

Effects of Learning Communities on Undergraduate Student Outcomes

Mack Shelley

**(Educational Leadership and Policy Studies, Statistics, Research
Institute for Studies in Education)**

Kevin Saunders

(Research Institute for Studies in Education)

**7th Annual Learning Communities Institute,
Iowa State University, May 9, 2005**

Overview of Assessment Efforts

- LC Assessment Subcommittee
- Guidelines for best practices in LC assessment
 - <http://www.public.iastate.edu/~learncommunity/guidelines.html>
- Workshops
- Surveys
- Focus groups and interviews
- Documents analysis (e.g., funding proposals)
- Institutional data analysis (Office of the Registrar, Office of Institutional Research, Department of Residence, and others)

Outline:

Projects to Share Today

- Who Participates in Learning Communities?
 - Institutional records
- What is the Effect on Student Outcomes?
 - Individual level (National Survey of Student Engagement longitudinal survey)
 - Team level (American Educational Research Association presentation)

Outline:

Impact and Implications

- What is the Impact of Learning Communities at Iowa State University?
- What are the Implications for Best Practices and Future Assessment Efforts?
- Questions/Discussion

Who Participates? Out of Each Fall Cohort

<u>Fall Cohort</u>	<u>Number of Students</u>	<u>% of Cohort</u>
1998	1,078	28.5
1999	1,598	39.8
2000	1,486	34.7
2001	1,689	36.8
2002	1,650	39.7
2003	1,773	45.9
Overall	9,274	37.6

Who Participates? Gender

Fall Cohort	% of Women	% of Men
1998*	32.6	24.8
1999*	43.3	36.9
2000*	36.9	33.0
2001	37.3	36.8
2002*	36.8	42.2
2003	46.3	45.6
Overall	38.7	36.6

* $p < .05$

Who Participates?

Ethnicity

<u>Fall Cohort</u>	<u>% of Non-minorities</u>	<u>% of Minorities</u>	<u>% of Unknown Ethnicity</u>
1998*	29.6	22.8	15.4
1999	40.3	42.0	27.9
2000*	34.6	42.6	24.5
2001*	36.5	46.0	27.2
2002*	39.4	47.4	31.2
2003	45.8	47.3	45.1
Overall	37.6	42.4	28.8

* $p < .05$

Outcomes

Individual Level

Based on:

Learning Communities and Student Engagement: Longitudinal Study of Iowa State University 2000-2003 National Survey of Student Engagement Data and Learning Community Participation

by Kevin Saunders (RISE) and Tanzy Love (RISE, Statistics)

Outcomes

Individual Level (continued)

- Data were compiled from Iowa State 2000-2003 National Survey of Student Engagement
- Total combined sample includes 1,237 first-year students.
- Analysis relies on 12 scales constructed to represent measures of student engagement
- Conducted series of multiple OLS regression models

Engagement, Campus Environment, and Learning Outcomes

Measure	First-Year			
	2000	2001	2002	2003
Mean comparison of learning community participants vs. non-participants				
Engagement Activities				
Academic Efforts				
Higher Order Thinking				
Academic Integration			**	
Active and Collaborative Learning	**	*	**	***
Interactions with Faculty	**	**	**	***
Diversity Experiences	**		*	**

*p<.05, **p<.01, ***p<.001

Engagement, Campus Environment, and Learning Outcomes (continued)

Measure	First-Year			
	Mean comparison of learning community participants vs. non-participants			
	2000	2001	2002	2003
Perception of Campus Environment				
Quality of Academic Advising		***	*	***
Supportive Campus Environment			**	*
Satisfaction		*	**	**

*p<.05, **p<.01, ***p<.001

Engagement, Campus Environment, and Learning Outcomes (continued)

Measure	First-Year			
	Mean comparison of learning community participants vs. non-participants			
	2000	2001	2002	2003
Learning Outcomes				
Gains in Personal and Social				
Gains in Practical Competence		*	*	
General Education Gains				

*p<.05, **p<.01, ***p<.001

Learning Community Type:

- Learning Community Type NSSE 2000-2003
 - Course-based (n = 249)
 - Residential (n = 31)
 - Combination (n = 373)
 - Did not participate (n = 760)
- Students participating in a “combination” learning community reported higher levels of engagement, more positive perceptions of the campus environment, and greater gains in learning outcomes compared to students who did not participate in learning communities

