Results from the 2001 ISU Undergraduate Education Survey and Learning Community Survey

Michelle D. Cook, Mary Huba, and Doug Epperson

Introduction

Learning communities at Iowa State University (ISU) are typically small groups of students enrolled in a common set of courses. Learning community coordinators—ISU faculty and staff—have broad autonomy in designing individual programs. The programs are primarily for first-year students, and three categories of communities are offered: course-based, residential, or course-based residential. Depending upon their composition, learning communities also provide various support services, including common living arrangements, peer mentors, study groups, and social activities. Many communities are tied to a specific discipline, while other communities are interdisciplinary.

In 2001-2002, ISU offered 47 learning communities, and 1,692 first-time, full-time students participated. Participants accounted for 36.7% of the first-time full-time students enrolled at ISU (N = 4,605). The number of communities and first-time full-time student participants has doubled since 1998. In that year, an internal grant program was started to boost what was initially a grassroots movement.

Assessment has always been an important component of learning communities at ISU and is expected at both the university and individual learning community level. The assessment emphasis is in the process of shifting from a University-wide assessment to individual learning community assessment. As such, resources are also being moved to provide assistance to individual learning community coordinators.

This evaluation was a continuation of the study previously conducted by Huba, Epperson, and McFadden (2001). The purpose was to understand how learning community participation is related to students' perceptions of their knowledge and/or abilities, their experiences, their satisfaction, and their use of time.

Evaluation Questions

In this study, the following evaluation questions were explored:

1) Do learning community students, compared to a control group, experience greater gains over time in each of the following domains?
    a. Oral Communication/Leadership
    b. Time Management
    c. Teamwork
    d. Written Communication
    e. Critical Thinking
    f. Knowledge of University, Discipline, and Careers
    g. Diversity

2) Do learning community students, compared to a control group, differ in their perceptions of opportunities to experience the following?
    a. Connected learning
    b. Academic success
    c. High expectations from faculty
    d. Prompt feedback on progress
    e. Better understanding of their major

3) Are learning community students, compared to a control group, more satisfied with the following experiences?
    a. Faculty interaction
    b. Faculty support, encouragement, or advice
    c. Opportunities to
        i. Interact with people from different backgrounds
        ii. Participate in a department club, residence government, or other organization
        iii. Work collaboratively with other students on class projects
        iv. Develop or participate in study groups
        v. Apply learning to real-world problems
        vi. Practice skills they are learning
    d. Instruction quality
    e. Classmate quality
    f. Academic advisor availability
    g. Academic advisor helpfulness
    h. Overall ISU experiences

4) Do learning community students, compared to a control group, spend their time differently in the following activities?
    a. Classes and labs
    b. Studying alone and in groups
    c. Talking with advisor
    d. Talking with instructors outside of class
    e. Co-curricular activities (community service/volunteer work, recreational/social, and leadership)
    f. Paid work

Method

Participants

The primary sample was comprised of all first-time full-time learning community students (n = 1692). The control group was comprised of all first-time full-time non-learning community students residing on campus (n = 2485). Survey response rates are shown in Table 1.

Table 1

Survey Response Rates by Group

Group	Pretest Returned		Posttest Returned		Pretest and Posttest Returned		End of Semester LC Survey Returned	
	n	*(P)*	*n*	*(P)*	*n*	*(P)*	*n*	*(P)*
Learning Community	1,059	62.6%	699	41.3%	574	33.9%	880	52.0%
Control	1,380	55.5%	907	36.5%	635	25.6%		

Instrumentation

Respondents were asked to complete the locally developed *ISU Undergraduate Education Survey* (Epperson, Huba, & McFadden, 2001). Learning community students were asked to complete an additional end of semester survey. All surveys used in this study are available on-line.

ISU Undergraduate Education Survey. The pretest contained two sections. The first section assessed various knowledge and ability domains derived from a summary of the intended learning outcomes identified by learning community coordinators. They included: communication skills, group/team problem solving, knowledge and skills related to the discipline, global multicultural awareness and skills, orientation and transition skills, study skills, and retention/GPA. The second section of the pretest included two open-ended questions: "What are you most looking forward to this semester?" and "What most worries you about your first semester?"

The posttest contained five sections. The sections included the knowledge and ability domains described above and two open-ended questions: "What was your greatest success or positive academic experience this semester?" and "What was your greatest difficulty or negative academic experience this semester?"

