Status of the freshmen learning community initiative at Iowa State University

by

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER ONE: INTRODUCTION

"American higher education has adapted and reinvented itself repeatedly in response to social, economic, and political changes. And it will again...This time around, however, the changes center less on building new institutional structures, redefining the curriculum, or expanding access, and more on the very heart of higher education – on improving teaching and learning" (Angelo, 1997, p. 3). *Powerful Partnerships: A Shared Responsibility for Learning*, a report by the Joint Task Force on Student Learning, reads "Learning is an active search for meaning by the learner – constructing knowledge rather than passively receiving it, shaping as well as being shaped by experiences." One type of experience in higher education today that encourages students to get involved in their learning, both in and outside of the classroom, are learning communities. Learning communities, when intentionally structured and centered on learning outcomes, enable students, faculty, and student affairs professionals to shape and mold the learning experience, and to do so in an energized environment.

Why Learning Communities Today?

The Boyer report (Boyer Commission, 1998) argues that students, including freshmen direct from high school, must bear responsibility for their learning. Having to take responsibility for self is a significant change from the "hand holding" high school environment. Warren (1997) states that "it has been [his] experience that most college students do not have an urgency about their learning" (p. 18). "While there are many reasons why faculty might not use active learning strategies in their teaching (lack of familiarity, training, supportive colleagues), the greatest threat to active learning is student indifference to the importance of the very reason colleges exist: learning" (Warren, 1997, p. 16). One of today's challenges for faculty and student affairs educators is to move the student from "obstacle" to "player" in the learning process. Learning communities can serve as a venue for getting students off the bench and on the playing field.

Cross (1998) discusses that social construction of knowledge is not something handed down by the faculty to students, but rather something that is arrived at through faculty and student collaboration. Cross argues that "passive learning presumably encouraged, or at least permitted by lectures, [and] the competition engendered by grades and test scores...are some of the major criticisms of the pedagogies of our time" (1998, p. 5). Intentionally structured, learning communities, which promote team work among students and between students and faculty, serve as

an excellent tool for addressing these criticisms and for getting the student actively involved in their own learning. Cross contends the growing interest in learning communities is a direct result of students' ability to "help institutions of higher education meet their missions of educating students for the lives of work and service" (1998, p. 11).

In addition, learning communities can help institutions meet their mission of increasing student retention and graduation rates. Tinto (1998) asserts that "one thing we know about persistence is that involvement matters" (p. 169). "According to Tinto, persistence is a function of integration into the academic and social aspects of college life. Academic and social integration lead to commitment; commitment leads to persistence" (Pike, Schroeder, & Berry, 1997, p. 610). Ultimately, learning communities help students develop an academic and social support system, and a sense of membership in their campus community.

Definition of Learning Communities

Angelo (1997) describes a learning community as an educational haven, where faculty and students work collaboratively towards shared academic goals and where competition is de-emphasized. In fact, faculty and students alike have both the opportunity and the responsibility to help the other members of the community learn. Faculty become architects of the learning experience; they are no longer the sole providers of knowledge in that learning environment. Angelo describes learning communities as projects that typically feature the purposeful grouping of students and curricula so as to connect learning across courses and disciplines. Learning communities are sometimes employed as a strategy for restructuring undergraduate curricula.

Both Astin and Smith imply that learning communities must be curricular in nature. Learning communities are "small subgroups of students...characterized by a common sense of purpose...that can be used to build a sense of group identity, cohesiveness, and uniqueness that encourage continuity and the integration of diverse curricular and co-curricular experiences" (Astin, 1985, p. 161 cited in Hamilton, 1997). Smith (1993) maintains that, although many different learning community models are being implemented throughout the nation, *all* learning community models intentionally restructure students' time and the curricula. They link together courses to provide greater curricular coherence and increased interaction among students, among faculty, and between students and faculty.

Angelo (1997), Astin (1985), and Smith (1993) all define learning communities as experiences that provide curricular integration. This definition describes some of Iowa State

University's learning communities, but not most. The majority of Iowa State University's learning communities have not required that the curricula be changed or delivered differently.

Lenning and Ebbers (1999) define student learning communities as "relatively small groups of students (and faculty) working together to enhance and integrate students' learning and to help students become well-rounded, broad-based individuals" (p. 15). Cross (1998) defines learning communities as "groups engaged in intellectual interaction for the purpose of learning" (p. 4). All learning communities at Iowa State University, whether course-based or other, promote the central mission of the University which is student learning. Therefore, for the purpose of this thesis, the definitions offered by Lenning and Ebbers (1999) and by Cross (1998) are appropriate.

Iowa State University learning communities are further described in a news release prepared for the Iowa State University fall 1998 convocation by Steve Sullivan, News Services, with input from Corly Petersen-Brooke, Director of the Center for Teaching Excellence, and Laura Doering, Assistant Registrar. This news release reads:

> Learning communities are a university-wide initiative launched in fall 1995 to provide interested new students with an opportunity to connect with peers who have similar academic goals. Advantages of learning communities may include seeing familiar faces in classes, making a smooth transition from high school to college by developing academic and social networks, developing links between in-class and out-of class learning opportunities, and building critically important faculty connections. A typical learning community experience will include a combination of activities all designed to help students succeed at Iowa State University. A learning community experience could include common courses, innovative curriculum, a common place of residence, an orientation course, career exploration, an introduction to university resources, peer mentoring and/or tutoring, faculty mentoring, increased faculty involvement outside of the classroom, a simplified registration process due to reduced course conflicts, participation in department club or other campus organization, leadership development, exposure to international and/or diversity issues, and special programs designed to acquaint students with campus life and/or improve academic proficiencies. Students who participate in learning communities will work in a more collaborative learning environment. Freshmen learning communities at Iowa State University help students...meet degree requirements, adapt to the university way of life, and develop a sense of membership in the University community.