Outcomes Team Level

Based on:

Effects of Learning Team Characteristics on
First-Year Undergraduate Outcomes: Evidence
from Structural Equation Models

by Mack Shelley, Mary Huba, Doug Epperson,
Michelle Cook, Bin Zhang, and Peter Hoekstra

Outcomes

Team Level

- A model of learning community impacts
- Team is the unit that shapes students' experiences
- Data were compiled from 366 learning teams in Fall 2000, 2001, and 2002
- Outcome variables:
 - Best practices experienced
 - Peer mentor evaluation
 - First-term GPA
 - Satisfaction with the learning team
 - Retention to the sophomore year

Figure 1

Best-fitting Model



Results

- Model fit

- $\chi^2 = 1.393, df = 9, p = .998, n = 390$

- highest squared multiple correlation is for first-term GPA ($R^2 = .585$)

- worst fit is for peer mentor evaluation ($R^2 = .020$)

- $R^2 = .377$ for LC satisfaction

- $R^2 = .195$ for retention to the sophomore year

- $R^2 = .071$ for experience of best practices

Interpretation of Results

- Higher experienced best practices in learning → higher average first-term GPA.
- Higher average first-term GPA → the higher the team's retention rate.
- Higher ratings of peer mentors and higher experienced best practices in learning → higher satisfaction with the LC experience.
- Higher satisfaction with the LC experience → higher team retention, but lower team average GPA.

Interpretation of Results (continued)

- The higher the level of academic preparation (ACT/High School Rank), the higher
 - the perception of having experienced best practices
 - the first-term GPA
 - the percentage retention to the sophomore year.
- Higher percentage of males → higher evaluation of peer mentors and higher satisfaction with the LC.

Discussion of Results

- Purposeful learning environments lead to team success.
- Available and helpful peer mentors lead to team success.
- Best practices in student learning relate to academic achievement in the first term and satisfaction with the LC experience.
- More positive perceptions of peer mentors are related to higher LC satisfaction.
- Higher level of academic achievement and higher LC satisfaction were predictive of higher retention.

So, What Does All This Mean?

- Several anticipated relationships were not found to be significant in the final model.
 - Structural variables measured on the learning community coordinator survey dropped out of this model.
 - All of the student background variables from university databases dropped out of the model.
 - Unable to make clear recommendations about specific structural features that developers could build into the design of a community.

So, What Does All This Mean?

- The finding that higher levels of learning team satisfaction were associated with lower mean GPAs requires some explanation.
 - Learning teams are more prevalent in disciplinary areas that traditionally produce lower GPAs (e.g., engineering)
 - Students with greater academic need may be more appreciative of the LC experience

So, What Does All This Mean?

- The best practices composite variable provides useful guides for planning LC experiences and curricula
- These best practices help students make connections between their personal and academic experiences, and across their classes

So, What Does All This Mean?

- Best practices include designing a learning culture that
 - promotes collaboration among faculty and students
 - communicates high expectations
 - provides support for learning
 - results in prompt feedback
 - gives students opportunities to make real-world applications of in-class learning and extend learning beyond the classroom

So, What Does All This Mean?

- For peer mentors
 - Key consideration is availability and helpfulness
 - Use peer mentors where they make sense and train them for their roles
 - LC coordinators' and students' ratings of peer mentors were uncorrelated

Impact of Learning Communities

- Confirms multiple Iowa State studies regarding the positive impact
 - Greater engagement
 - Higher satisfaction
 - Higher GPA
 - Increased Retention
 - → increased income to the university from tuition and fees

LC Impact on One-Year Retention Rates (Adjusted for High School Rank and ACT Composite Score)

Fall

<u>Cohort</u>	<u>LC%</u>	<u>Non-LC %</u>
1998	88.6	83.1
1999	88.5	83.1
2000	88.1	81.6
2001	86.3	82.1
2002	88.3	81.7
Overall	87.9	82.3

What's Next

- What are the best strategies to duplicate these positive outcomes?
- What have we learned from the combined assessment efforts?
- In the future, where should we focus, both in learning community planning and assessment efforts?
- What are your thoughts?