coordinator
Questions / Comments???
Dive in!!!
Professional Biography
Dr. T. David Reese

• T. David Reese is an Assistant Professor of Finance & Economics in the School of Business & Public Affairs at the College of Coastal Georgia, one thirty-five institutions that comprise the University System of Georgia.

• “Dr. T.” David Reese also serves as a Consultant to governmental agencies and for-profit and non-profit organizations on matters related to Economic Development, Community Development and Business Development.

• Dr. Reese earned his undergraduate degree at Dartmouth College and his master’s degree and doctorate at Southern New Hampshire University. Dr. Reese engages in research in three areas: Small Business Finance, African-American Entrepreneurship and Community Development Financial Institutions (CDFIs).
References


References


References (cont’d)


References (cont’d)


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