> At Iowa State University, learning communities are structured by discipline or by area of intellectual interest. Not all departments currently offer learning communities. Many of the learning communities are sub-divided into groups of students sharing a common schedule of introductory classes and/or living assignment so that the team scale is appropriate given that learning community's objectives. For example in fall 1997, the College of Business learning community enrolled over 150 students. Within this one learning community, there were over 10 learning teams or subgroups each taking a common set of courses together. (Sullivan, 1998, September 3)

History of Learning Communities Nationally

So, why learning communities in today's educational culture? Learning communities are a very seductive idea --- a "buzz word" in higher education. Learning communities are being viewed as the super hero that can help higher education rise to the various challenges of the new millennium, such as reducing student attrition, re-tooling faculty to employ active/collaborative learning strategies, and preparing students for the global work world. Boyer's six principles for understanding *community* in higher education...serve as the "primary impetus for the emergence of learning communities" (Lenning & Ebbers, 1999, p. 9). Boyer's six principles are documented by Lenning and Ebbers (1999) who cite Boyer 1990, pp. 7-8; and A. Levine 1993, p. 327:

> By a *purposeful* community, we mean a place where faculty and students share academic goals and work together to strengthen teaching and learning on campus. By an *open* community, we mean a place where freedom of expression is uncompromisingly defended and where civility is powerfully affirmed. By a *just* community, we mean a place where the sacredness of each person is honored and where diversity is aggressively pursued. By a *disciplined* community, we mean a place where individuals accept their obligations to the group and well-defined governance procedures guide behavior for the common good. By a *caring* community, we mean a place where the well-being of each member is sensitively supported and where service to others is encouraged. By a *celebrative* community, we mean a place where the heritage of the institution is remembered and where rituals affirming both tradition and change are widely shared. (p. 7)

Learning communities can yield benefits for students, faculty, institution, and community. "Students receive a more integrated education, faculty members are challenged intellectually and professionally, and the community benefits by receiving graduates with a greater understanding of

real-word problems and the skills to help solve them" (University of Miami, President's Report, 1998). They can "demystify and humanize a large campus and enhance student learning and academic performance" (Minor, 1997, p. 22). Matthews (1994) advocates learning communities work because they help overcome the isolation of faculty members from one another and their students, and they foster a sense of group identity and cohesion.

"[Learning communities] are an old idea experiencing a long overdue re-emergence" (Gabelnick et al., 1990, p. 10). A number of institutions nationwide, in an effort to address both the academic and social needs of new students, have implemented learning communities. Learning communities are a viable venue for accomplishing these objectives *if* intentionally constructed with enhanced learning at the core and faculty "on board" as organizers of and active participants in the community. Also essential to the success of any learning community initiative is a healthy partnership between academic affairs and student affairs.

"Informal learning communities have existed for centuries as small groups of people with a common interest get together to discuss and explore common issues and to learn collectively" (Wolfson, 1995, p. 23). Lenning and Ebbers (1999) say *learning community* is grounded in the traditions of the colonial colleges. An addition, the early experimental colleges and residential colleges that emerged in the 1960s put to use many of the underlying concepts of what today we call *learning communities*. Meiklejohn and Dewey, fore-fathers of learning community work, believed that education should be delivered for the purpose of citizenship (Gabelnick et al., 1990, p. 15). Meiklejohn advocated the critical importance of coherently structured curriculum and Dewey insisted on the importance of a student-centered teaching and learning process.

The terminology "learning community" became prominent in the 1980s when more and more campuses began to adapt the concept as a potential cure for student attrition, and a potential contributor to enhancing student learning and improving classroom teaching. According to Lenning et al. (1999), the learning community movement was fueled by the following publications and activities:

> The Washington Center for Improving the Quality of Undergraduate Education, which through the Ford Foundation and other funding, supported the development of learning communities throughout the state of Washington, the publication of a Jossey-Bass *New Directions* source book on learning communities (Gabelnick et al. 1990), and the development of a national clearinghouse on the topic through the financial support of the Fund for the Improvement of Postsecondary Education (FIPSE). The research studies on

> learning communities conducted by Vincent Tinto and his colleagues at the National Center on Postsecondary Teaching, Learning and Assessment, a book about involving colleges (Kuh, Schuh, Whitt and Associates, 1991), and the funding for development of learning communities provided by FIPSE provided further impetus. (pp. 9-10)

The Washington Center for Improving the Quality of Undergraduate Education has significantly contributed to the growth of learning communities in the state of Washington. In addition to supporting the 40 plus learning community initiatives in Washington, it also serves nationally as a central clearinghouse for higher education learning community information.

The learning community models discussed in the Gabelnick et al., 1990 publication include learning clusters, triads, federated learning communities, coordinated studies programs and integrated studies. There are many more models today, and the models vary from campus to campus and often within campuses. One of the strengths of the Iowa State University learning communities program is the flexibility in community design. Iowa State University does not have one model for the university, but rather encourages faculty, staff, and student creativity in designing a learning community experience appropriate for that major or area of intellectual interest.

Learning communities provide an approach for addressing retention and various quality education issues raised in a number of higher education reports published in the late 1980s and 1990s. The learning community movement continues to be fueled for our nation's universities by *The Boyer Commission on Educating Undergraduates in the Research University report* released in 1998 and *The Kellogg Commission on the Future of State and Land-grant Universities report* (1997). Both reports advocate that universities need to concentrate on building community.

The Boyer report (Boyer Commission, 1998) identifies the need to "cultivate a sense of community" in order to change undergraduate education for the better. "Research universities should foster a community of learners. Large universities must find ways to create a sense of place and to help students develop small communities within the larger whole. A sense of community is an essential element in providing students a strong undergraduate education in a research university" (Boyer Commission, 1998, Section X. Cultivate a Sense of Community). The report promotes small group work for the purpose of building friendships, and engaging in direct intellectual contact with other students and faculty. One of the overarching messages in *The Boyer report* (Boyer Commission, 1998) is that institutions of higher education need to redefine scholarship to include not only research, but also collaborative and meaningful teaching and mentoring.