In addition, the posttest contained three sections used to assess student experiences, satisfaction, and time use, respectively. The good practice attributes identified by Ewell and Jones (1996) influenced the development of these three sections of the posttest. The twelve good practice attributes are high expectations, coherence in learning, synthesizing experiences, integrating education and experience, active learning, ongoing practice of learned skills, assessment and prompt feedback, collaborative learning, significant time on task, respect for diverse talents and ways of knowing, frequent faculty-student contact, and emphasis on the early years of study.

ISU Learning Community Survey. Learning community participants completed a form in addition to the *ISU Undergraduate Education Survey*. This survey, the *ISU Learning Community Survey* (Epperson, Huba, & McFadden, 2001), assesses various

learning community components, including overall learning community experience, peer mentors, residential component, Supplemental Instruction, and decision to join.

Procedures

The evaluators sought and received permission to conduct the study from the Institutional Review Board. Student names and addresses were obtained through the Registrar's Office and Department of Residence databases.

Resident Assistant/Community Assistant staff distributed and collected *ISU Undergraduate Education Surveys* for on-campus students. Hall Director staff provided oversight. Off-campus, first-year, full-time learning community students received the surveys through their learning community coordinator.

Pretest surveys were administered during residence halls move-in through the first week of classes. Posttest surveys were administered after Thanksgiving break. The *ISU Learning Community Survey* was administered through learning community coordinators to all first-year, full-time learning community students after Thanksgiving break.

Data Analysis

Quantitative data from the pretest and posttest were analyzed using SPSS for Windows version 11.0. The first 28 items on the *ISU Undergraduate Education Survey* were factor analyzed using a maximum likelihood extraction and promax rotation that yielded seven factors. Scale scores for the knowledge and ability domains were computed. A 2 x 2 Analysis of Variance (ANOVA) was conducted to evaluate the effects of learning community status and time on students' self-ratings on each of the scales.

Two-sample independent *t*-tests were performed to compare the means of the two groups (learning community participants and control group) on student experiences, satisfaction, and time use. Frequencies, percentages, means, and standard deviations were computed for items on the *ISU Learning Community Survey*.

A three-person team analyzed the qualitative data. Two undergraduate data analysts independently read the open ended-responses, identified categories and themes, and met to reach an agreement on the overriding themes that emerged from the data (Bogdan & Biklen, 1992; Guba 1981). The responses then were tallied by category. A graduate research assistant oversaw this process and met weekly with the pair to discuss the emerging themes and categories.

Results and Discussion

Students' Initial Perspectives

On the pretest, all students were asked both what they were most looking forward to and what most worried them about their first semester. Table 2 presents the most common themes from these questions by group. As can be seen, both groups had very similar

expectations and concerns. These findings are also similar to Huba, Epperson, and McFadden's (2001) results. Both learning community and non-learning community new students look forward to and are concerned about meeting people and being academically successful.

Table 2

Common Themes from Pretest Open-Ended Questions by Group

Question	Themes		
	Learning Community	Control	Both
What are you most looking forward to this semester?	(none)	Social aspects/parties Responsibility/time management Preparation for future	Developing relationships/friendships Meeting new people Academic success Classes Learning Activities/clubs Independence College in general Having fun
What most worries you about your first semester?	Being late to class	Exams/finals Meeting new people Dealing with stress/being overwhelmed Staying focused/disciplined Money/financial concerns	Academic success Classes Classwork/projects Grades/failing Studying General adjustment to college life Getting lost/finding way around campus Making friends/fitting in Time management/balance

Students' Gains During the First Semester

On both the pretest and the posttest, students rated their own knowledge and abilities on 28 items. As mentioned in an earlier section, a factor analysis using a maximum likelihood extraction and promax rotation on the 28 items yielded seven factors. These results were consistent with Huba, Epperson, and McFadden's (2001) seven factors: Oral Communication/Leadership, Time Management, Teamwork, Written Communication, Knowledge, Critical Thinking, and Diversity. Table 3 illustrates both the items in each scale and the scale reliabilities.

