

9-29-2016

Improving Science Student Retention: A Survey Tool to Measure First-year Students' Likelihood to Remain at UNL

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Burbach, Mark E. and Moncure, Shannon, "Improving Science Student Retention: A Survey Tool to Measure First-year Students' Likelihood to Remain at UNL" (2016). *DBER Speaker Series*. 99.

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Improving Science Student Retention: A Survey Tool to Measure First-year Students' Likelihood to Remain at UNL

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DBER Meeting, September 29, 2016



SCHOOL OF NATURAL RESOURCES

UNIVERSITY OF
Nebraska
Lincoln

Kelly Fund

- Distributed by the UNL Vice Chancellor for Academic Affairs and the U of N Executive Vice President and Provost
- Goal: “to foster research looking to the improvement of teaching in the University”
- Funds awarded for FY 14-15 and 15-16



Our Team

- **Mark Burbach**, School of Natural Resources
- **Shannon Moncure**, School of Natural Resources
- **Leilani Arthurs**, Earth & Atmospheric Sciences
- **Gina Matkin**, Agricultural Leadership, Education & Communication



What are Some Factors Associated with College Student Retention?

- HS Achievement – HS grades, GPA, ACT score, Advanced course work, Extra-curricular activities, etc.
- First generation
- Underrepresented (e.g. race & ethnicity)
- Gender
- Socio-economic status
- College orientation
 - And how long ago they experienced
- First year GPA
- First year experience programs
- Learning community
- Living on campus (e.g. OSU STEP)
- Regular meetings with advisor
- Funding
- Pell Grant eligibility
- Hours worked

Not a Complete List!!!



Purpose

- Develop, test, and share a first-year college student retention instrument that can be used to both assess students' likeliness to remain enrolled at UNL and the effectiveness of courses and instructional methods on student retention.
- Focus on those working most directly with students (i.e. advisors, instructors, etc.), less institutional focus



Instrument Development

- Literature Review
- Initial selection and definition of seven factors and associated survey items
- Construct validity with 29 experts

ITEM (REFER TO LIST OF FACTORS ON PAGE 1 FOR DEFINITIONS)	HOW WELL DOES THE STATEMENT DESCRIBE THE FACTOR? (PLEASE CIRCLE) 1=NOT WELL to 7=VERY WELL
1. I am very involved in my college education. Factor _____	1 2 3 4 5 6 7



Instrument Development, cont.

Pilot testing

- First semester Freshmen
- Internal validity
 - Six of the seven factors had a Cronbach's alpha of .70 - .86, with an alpha of .94 for the instrument overall.
- Exploratory factor analysis
 - 6 of 7 factors had acceptable goodness of fit (i.e. eigenvalues >1)
- Validity testing on-going (i.e. confirmatory factor analysis)



Instrument Development, cont.

Concurrent validity

- Compare with Davidson's CPQ:
 - Degree commitment
 - Institution commitment
 - Academic conscientiousness
- No significant difference between the two test scores ($t_{76} = .423$, $p < 0.001$)
- High degree of correlation ($r = .74$)



Final Six Factors

Personal Validation	The feeling of being “welcomed by the college, recognized as individuals, and that they matter to the institution”
Self-Efficacy	The belief that “(students’) personal effort matters and that they can exert significant influence or control over their future success”
Sense of Purpose	The ability of students to “find purpose in their college experience” and student’s perception of “relevant connections between their educational experiences and their life goals”
Active Involvement	The “amount of time and energy students invest in the college experience – both inside and outside the classroom,” including in both courses and extracurricular activities, and the use of support services
Reflective Thinking	The extent to which students enter into “quiet deliberation” on their learning experiences, allowing them to “make connections between what they are attempting to learn in college and what they already know or have previously experienced”
Social Integration	The extent to which students are “‘connected’ with other members of the college community



Item Examples

Personal Validation	I'm not "just a number" at UNL.
	There are professors and staff at UNL who know me by name.
Self-Efficacy	I have no doubt my academic efforts at UNL will lead to future success.
	I feel strongly that I have what it takes to be successful at UNL.
Sense of Purpose	College makes sense given what I want for my career.
	I see a connection between my classwork and reaching my professional goals.
Active Involvement	I participate in learning opportunities outside the classroom.
	I actively participate in my classes.
Reflective Thinking	I spend time on my own thinking about what I have learned in my classes.
	Part of being a student at UNL is thinking deeply about what we're learning.
Social Integration	I know and talk to some of my fellow students outside of class.
	I have made good friends at UNL.



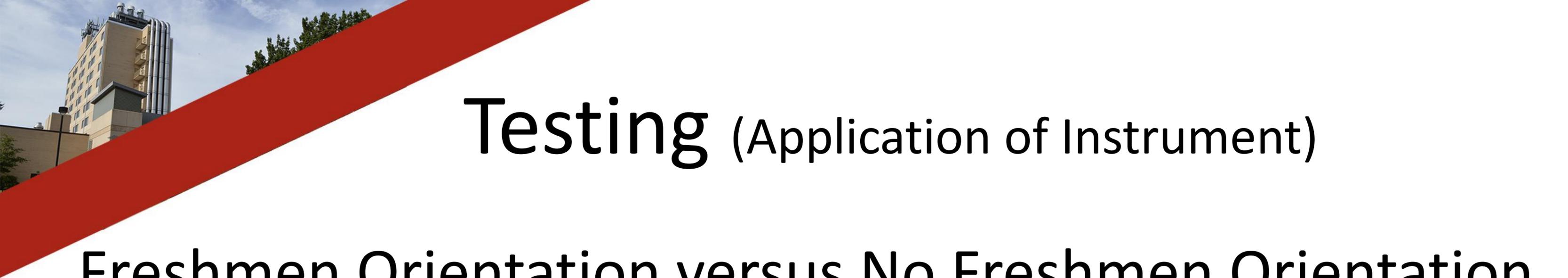


Testing (Application of Instrument)

Two Freshmen Orientation Courses (NRES 101 & ENVR 101)

- Course objectives of highly correlated to all 6 retention factors
 - Student perception's of the course meeting it's objectives positively correlated to indications they would remain in school.





Testing (Application of Instrument)

Freshmen Orientation versus No Freshmen Orientation

- Freshman that completed an orientation course scored higher on instrument than those who did not have an orientation course





Testing (Application of Instrument)

Impact of Freshmen Orientation Courses on Retention

- Students who completed NRES 101 & ENVR 101 had higher retention rates than students in other SNR majors and the CASNR average.



Future Instrument Use

- Compare retention rates
 - SNR's retention rate (with an orientation course) to CASNR's retention rate (without an orientation course)
- Evaluate first-year programs for their effectiveness in increasing retention
- Retention prediction
- Individual student assessment for advisors
- Other?



Sharing

- DBER meeting
- Google Form
- UNL Advisors group
- Associate Vice Chancellor for Academic Affairs
- Other suggestions?





Questions?
Comment?
Thoughts?