The Kellogg report (Kellogg Commission, 1997) calls for state and land-grant institutions to "become genuine learning communities, supporting and inspiring faculty, staff, and learners of all kinds. Our learning communities should be student centered, committed to excellence in teaching and to meeting the legitimate needs of learners" (pp. v.-vi.). Martin C. Jischke, President of Iowa State University, served as a member of this Commission.

The Kellogg Commission describes the new university as "a different kind of learning community, one that protected scholarship and free inquiry by relating them to learning. It put learning at the top of its agenda. It took advantage of the latest technologies and restructured itself to do what it had to do with the resources it had available. Above all, it strengthened its roots by putting students first" (Kellogg Commission, 1997, p. vii).

"A learning community...supports and inspires academic growth and learning among faculty, staff, students, and learners of all kinds, on-campus and off." (Kellogg Commission, 1997, p. viii). The report continues to define a learning community as:

> [A community] committed to meeting the needs of students and it respects the learning needs of the faculty as much as it encourages students to work as apprentice researchers. In such a community, all activities and responsibilities are related. Students, staff, and faculty come to see themselves as engaged in a common enterprise. Above all, the quality of learning is nearly inseparable from the experience of functioning as an integral part of the community itself. As we understand the term, learning is not something reserved for classrooms or degree programs. It is available to every member of the academic community, whether in the classroom or the administration building, the laboratory or the library, the residence hall or the performing arts center, the field house or the extension field office. (Kellogg Commission, 1997, pp. 9-10).

Ideally, the learning community experience capitalizes on the learning opportunities both in and outside the formal classroom.

History of Learning Communities at Iowa State University

At Iowa State University, learning communities are fueled by several documents that suggest future directions and desired destinations. Some of these documents include *Aspiring to be the Nation's Premier Land-grant University: The Strategic Plan for 1995-2000* (Iowa State University, 1995), the report by the Task Forces on Undergraduate Education titled *Commitment to Undergraduate Education* (Iowa State University, 1997, October), the *Proceedings of the Sixth*

Annual ISU Faculty Conference (Iowa State University, 1998c), and the *Learning Communities Working Group Final Report to President Jischke and Provost Kosak* (1998b, July).

There is a clear relationship between learning communities and the Iowa State University mission and strategic plan. Cross (1998) gives two examples of how learning community programs can support the mission statement at almost any college or university: "training people effectively for the workplace and educating them for good citizenship" (p. 10). *The Strategic Plan for 1995-2000* (Iowa State University, 1995) lists a number of goals which the learning community initiative fosters. Some of these goals include:

> Greater emphasis on student-centered learning environment...increased innovation and excellence in teaching...expanded efforts to increase student retention & graduation rates...curricula with an emphasis on developing critical thinking and team learning abilities... involvement of undergraduates in research and scholarly debate...special emphasis on faculty involvement in undergraduate education...professional development opportunities for faculty to improve teaching techniques and course content...enhanced opportunities for informal interactions among faculty, staff, and students...and increased interactions among departments, colleges, and support units. (Strategic Plan, 1995, Section: Goals and characteristics sought)

The Iowa State University report by the Task Forces on Undergraduate Education entitled *Commitment to Undergraduate Education* (Iowa State University, 1997) focuses on improving the undergraduate experience at Iowa State University. The major recommendations discussed in this report include: (1) improve the quality of teaching, (2) strengthen academic advising, (3) provide early support for freshmen, (4) provide early support for transfer students, (5) identify sources of help, (6) address the needs of special student populations, and (7) affirm institutional support for faculty. This report states the primary goal of learning communities is "to enhance student retention by easing the transition of new high school graduates into the university" (Iowa State University, 1997, p. 29). The task force report reads that Iowa State University learning communities were "established primarily to combat [new students'] sense of isolation and bolster students' chances of academic success and continued enrollment" (Iowa State University, 1997, p. 29). This task force recommended that "the learning community program be expanded by encouraging active faculty participation, and be given vigorous support by central administration" (p. 30).

The Iowa State University learning community initiative is growing rapidly, as evidenced by the increase from 10 course-based communities enrolling 407 students in fall 1995 to a projected 39

communities enrolling over 1,600 students for fall 1999. The 1995 numbers exclude residential-only communities that were not identified on the Registrar's student information system in 1995. The Iowa State University learning community emphasis started in fall 1994 with a visit from Dr. Vincent Tinto. Tinto presented to key faculty and staff the benefits of and research on learning communities. Tinto's visit, sponsored by the Higher Education graduate program at Iowa State University, stimulated discussion on how learning communities might help Iowa State University meet its objectives in *The Strategic Plan for 1995-2000.*

In spring 1995, the Associate Registrar, the Director of the Center for Teaching Excellence, and the Orientation and Retention Program Coordinator met with each undergraduate college to discuss the learning community concept and potential learning community course schedules. These meetings resulted in ten course-based learning communities for fall 1995. These learning communities consisted of block scheduled courses with little or no curricular innovation. Students would take the same set of courses, and in most cases, the courses were not coordinated. There was no attempt made to inform all faculty members teaching sections with learning community students enrolled. There were a couple of exceptions to this rule where faculty delivering different courses, such as Introduction to Biology (BIOL 201) and Freshmen Composition (ENGL 104 or 105), would coordinate assignments and textbooks. Some of the learning community experiences in 1995 included students living together in the same residence hall, sometimes on the same floor (see Appendix D for learning community activity tables, years 1995-1997).