Table 3

Items Comprising Knowledge and Ability Scales and Scale Reliabilities

Oral Communication/Leadership (*r* = .88)
Ability to persuade others to follow your lead
Ability to bring people with different viewpoints together to cooperate on a project
Ability to inspire others through your leadership
Ability to facilitate group interactions
Ability to argue a point of view assertively
Ability to make formal class presentations
Ability to speak up when you see bigotry
Time Management (*r* = .88)
Ability to manage your time effectively
Ability to prioritize tasks to be performed for a project
Ability to coordinate multiple concurrent tasks or projects
Ability to study effectively
Teamwork (*r* = .82)
Ability to work cooperatively and productively with others
Ability to effectively listen to others enabling you to clearly understand what is being said and reflect that understanding back to the speaker
Ability to interact with others and contribute to group discussions
Ability to put team goals above your own personal goals
Written Communication (*r* = .84)
Ability to produce well-written term papers that would receive a grade of "B+" or better
Ability to write the types of technical, critical, review, or creative papers typical for your discipline with a grade of "B+" or better
Ability to edit a document or paper for correction grammar, punctuation, and spelling
Critical Thinking (*r* = .82)
Ability to apply academic knowledge and reason to current problems
Ability to think differently to solve problems
Ability to analyze and evaluate ideas systematically and critically from different perspectives
Knowledge (*r* = .73)
Knowledge in your anticipated discipline or field of study
Knowledge of career choices and options in your anticipated discipline or field of study
Knowledge in your anticipated discipline or field of study
Knowledge of university policies and procedures relevant to undergraduate students
Diversity (*r* = .72)
Knowledge of other cultures and/or ethnic groups
Ability to effectively and comfortably interact with people from other cultures or ethnic groups
Ability to speak up when you see bigotry
Ability to accept religious differences

Scale scores were computed for the knowledge and ability scales. The means and standard deviations for each of the knowledge and ability scales are presented in Table 4 by group.

Table 4

Means and Standard Deviations by Group for Knowledge and Ability Scales[a]

	Pretest				Posttest					
	Learning Community		Control		Learning Community			Control		
Scale	*M*	*SD*	*M*	*SD*	*M*	*SD*	*n*	*M*	*SD*	*n*
Oral Communication/Leadership	6.38	1.25	6.20	1.33	6.50	1.26	508	6.28	1.35	569
Time Management	6.77	1.28	6.52	1.33	6.50	1.41	528	6.23	1.55	585
Teamwork	7.26	1.04	7.07	1.20	7.16	1.22	491	6.96	1.25	552
Written Communication	6.53	1.53	6.22	1.60	6.66	1.56	520	6.33	1.57	597
Knowledge	5.88	1.32	5.61	1.44	6.31	1.30	547	5.97	1.43	611
Critical Thinking	7.02	1.15	6.77	1.26	6.92	1.25	534	6.65	1.30	598
Diversity	6.71	1.24	6.64	1.24	6.72	1.30	456	6.58	1.28	518

[a]Scale: 1 = Very Weak; 9 = Very Strong

[b]Only respondents with both a pretest and a posttest returned were included in this analysis, thus, the number of responses is reported by group with the posttest results

Seven 2 x 2 Analyses of Variance (ANOVAs) were conducted to evaluate the effect of learning community status and time on students' self-ratings on the knowledge and ability scales. The results are presented in Table 5. There was a significant main effect for both Group (LC vs. Control) and Time (Pre vs. Post) on six of the seven knowledge and ability scales: Oral Communication/Leadership, Time Management, Teamwork, Written Communication, Knowledge, and Critical Thinking. In other words, when pretest and posttest responses were combined, learning community students reported more knowledge and ability in each of these areas (Group). When both groups were combined, all students reported significant gains in each of these areas (Time).

There was no significant Group by Time interaction for any of the seven knowledge and ability scales. In each of these areas, learning community students did not gain more from pretest to posttest than control students did.

Table 5

Statistically Significant Effects from 2 x 2 Analyses of Variance

Scale	Group (LC vs. Control)	Time (Pre vs. Post)	Group x Time
Oral Communication/Leadership	.005	.005	
Time Management	.000	.000	
Teamwork	.002	.009	
Written Communication	.000	.009	
Knowledge	.000	.000	
Critical Thinking	.000	.003	
Diversity			

There appears to be a general advantage for learning community students on this self-report. There also appears to be a general improvement for *all* students over time. One might ask if this improvement is due to the pre-college characteristics or maturation. In any event, there was no advantage over time for LC students.

Students' End of Semester Perspectives

Independent-samples *t*-tests were conducted to investigate whether learning community students and the control group differed in regard to their experiences at ISU. Results are presented in Table 6. At the end of the first semester, learning community students reported stronger agreement with the following experiences: earning high grades, having professors with high expectations, understanding the nature of their anticipated major, having experiences that helped them reach their goals, and receiving prompt feedback about their progress.

