



Analyzing changes in retention and graduation

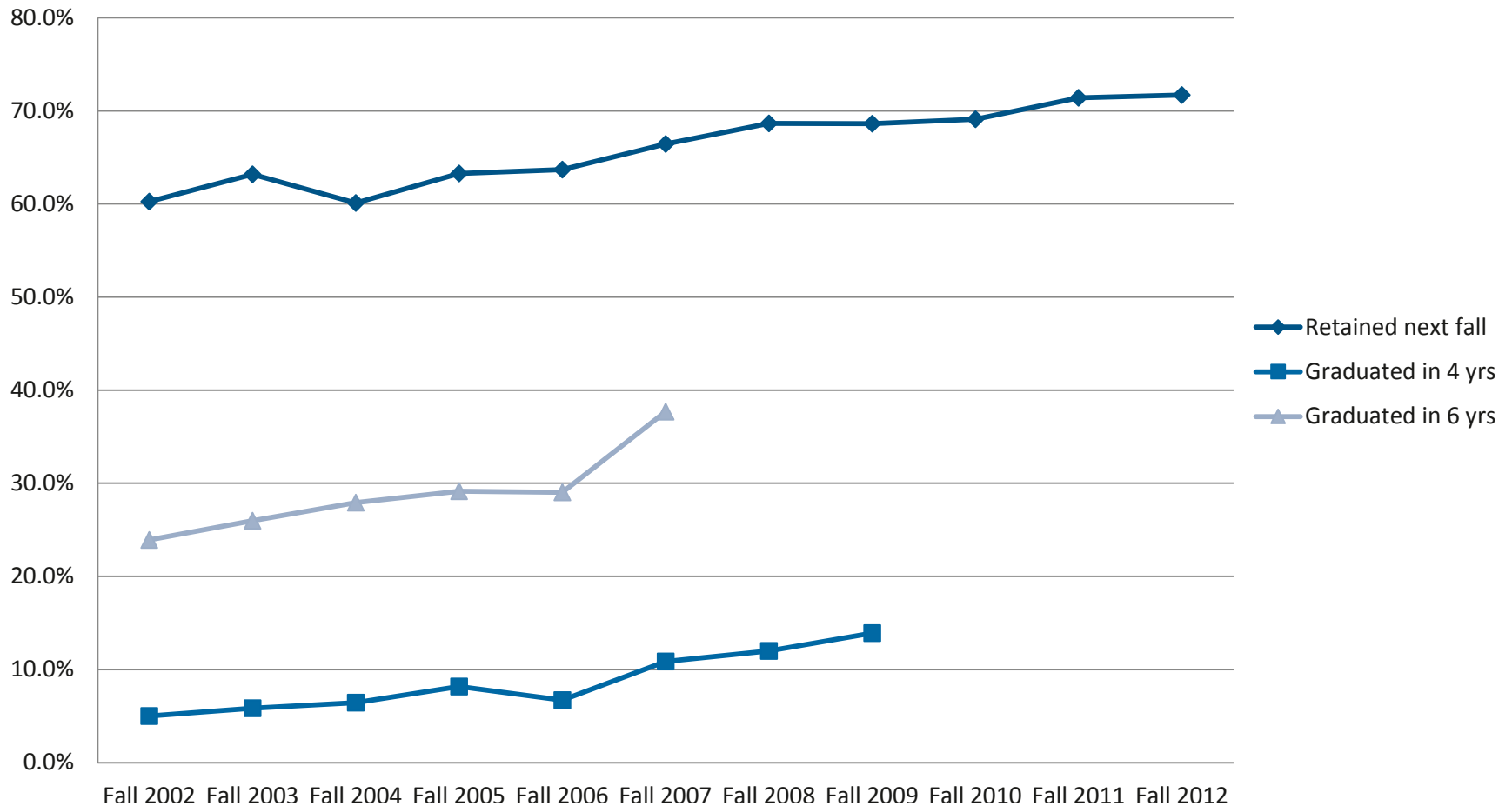
Marcia Belcheir, Ph.D.

Shari Ellertson, Ph.D.

Boise State University



Boise State's retention and graduation rates have been steadily improving





Which efforts seem to be related to changes in retention? Efforts include:

- Course capacity and waitlists
- Finish-in-Four
- More advisors
- First-year seminars, learning communities, and residential colleges
- Early warning systems in a number of first-year courses
- Restructuring early math courses
- Student review their Academic Advisement Report at 30, 60, and 90 credits
- Outreach to students who were eligible to enroll but had not
- Faculty development activities to help foster student learning and persistence.