Initial challenges in implementing learning communities at Iowa State University included (a) no or little financial resources; (b) balancing access to courses for both learning community and non-learning community students; (c) getting faculty involved and related reward, promotion and tenure issues; (d) establishing channels for campus-wide communication and collaboration; and (e) conducting meaningful program evaluation/assessment.

Laura Doering, the author of this thesis, wrote the following for inclusion in the *Learning Community Working Group Final Report* submitted to the President and Provost in July 1998:

> In response to the increased interest and desire for collaboration and coordination at Iowa State University, the Learning Communities Working Group (LCWG) was formed in January 1998. The idea for this group emerged in January of this year at a national conference on learning communities. The Office of the Provost partnered with colleges and units from across campus to send thirteen faculty and staff to a conference titled *"Transforming Campuses into Learning Communities: Building Bridges and Overcoming Barriers"*

> (sponsored by the University of Miami, January 8-11). The conference stimulated ideas that merited further discussion thus the LCWG met weekly during Spring Semester. The Working Group was comprised of the academic and student affairs representatives that attended the conference in Miami. Additional members were added to the group in order to have representation from all undergraduate colleges and expertise in the assessment area. This group, chaired by Dr. Corly Peterson-Brooke, Director of the Center for Teaching Excellence, was committed to expanding and improving the concept of learning communities at Iowa State University. In March 1998, the LCWG submitted a proposal for year-end funds to the Provost Office. This proposal was fully funded ($28,000). With these funds, the LCWG conducted site visits to exemplary learning community institutions (University of Maryland and University of Michigan), coordinated and delivered a learning communities workshop for faculty and staff working with fall 1998 learning communities, provided funding for assessment efforts, provided funding for writing across the curriculum (WAC) efforts, provided funding for learning community publications used at orientation, and facilitated a two-day LCWG retreat. The purpose of the retreat was to develop a final report including vision, objectives, desired outcomes, common characteristics of Iowa State University learning communities, recommendations for institutional organization, and recommendations for continued expansion of learning communities at Iowa State University. (Iowa State University, 1998b, p. 1)

The LCWG's final report was submitted to the President and Provost in July 1998 and its contents shared by Dr. Corly Peterson-Brooke at the July President's Council meeting. Summer 1998 saw heightened learning community activity on campus. The recommendations from the LCWG, along with a funding proposal from the Office of the Vice President for Student Affairs and the Office of the Provost, resulted in a $1.5 million funding commitment over a three-year period from the President to initiate a full-scale effort to improve and expand Iowa State University's learning community initiative. This grant, announced in September 1998, included funding for (1) creating new, innovative learning communities; (2) sustaining and improving existing learning communities; (3) promoting learning communities; (4) assessing the effectiveness of learning communities; (5) providing professional development opportunities for those associated with building the Iowa State University learning community project; and (6) hiring a full-time Iowa State University learning communities support coordinator with clerical and graduate assistant support. The coordinator would be responsible for providing professional development opportunities for

faculty and staff, establishing a communication network for faculty and staff, promoting innovation in learning community development, conducting and providing support for research and assessment, and assisting departments and colleges in developing learning community grants.

In fall 1998, a Learning Community Advisory Committee was appointed to provide campus-wide coordination, assessment support, and training, and to provide support to the expansion and improvement efforts. The Advisory Committee membership includes representation from both academic affairs and student affairs.

Iowa State University President Martin Jischke strongly supports the learning community efforts as evidenced by his funding commitment and his particular interest in this initiative. The literature (Lenning and Ebbers, 1999) is clear that top administrative support is essential to a healthy, sustainable learning community program.

In his address to the Student Affairs Division on August 5, 1998, Iowa State University President Martin Jischke spoke of learning communities in relation to student success, recruitment, and retention. President Jischke said, "Learning communities are right on the mark in terms of what research tells us about student success." He discussed their value in terms of helping students establish an academic and social network. When talking to student affairs staff about where to focus their efforts this coming year, President Jischke said, "If there is one thing you ought to concentrate on its retention to graduation" (Jischke, 1998). Given the effect of learning communities on retention, President Jischke challenged student affairs personnel to determine how they can contribute to the learning community initiative.

President Jischke addressed the Iowa State University Learning Community Institute on May 14, 1999. He stated that "[the learning community initiative] has grown, first and foremost, because it works." The President praised the learning community movement for the "enormous enthusiasm and energy it's released among those who participate" and referred to the movement as an "experiment that has been very important to the University." In addition, President Jischke indicated the approved 100 million dollar residence hall renovation was sparked partially by the desire to create an environment conducive to learning community activities.

Academic Affairs and Student Affairs Partnership

For over fifty years, student affairs practitioners have contributed towards student outcomes by assisting students to use the knowledge they acquire in the formal classroom in their "real life", everyday experiences (Kuh, Schuh, Whitt, & Associates, 1991). It is in this context that student

affairs presently has an opportunity to span traditional organizational boundaries and commit itself to a teaching-learning partnership with faculty and students through cooperative and collaborative efforts (Bloland, Stamatakos, & Rogers, 1996). The Student Learning Imperative (SLI), written by the American College Personnel Association in 1994, emphasizes the need for student affairs to realign with student learning. The Joint Task Force on Student Learning report (1998) titled *Powerful Partnerships: A Shared Responsibility for Learning* reads "Collaborations between academic and student affairs personnel and organization have been especially effective in achieving this better learning for students" (p. 5).

Iowa State University learning communities serve as an excellent example of a collaborative project between student affairs and academic affairs. "Learning communities can easily be created when student affairs educators and faculty are willing to work together to enhance student learning - and, ultimately, student success" (Minor, 1997, p. 22). Although some may argue creation is not necessarily easy, one can definitely argue, based on the early research accomplished, that learning communities are certainly a gratifying and worthwhile experience for most participants whether they be students, faculty, or student affairs staff.