There were no significant differences between learning community students and control students in seeing connections among classes and connections between personal experience and class learning. These findings mirror those found by Huba, Epperson, and McFadden (2001).

Table 6

Mean Comparison of Groups on Experiences (Posttest Items 29 – 35[a])

	Learning Community			Control			
Item	*M*	*SD*	*n*	*M*	*SD*	*n*	*p*
I was able to see connections among my classes	6.17	1.88	691	6.11	1.95	897	ns
I was able to see connections between personal experiences and class learning	6.25	1.65	699	6.18	1.74	897	ns
I was able to earn high grades in classes	6.25	1.83	694	5.81	1.91	900	**
My professors had high expectations for me	6.40	1.81	690	6.02	1.78	901	**
I better understand the nature of my anticipated major	6.52	1.72	690	5.99	1.98	899	**
I have had experiences this semester that "fit together" in helping me meet my goals as a student	6.46	1.60	695	5.94	1.79	900	**
I have received prompt feedback about my progress in classes	5.60	1.96	693	5.24	2.06	902	**

[a]Scale: 1 = Strongly Disagree; 9 = Strongly Agree
[b]** = $p \leq .01$; * = $p \leq .05$; ns = not significant

Independent-samples *t*-tests were conducted to investigate whether learning community students and the control group differed in regard to their satisfaction with various aspects of their education at ISU. Results are presented in Table 7. At the end of the first semester, learning community students reported significantly greater satisfaction with their opportunities to interact closely with faculty; receive support, encouragement, or advice from faculty; participate in a department club, residence government, or other organization; work collaboratively with other students on class projects; develop or participate in study groups; apply learning to real-world problems; and practice skills they were learning. Also, learning community students reported greater satisfaction with the overall quality of instruction they received; the overall quality of their classmates; academic advisor helpfulness; and their overall experience at ISU.

There were no significant differences between learning community students and the control group in satisfaction with opportunities to interact with people from different cultural backgrounds or academic advisory availability. For the most part, these findings almost replicate those noted by Huba, Epperson, and McFadden (2001).

Table 7

Mean Comparison of Groups on Satisfaction (Posttest Items 36-48[a])

	Learning Community			Control			
Item	*M*	*SD*	*n*	*M*	*SD*	*n*	*p*
Opportunities to interact closely with faculty	5.77	1.81	692	5.36	1.92	900	**
Level of individual support, encouragement, or advice from faculty members	5.53	1.82	692	5.13	1.99	906	**
Opportunities to interact with people from different cultural backgrounds	6.22	1.76	687	6.12	1.81	901	ns
Opportunities to participate in a department club, residence government, or other organization	6.76	1.71	689	6.36	1.85	892	**
Opportunities to work collaboratively with other students on class projects	6.49	1.71	688	6.03	1.85	901	**
Opportunities to develop or participate in study groups	6.28	1.80	695	5.75	1.90	902	**
Opportunities to apply learning to real world problems	5.99	1.75	695	5.82	1.75	903	*
Opportunities to practice the skills you are learning or have learned	6.15	1.66	696	5.83	1.77	902	**
Overall quality of instruction that you received this semester	6.45	1.59	694	6.12	1.69	898	**
Overall quality of your classmates	6.68	1.51	697	6.46	1.56	904	**
Availability of your academic advisor	6.68	1.84	682	6.56	1.94	893	ns
Helpfulness of your academic advisor	6.68	2.02	678	6.45	2.06	888	*
Overall experiences at ISU	7.24	1.49	684	6.78	1.79	885	**

[a]Scale: 1 = Strongly Dissatisfied; 9 = Strongly Satisfied
[b]** = $p \leq .01$; * = $p \leq .05$; ns = not significant

Independent-samples *t*-tests were conducted to investigate whether learning community students and the control group differed in regard to their use of time. Results are presented in Table 8. At the end of the first semester, learning community students reported spending significantly more time in classes and labs, studying alone, studying in groups, and community service/volunteer work.

There were no significant differences between learning community students and the control group in reported time spent talking with advisor, talking with instructors outside of class, or being engaged in recreational/social activities, leadership activities, or paid work.

There were several differences between these findings and those of Huba, Epperson, and McFadden (2001). In the 2001 study "Classes and labs" was not significant and "Studying alone" was not significant. "Talking with your advisor" in favor of LC was significant at the $p \leq .01$ level; "Talking with instructor outside of class" in favor of LC

was significant at the $p \leq .01$ level; "Community service/volunteer work" in favor of learning communities was significant at the $p \leq .01$ level; "Leadership activities" in favor of learning communities was significant at the $p \leq .01$ level; and "Paid work" in favor of control group was significant at the $p \leq .01$ level.