Admissions has also attracted more students who:

- Have higher test scores
- Have higher high school GPAs
- Are younger
- Are more likely to be non-residents



Conducted 2 studies:

- Study 1: Predicting retention using 10 years of cohort data that includes both admissions and college experience variables
- Study 2: Looking at the pattern of change in key variables to see which ones followed a pattern similar to the changes in retention and graduation



Admissions data included:

- Index scores (combination of test scores and high school GPA)
- Age
- Residency



Early college experience variables included:

- Course withdrawals in 1st semester (Y/N)
- Took both math and English in 1st year (Y/N)
- Pell eligibility (Y/N)
- Credits attempted
- Unmet financial need
- Living on-campus (Y/N)

1st semester GPA added as a final step for retention and graduation analyses

What predicts first semester GPA?

- Step 1. Admissions variables (index score, residency, age) accounted for 23% of variability in GPA
- Step 2. Campus experience measures (taking math and English, course withdrawal, Pell eligibility, unmet need, credits attempted, and living on-campus) added another 5%
- Everything in final model was significant except Pell eligibility and living on-campus
- Index score had the strongest relationship to GPA



What predicts retention one year later?

- Step 1: Admissions variables accounted for 6% of variability
- Step 2: Adding early college experience variables raised percentage to 11%
- Step 3: Adding first semester GPA raised percentage to 27%

Final model for retention:

- First semester GPA was most predictive
- Index score fell out of significance for final model
- All other variables were significant except Pell eligibility



Predicting graduation: Variability accounted for at 3 steps in the process

- In 4 years:
 - 1. Admissions: 17%
 - 2. Add Early college experiences: 21%
 - 3. Add 1st semester GPA: 28%
- In 6 years:
 - 1. Admissions: 14%
 - 2. Add Early college experiences: 18%
 - 3. Add 1st semester GPA: 30%

Final models comparison:

- At 4 years:
- Everything significant except age, unmet financial need, and taking both math and English in 1st year
- Most significant variables were 1st semester GPA followed by credits attempted, and index score
- At 6 years:
- Everything significant except age, residency
- Most significant variables were 1st semester GPA followed by index score and credits attempted

Interesting information BUT

- How does it relate to changes in retention OVER TIME?
- Needed to look at patterns of change focusing on the variables that were identified as most significant
- Started at a point prior to when major changes occurred as the comparison point



Retention and graduation rates by cohort year compared to the 2005 cohort

Cohort year	Percent retained	Significant compared to 2005?	Percent graduated in 4 years	Significant compared to 2005?
2005	63.3		8.2	
2006	63.7	No	6.7	No
2007	66.4	Yes	10.9	Yes
2008	68.7	Yes	12	Yes
2009	68.6	Yes	NA	
2010	69.1	Yes	NA	
2011	71.4	Yes	NA	



Variables with a similar pattern (with comparisons to fall 2005 cohort)

Cohort year	Retention rate	Math grade	1 st semester GPA	Course withdrawals
2006	N	N	N	N
2007	Y	Y	Y	N
2008	Y	Y	Y	Y
2009	Y	Y	Y	Y
2010	Y	Y	Y	Y
2011	Y	Y	Y	Y



Some variables with a DISSIMILAR pattern (using comparisons to the 2005 cohort)

Cohort year	Retention	Index score	Lived on campus	Credits attempted
2006	N	N	Y	N
2007	Y	N	Y	N
2008	Y	N	Y	N
2009	Y	N	Y	Y
2010	Y	N	Y	Y
2011	Y	Y	Y	Y

Conclusions

- Discovering what's related to retention is not the same thing as discovering what is related to changes in retention
- First term GPA is strongest predictor of retention and graduation
- Although index scores have the strongest association with first term GPA, the lack of change in scores over time makes them an unlikely candidate for explaining changes in retention
- Instead, changes in math courses and other academic supports are more likely reasons



To view the studies:

- Go to: lassess.boisestate.edu
- Select “Research Publications”
- Look under “Retention” for report 2013-02 (Predicting Retention Using Ten Years of Cohorts and Retention Data)
- Also look for report 2013-03 (Addressing the Pattern of Changes in Retention and Graduation)