Significance of this Research Topic

Empirical studies show that students who participate in learning communities persist at a greater rate, experience higher academic achievement, and have greater satisfaction with their academic experiences. Quantitative measures of student achievement in learning communities include student retention (measured by term to term persistence), student performance (measured by GPA), and student intellectual development (also measured by GPA). However, "researchers have yet to acquire the kinds of comparative longitudinal evidence that would enable us to understand whether collaborative learning programs independently enhance student achievement and how they do so" (Tinto, Goodsell-Love, & Russo, 1993, p. 16).

Most research on learning communities to date has occurred at institutions of higher education that differ significantly, in both mission and student profile, from Iowa State University. Most research has occurred at urban, commuter campuses. This study is designed to increase our understanding of how a diverse freshmen learning communities program at a traditional, land-grant institution affects student persistence and academic achievement as measured by grade point average. In addition, this study attempts to provide insight into which characteristics of learning communities

make a difference in retention and student academic performance as measured by grade point average.

Iowa State University should position itself to contribute to the literature on learning communities at research universities. Given the need for longitudinal and scholarly assessment on learning communities, both at Iowa State University and nationally, it is imperative that Iowa State University monitor the progress of its learning community programs by consistently and deliberately measuring the impact of learning community participation on learning outcomes and student persistence.

Purpose of the Study

The first purpose of this study is to increase our understanding of whether freshmen learning communities at Iowa State University contribute positively to student persistence at the University and to academic achievement, measured by grade point average (GPA). This study is intended to lay the foundation for a University longitudinal study comparing learning community student retention and cumulative GPA performance *to* non-learning community student retention and cumulative GPA performance. Information for this study was obtained from the Office of the Registrar's student information database, and the ADP data download used by the Office of Institutional Research to prepare the Iowa State University Longitudinal Retention Survey Report.

The second purpose of this study is to begin to explore which characteristics of learning communities at Iowa State University make a difference. This study compares the retention rates and GPA performance of learning community students based on five learning community characteristics. The study concentrates on experiences that extend learning beyond the classroom, integrate curriculum, and/or encourage interactive learning among students, and between students and faculty. These experiences include: (1) lived together in a residence hall; (2) assigned a peer mentor; (3) enrolled in a common set of classes together; (4) experienced curricular innovation (enrolled in linked courses, or an experimental course developed specifically for that learning community); and (5) increased involvement with faculty outside of the classroom.

The specific questions that will be examined in this study include:

1. Do students who participate in a freshmen learning community at Iowa State University earn higher *cumulative grade point averages* than students who do not participate in a freshmen learning community?

2. Do students who participate in a freshmen learning community at Iowa State University *persist* at the University from semester to semester at a higher level than students who do not participate in a freshmen learning community?

3. Do students who participate in a *residential* freshmen learning community earn higher *cumulative grade point averages* than students who participate in a non-residential learning community?

4. Do students who participate in a *residential* freshmen learning community *persist* at the University from semester to semester at a higher level than students who participate in a non-residential learning community?

5. Do students who participate in a freshmen learning community that utilizes *peer mentors* earn higher *cumulative grade point averages* than students who participate in a learning community that does not use peer mentors?

6. Do students who participate in a freshmen learning community that utilizes *peer mentors persist* at the University from semester to semester at a higher level than students who participate in a learning community that does not use peer mentors?

7. Do students who participate in a freshmen learning community and *take a common set of courses* earn higher *cumulative grade point averages* than learning community students who do not take a common set of courses together?

8. Do students who participate in a freshmen learning community and *take a common set of courses* together *persist* at the University from semester to semester at a higher level than learning community students who do not take a common set of courses together?

9. Do students who participate in a freshmen learning community that is *course-based with innovative curriculum* (linked or experimental courses) earn higher *cumulative grade point averages* than learning community students who do not?

10. Do students who participate in a freshmen learning community that is *course-based with innovation curriculum* (linked or experimental courses) *persist* at the University from semester to semester at a higher level than learning community students who do not?

11. Do students who participate in a freshmen learning community that has *faculty involvement outside of the classroom* earn higher *cumulative grade point averages* than learning community students who do not?

12. Do students who participate in a freshmen learning community that has *faculty involvement outside of the classroom persist* at the University from semester to semester at a higher level than learning community students who do not?

Assumptions of the Study

1) The study assumes the learning community coordinators have a similar definition of curricular innovation and faculty involvement, and what constitutes curricular innovation and faculty involvement outside of the classroom.

Limitations of the Study

1) The study eliminated 437 cases (1995-1997) that did not meet the new student classification required for inclusion in the University Retention Study file. Eliminated cases were students classified as other than new freshmen.
2) The study does not control for motivational factors related to self-selection or difficulty of degree program.
3) The study does not include a one-to-one match group, but is rather a study of the full population. The large number of cases increases the return of statistically significant results. A one-to-one match group approach was not used because several majors had the large majority of their students participating in the learning community; therefore, not enough subjects, in that same major, were available to establish a control group.
4) The study defines "faculty involvement outside of the classroom" broadly. Faculty involvement can range *from* faculty attendance at a pizza social *to* faculty mentoring on a weekly basis. The range of involvement varies greatly from one learning community to the next, so this variable is difficult to measure.
5) The study did not use qualitative methods such as focus groups or student, faculty, and learning community coordinator interviews to obtain in-depth information on the various learning community characteristics.
6) The study does not include any comparative data for other learning community universities similar to Iowa State University.
7) Since fall 1999 persistence data will not be available until September/October 1999, a one year persistence rate cannot yet be determined for the fall 1998 cohort. Therefore, this study does not include fall 1998 data.

8) The study does not compare cumulative grade point averages for all three cohorts at the same point in time. The researcher captured cumulative grade point averages for all three groups on count day (the 10th day of fall semester 1998). Therefore, the fall 1995 group was further removed from their freshmen learning community experience than the fall 1997 group.