Table 8

Mean Comparisons for Posttest Items Assessing Students' Use of Time[a]

	Learning Community			Control			
Item	*M*	*SD*	*n*	*M*	*SD*	*n*	*p*
Classes and labs	8.57	1.77	684	7.73	1.96	875	**
Studying alone	5.56	2.42	683	5.09	2.36	874	**
Studying in groups	2.72	1.53	686	2.33	1.46	877	**
Talking with your advisor	1.70	1.05	686	1.72	1.02	878	ns
Talking with instructors outside of class	1.69	1.05	686	1.72	1.06	878	ns
Community service/volunteer work	1.82	1.34	685	1.65	1.28	876	*
Recreational/social activities	5.27	2.58	685	5.08	2.61	873	ns
Leadership activities	2.08	1.56	685	2.03	1.63	878	ns
Paid work	2.35	2.47	675	2.58	2.69	863	ns

[a]Scale: 1 = 0 hours; 2 = 1 to 2 hours; 3 = 3 to 4 hours; 4 = 5 to 6 hours; 5 = 7 to 8 hours; 6 = 9 to 10 hours; 7 = 11 to 12 hours; 8 = 13 to 14 hours; 9 = 15 or 16 hours; 10 = 17 or more hours.

[b]** = $p \leq .01$; * = $p \leq .05$; ns = not significant

On the posttest, all students were asked about both their greatest success or positive academic experience and their greatest difficulty or negative academic experience this semester. The groups had similar successes and failures. The most common themes from these questions are presented by group in Table 9.

Table 9

Themes From Posttest Open-Ended Questions by Group

Question	Themes		
	Learning Community	Control	Both
What was your greatest success of positive academic experience this semester?	Friendships/ relationships	Learning Study skills	Academic success An exam, paper, or project Classes in general Good professor Adjustment to college Meet new people
What was your greatest difficulty or negative academic experience this semester?	Being late to class Adjusting to college	Class size too large Scheduling/ registration	Self discipline/motivation Professors Understanding non-native professors/TAs Time management Difficult level/pace Exams, papers, projects (in general) Grading policies Knowing what to study Lack of academic success Time management Workload too great

On the *ISU Learning Community Survey*, learning community students indicated their satisfaction with their overall learning community experience, with social activities in the learning community, and with their peer mentor. The peer mentors received average ratings of 7.0 or higher indicating a high level of satisfaction. Huba, Epperson, and McFadden (2001) found similar results. Findings from the current study are presented in Table 10.

Table 10

Means, Standard Deviations, and Frequencies for Learning Community Students' Satisfaction with Overall Learning Community Experience, Social Activities, and Peer Mentors[a]

Item	Learning Communities *M*	*SD*	*n*
Overall learning community experience	6.70	1.88	879
Social activities in the learning community	6.32	1.92	862
Peer mentor	7.19	1.88	811
Peer mentor availability	7.10	1.84	801
Peer mentor helpfulness	7.26	1.79	803
Peer mentor knowledge of the discipline	7.21	1.73	796
Peer mentor knowledge of Iowa State University resources	7.46	1.61	800
Peer mentor level of concern about my academic success	7.00	1.92	799

[a]Scale: 1 = Very Dissatisfied; 9 = Strongly Satisfied; 10 = Does Not Apply

On the *ISU Learning Community Survey*, learning community students with a residential component indicated how often they experienced various interaction opportunities. Also, students who participated in Supplemental Instruction indicated the impact of participation on their learning. It appears that living in a residential learning community environment provided the opportunity for students to interact with other students in their program or major. Results are presented in Table 11.

Table 11

Means, Standard Deviations, and Frequencies for Learning Community Students' Residential Environment and Supplemental Instruction[a]

Item	Learning Communities *M*	*SD*	*n*
Residential Environment			
Interact with other students in your program or major	6.97	2.15	745
Study with students in your classes	6.09	2.35	744
Converse with other students in your living area about academic topics	6.45	2.13	730
Supplemental Instruction			
How much did it improve your learning?	5.54	2.35	316

[a]Scale: 1 = None; 9 = Great Deal; 10 = Does Not Apply

On the *ISU Learning Community Survey*, learning community students were asked to indicate the greatest influence on their decision to join a learning community. Frequencies and percentages are presented in Table 12. People such as academic advisors, orientation, and parents/guardians and materials such as Learning Community

brochures and correspondence from departments or colleges are influencing students' decisions to join a learning community. This information helps decision makers understand how to better market the program to incoming students.