Organization of Thesis

Chapter 1 provides an introduction to this thesis, an overview of the learning community initiative nationally and at Iowa State University, and the significance of this research topic to higher education. Chapter 2 discusses the most recent literature on learning communities as it relates to this study and the Iowa State University learning community initiative. Chapter 3 explains the methods used in data collection and analysis. Chapter 4 presents and discusses the results of this study. It describes the relationship between learning community participation *and* student persistence and grade point average. This chapter also describes if there is a difference, at this time, in retention and cumulative grade point averages for residential and non-residential learning communities, learning communities that use peer mentors, learning communities that have a common set of courses, learning communities where curricular innovation is employed, and learning communities where faculty involvement outside of the classroom is purposefully increased. Chapter 5 summarizes the study and provides recommendations for program improvement and/or expansion, and it raises questions or suggestions for future research.

Author Background

The author is employed as Assistant Registrar at Iowa State University. In this capacity, she has played a leadership role in the development and implementation of learning communities at Iowa State University since fall 1995. The author served as a member of the Learning Community Working Group and as co-chair of the Learning Community Assessment Task Force. She now serves on the University Learning Community Advisory Committee. The author is responsible for (a) managing the learning community registration process; (b) developing student information systems to support the learning community initiative; (c) creating learning community publications for use by students, faculty, and staff; (d) conducting and providing assessment support to learning community coordinators and the Provost Office for the purpose of program evaluation; (e) providing direction and procedural issues for course-based learning communities; and (f) serving as one of several

resource persons on campus for individuals interested in establishing, or simply learning more about, learning communities. The author has presented on the Iowa State University Learning Community initiative at four national, and two regional higher education conferences.

The author has used a rigorous process of inquiry to remain objective while constructing this thesis. The voice used in this thesis is that of a graduate student researcher rather than that of the Assistant Registrar for Iowa State University.

CHAPTER TWO: REVIEW OF LITERATURE

This chapter will provide information on learning community models, campus culture, implementation, assessment, benefits, and challenges. This chapter will also review the empirical research conducted on learning communities as it applies to this study – specifically the academic effects of learning communities; the student retention effects of learning communities; and the effects of specific learning community characteristics on student academic performance and persistence.

In addition, this chapter will discuss related topics such as the relationship of involvement to student academic success and retention, the role of learning communities in building workplace skills, the effects of learning communities on diversity, promotion and tenure issues related to faculty involvement in learning communities, and the incorporation of research and technology into the learning community experience.

Learning Community Models

The scale and complexity of learning community models has ballooned since late 1980 from the initial models (linked or paired courses, learning clusters, freshmen interest groups, federated learning communities, and coordinated studies programs) described in *Learning communities: Creating connections among student, faculty, and disciplines*, the Jossey-Bass New Directions Series book by Faith Gabelnick, Jean MacGregor, Roberta Matthews, and Barbara Leigh Smith (1990). Today's learning community models are as diverse as the list of institutions now in full production with, or experimenting with, learning community programs.

Some of the learning community models include learning clusters, triads, federated learning communities, freshmen interest groups, linked courses, freshmen year experience programs, coordinated studies, integrated studies, team-taught programs, curricular learning communities, classroom learning communities, residential learning communities, residential and course-based learning communities, and student-type learning communities. The list goes on and on because models vary from one campus to another. The degree to which any one of the above models, or any of a combination of the above models, is practiced also varies from campus to campus.

Lucas and Mott (1996) found in their study at William Rainey Harper Community College that the Coordinated Studies group participants experienced more positive changes than did the participants in the Course Cluster and Freshmen Interest Groups (FIGs). Course Cluster and FIG

models group and/or link two or more courses, but do not encompass the entire student's schedule. The Coordinated Studies Program (CSP) is a longer-term program whereby faculty are fully involved with their students; CSP is a more intensive total learning experience. The CSP model typically calls for the redesign of curriculum, and faculty and students usually are engaged full-time in the program. Students register for only one CSP as their entire course load thus allowing faculty and students to more fully explore topics and extend learning experiences beyond the typical one-hour class period per week. Results of the Lucas and Mott study suggest that learning communities that intentionally involve faculty and use innovative curricula yield the greatest benefits.

Gabelnick et al. (1990) say that although models vary, "all [learning community] efforts represent attempts to reorganize and redirect students' academic experience for greater intellectual and social coherence and involvement" (p. 19). Iowa State University strives to encourage faculty creativity in the development of learning community programs and therefore has not adapted a single learning community model. The land-grant mission challenges us to serve all students; therefore, Iowa State University does not assume one size fits all. For example, what works for the traditional, residential student may not be the best approach for building community among non-residential, adult students. Institutional culture should significantly influence what learning community type or model is implemented.

Campus Culture

In establishing learning communities, it is critical that developers understand their institutional culture. At the Transforming Campuses into Learning Communities conference at the University of Miami, January 8-11, 1998, Angelo discussed in the closing session the importance of understanding one's institutional culture. Angelo said that excited, early adopters, who choose to ignore the campus culture, may be perceived as "having a virus" which needs to be contained and sometimes even "stomped out." Angelo's message does not imply that the development of learning communities must be void of innovation and creativity, but instead that universal values and objectives must be discerned. Culture must be taken into consideration when determining the model(s) and duration for an institution's learning communities, and the learning community effort should support the mission of the university.

Lenning and Ebbers (1999) share that their experience has been "to find two types of faculty before participating in learning communities – known early adopters and those known for innovative classroom techniques" (p. 76). These authors caution that resistance to change should be anticipated

from traditional faculty, which lends support to getting faculty involved at the initiation stage. It's easier to sell a concept to faculty if it's perceived as a grass roots movement versus an idea handed down and imposed by administration.