Table 12

Frequencies and Percentages For Greatest Impact on Learning Community Students' Decision to Join a Learning Community[a] *(n = 851)*

	n	*(P)*
Academic Adviser at ISU	211	24.3
Learning Community brochure	143	16.5
Correspondence from department or college	123	14.2
Parent/Guardian	102	11.8
Orientation	101	11.6
Other	98	11.3
Friend	45	5.2
Experience Iowa State (EIS)	26	3.0
Learning Community website	9	1.0
ISU representative who visited high school	9	1.0

[a]Percentages do not equal 100 due to missing data

On the ISU Learning Community Survey, learning community participants were asked about the most satisfying aspect of their learning community and the most disappointing aspect of their learning community. Common themes from these questions are presented in Table 13. These findings are also similar to Huba, Epperson, and McFadden's (2001) results, although they provide more thorough examples of how programs might be improved to serve students better.

Table 13

Themes From Learning Community Survey Open-Ended Questions

Question	Themes
What was the most satisfying aspect of your learning community?	Know people in classes/major Living with people in LC Meet people/make friends People in similar situation/interests Social events People to study with Field trips/tours Learning career/major Peer mentor Support network for getting help General fun
What was the most disappointing aspect of your learning community?	None Lack of social activities Not meeting enough people Not much interaction People's attitudes, apathy Didn't learn much Restriction/required classes/scheduling Inconvenient meeting time/place Structure/organization of learning community

Recommendations and Conclusion

Six recommendations have been developed based on these findings.

1. Continue to work towards improving response rates. Web survey administration and active learning community coordinator involvement will be used in the 2002-2003 academic year to address this issue.

2. Help individual learning community coordinators identify course-embedded, performance measures that could be used to assess the knowledge and ability domains rather than relying solely on reflective self-report.

3. Design interventions and experiences to help students see connections among classes and between personal experiences and class learning.

4. Design interventions and experiences to provide students opportunities to interact with people from different cultural backgrounds.

5. Include co-curricular and out-of-class activities as part of the learning community experience.

6. Use overall learning community results and individual learning community results to inform practice. “Use the results. Hold a team meeting involving everyone on the learning community teaching/delivery team to look at the results and consider improvements that can be (a) incorporated in the future or (b) conveyed to future faculty, staff, and peer mentors who teach in the learning community.” (Iowa State University Learning Community Assessment Subcommittee, 2002)

Although the emphasis is shifting from a University-wide assessment to individual learning community assessment, many still desire and need the *ISU Undergraduate Education Survey* and *ISU Learning Community Survey* to gather data on the effectiveness of their programs. This University-wide assessment will continue for the coming year. However, more data need to be collected, analyzed, reported, and used at the individual learning community level. The variety of programs requires a variety of assessment methods.

References

Bogdan, R., & Biklen, S. (1992). *Qualitative research for education: An introduction to theory and methods.* Needham Heights, MA: Allyn and Bacon.

Epperson, D. L., Huba, M. E., & McFadden, M. D. (2000). *ISU undergraduate education survey*. Retrieved September 18, from Iowa State University, Learning Communities Web site: http://www.iastate.edu/~learncommunity/assessment.html

Epperson, D. L., Huba, M. E., & McFadden, M. D. (2001). *ISU learning community survey*. Retrieved September 18, from Iowa State University, Learning Communities Web site: http://www.iastate.edu/~learncommunity/assessment.html

Ewell, P. T., & Jones, D. P. (1996). *Indicators of "good practice" in undergraduate education: A handbook for development and implementation*. Boulder, CO: National Center for Higher Education Management Systems.

Guba, E. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology – A Journal of Theory, Research, and Development, 29*(2), 75-91.

Huba, M. E., Epperson, D. L., & McFadden, M. D. (2001). *Final report ISU undergraduate education survey 2000: A comparison of learning community participants and non-participants*. Retrieved September 18, from Iowa State University, Learning Communities Web site: http://www.iastate.edu/~learncommunity/reports.html

Iowa State University Learning Community Assessment Subcommittee. (2002). *Guidelines for best practice in learning community assessment (rev. 03/02).* Retrieved September 18, from Iowa State University, Learning Communities Web site: http://www.iastate.edu/~learncommunity/assessment.html