Learning communities serve as a venue for curricular change and therefore could be perceived as threatening by faculty who deeply value academic freedom. Well-structured, curricular-based learning communities require faculty to accept new definitions of teaching and learning and to practice new teaching methods where the faculty person is not the sole transmitter of information in the classroom, but rather a partner in learning. Understanding and addressing faculty fears related to this shift in paradigm is crucial. Change instigated too quickly and without faculty input can cause faculty to question the value of the project, educational quality, and their personal time commitment (Lucas and Mott, 1996).

Implementation of Learning Communities

According to Lenning and Ebbers (1999) learning communities always should be organized intentionally to facilitate more effective learning by students. Lenning and Ebbers (1999) state "well-conceived student learning communities...help students perceive their cumulative education as part of the big picture of life" (p. 15). According to Gabelnick et al. (1990), the successful implementation of learning communities is complex and requires that all players come to the table. Implementation requires extensive coordination among departments. Key to successful implementation are personnel involved with institutional goal setting, instruction, calendar, registration and student scheduling, residence life, assessment, publicity, enrollment services, room scheduling, and academic advising.

At the Transforming Campuses into Learning Communities conference at the University of Miami, January 8-11, 1998, Barbara Leigh Smith stated that successful learning community implementation requires extensive cross-unit coordination. She identified the following as the "locus of learning community leadership: goals for the effort, faculty recruitment, faculty development support, learning community offerings/models, planning calendar, scheduling times and rooms, involvement of academic advisers, publicity and student recruitment, registrar and registration, program delivery, and assessment and evaluation." The "locus of learning community leadership" will vary from institution to institution depending on learning community program objectives and model. For example, Iowa State University has a significant number of residential and course-based learning communities. Therefore, the Department of Residence and the Office of the Registrar, in

addition to the academic unit, are key players in the learning community movement, and need to be included at the planning stage as well as at the implementation stage. When developing a learning community program, identify "early adopters" by identifying where the pools of innovation are on campus, and leave the door open for interested others.

Levine and Tompkins (1996) provide seven lessons for making learning communities work. These lessons include:

1. Find your own look based on your institutional culture.
2. Market your product to students, academic advisers, faculty, and other members of your campus community.
3. Recognize that colleges and departments within a university are different and these differences may require your university to adopt multiple learning community models.
4. Develop your learning community models to meet your desired outcomes.
5. Channel the students' group power and energy so that it is used to create a positive group learning experience.
6. Optimize the potential of learning community development and implementation to contribute to faculty professional development.
7. Use learning communities to cross boundaries between academic and student affairs. Educating students is a community responsibility that should be shared by all units on campus rather than left solely to the faculty.

Levine and Tompkins (1996) also discuss the importance of developing an institutional structure for maintaining and supporting learning community efforts long-term.

Gabelnick et al. (1990) advocate that "eventually the learning community effort will require a stable leadership and administrative home. If an administrator acts as the coordinator of the project and assumes responsibilities for logistics, the faculty can concentrate on curriculum development, instruction, and evaluation. Faculty are usually grateful for the assistance..." (p. 41). Iowa State University's Office of the Registrar for example provides registration materials and course scheduling assistance so that the faculty coordinator can concentrate on building a quality learning experience for the student rather than on the mechanics of registering a student for his/her learning community.

Learning Community Assessment

Assessment should accompany implementation, and never be an after thought. Angelo (1997) discusses the role of assessment in moving "from a culture of largely unexamined

assumptions to a culture of inquiry." Assessment forces institutions of higher education to examine their standard practices and to invent new and better ways to help students reach their academic and intellectual goals.

Learning community efforts have yet to launch the kind of large-scale evaluation studies necessary to talk conclusively about assessment. There is no question that the learning community concept needs to undergo rigorous and scholarly assessment. And, there is no question that it is extremely challenging to establish cause and effect.

Assessment of Iowa State University learning communities had an inconsistent beginning and continues to be a challenge. In the beginning, assessment was, for the most part, decentralized and left to the discretion of the individual learning community coordinators for the first three years (1995-1997). Some of the Iowa State University learning communities launched already having a rigorous and scholarly assessment plan constructed, while others conducted no assessment in the early stages. Reasons cited for not doing assessment were lack of time, and/or lack of assessment expertise in areas such as study design, reliability and validity of measures and indicators, data collection, and data interpretation. One Iowa State University learning community coordinator annually administered surveys to her learning community students and a control group, but never found time to compile and interpret the results. This coordinator expressed frustration with having data, but not time to work with the data.

Recognizing that several learning community coordinators were struggling with, or dismissing the assessment component of the learning community experience, the Provost Office appointed a university learning community assessment task force, comprised of faculty, learning community coordinators, and student affairs professionals. This task force was formed to determine how to best assist individual learning community coordinators with program evaluation, and to collect information university-wide for the purpose of program improvement.

The task force, chaired by Dr. Don Whalen (Department of Residence) and Laura Doering (Office of the Registrar), developed standardized pre- and post-test academic environment surveys, and recommended funding for the purchase of and scoring of the College Student Experiences Questionnaire (CSEQ). The task force also recommended funding a graduate student who would process the learning community surveys, provide results to the specific learning community coordinator, and prepare comparative data to share with the university community in an effort to improve the Iowa State University learning community initiative.

The assessment task force's recommendations and instruments were approved. The academic environment surveys were administered to all learning communities and control groups in 1998-99 (required assessment); the CSEQ was made available to all learning community coordinators (elective assessment). In addition, a graduate assistant was hired to help with learning community assessment. The effort was coordinated primarily by the Department of Residence and secondarily by the Office of the Registrar with support from the various learning community coordinators.

Given the financial and human resource commitment Iowa State University has made to learning communities, on-going assessment is imperative. The news release prepared, by Steve Sullivan, News Services, for the Iowa State University Fall 1998 convocation read "Iowa State will conduct a formal assessment of its learning community program to determine its impact on student retention, student recruitment, student achievement in learning, and student satisfaction" (Sullivan, 1993, September).

The LCWG recommended, via their July 1998 final report to the President and the Provost, that Iowa State University personnel monitor the progress of the learning community program by measuring the following specific student and faculty objectives/outcomes:

> Students in learning communities will experience higher academic achievement, have greater satisfaction with their academic experiences, demonstrate a better understanding of differences and similarities among people and cultures, and demonstrate increased awareness of University resources. Students will also increase collaborative interactions with other students and with faculty and staff, more readily achieve the articulated learner outcomes specified by departments or programs, have a better understanding of career options, and show a greater rate of persistence as a result of all of the above. Faculty in learning communities will increase interaction with students, staff, and other faculty, employ active and collaborative teaching strategies, increase involvement in faculty development opportunities, and increase participation in scholarly and interdisciplinary endeavors in teaching, research and outreach. (p. 4-5)

The Iowa State University approach is *outcomes first, learning community design second.* Each learning community will be encouraged to *first* develop, in addition to the university articulated outcomes, their own specific outcomes, and then *second* design their learning community experience to meet the stated desired outcomes and needs of that department or program. Matthews (1994)

advocates that creators of community need to acknowledge common goals and recognize the value of collaboration in achieving those goals.

At Iowa State University, university-wide, learning community assessment efforts are currently under further development and/or refinement in an effort to best measure the academic and retention effects of learning communities.

Learning Community Benefits

Research indicates that learning communities yield rich benefits for the institution, its faculty and staff, and its students. (Diefenbach, 1996; Gabelnick et al., 1990; Gardiner, 1994; Lenning & Ebbers, 1999; Levine & Tompkins, 1996; MacGregor, 1994; Matthews, 1996; Schroeder, & Hurst, 1996; Smith, 1991; Tinto, & Goodsell, 1994; Tinto, Russo, & Kadel, 1994). According to Smith (1991):

> Preliminary studies demonstrate that learning communities do work. They result in more intellectual interaction among students and between students and faculty members. They increase student involvement and create a sense of community. The programs show impressive results in terms of student academic achievement, student intellectual development, retention, transfer, and student motivation. Learning communities increase curricular coherence and provide ample opportunities for the integration and reinforcement of ideas. They promote an understanding of complex issues that cross disciplinary boundaries. (p. 45)

Student benefits

Student benefits, derived from learning community participation, include building academic, social and team skills, reduced boredom in class, and validation of each student as a person and learner (Gardiner, 1994, p. 118). Additional student benefits include building friendships and intellectual connections, gaining a sense of belonging, learning collaboratively, harnessing intellectual energy and confidence, gaining an appreciation of other students' perspectives, discovering texts, embracing complexity, and gaining a new perspective on their own learning process (Gabelnick et al., 1990).

Learning communities help freshmen students at large institutions make the transition to university/college life because these communities make the large university seem like a smaller, more friendly, and easy to manage place (Levine & Tompkins, 1996; Tinto & Goodsell, 1994; Tokono,

1993). By helping students formulate both an academic and social network, learning communities give students the survival skills to negotiate the university/college environment. They can be an effective extension to new student orientation.

Learning communities can help to address the problems of isolation sometimes associated with the first-year experience because they emphasize student involvement with the learning process, their peers, their faculty, and their institution. Learning communities help students "form a social network in which other academic support mechanisms could begin to operate" (Tinto & Goodsell, 1994, p. 7). Lenning and Ebbers (1999) write "The involvement model (Astin, 1984, 1985, 1993a, 1993b) and the student departure model (Tinto, 1988, 1990, 1993, 1998) provide theoretical and conceptual reasons why student learning communities should impact college students positively and much research supports both models" (p. 49).

Early qualitative studies on learning communities suggest that students find both faculty and peers more supportive, draw connections among their classes, and are generally more positive about the campus climate and their educational experiences. Students are more engaged and excited about learning. Research indicates that learning communities enhance student learning which can be quantified as GPA, increased persistence, intellectual energy, and greater satisfaction with the total educational experience (Tinto, Goodsell-Love, & Russo, 1993; Tinto & Goodsell, 1994).

Levine and Tompkins (1996) report that qualitative researchers at Temple University found that students regularly cited "meeting people and forming study groups" as two benefits of belonging to a learning community (p. 6). The learning community classroom is less alien because students know their fellow classmates and the instructor seems more approachable. Students in a course-based learning community are grouped into a common set of classes providing students with a study group and "peer pressure to attend class" (Tinto & Goodsell, 1994, p. 19). Study groups give students the opportunity to learn from one another by discussing and clarifying class content, and collaborating on class assignments when appropriate. "Two or more students working together may learn more than individual students working alone: two heads are better than one" (Bruffee, 1995b, p. 12).

MacGregor (1991) reported that the students participating in Seattle Central Community College's Coordinated Studies Program described the outcomes of program participation as "developing self-esteem and motivation, developing sensitivity and respect for others, building community, making interdisciplinary connections, becoming life-long learners, and building fundamental communication and writing skills" (p. 9).

The results of the Collaborative Learning Project supported learning communities as a vehicle to improving both student retention and learning (Tinto, Goodsell, & Russo, 1994b). The results of this project showed that the learning community experience contributed positively to students' ability to find their academic voice and develop a supportive academic and social community. Learning community participants displayed more positive views about the institution and were more likely to be involved in college life, both in and outside of the classroom. Amanda Forsyth, a participant in Iowa State University's Freshman Honors Program, said:

> FHP has had a profound impact on my experience at Iowa State University University. Because of my involvement in FHP I feel that I have a better grasp on the inner workings of the university and how to navigate through them. FHP was a community inside a community, and it helped me feel more at home as a freshman. Also through FHP, I had a very positive mentoring experience with an established faculty member. Because of my work with Dr. Mendelson, I will be credited in his publications on teaching rhetoric in the classroom. I am also much more adept at research, and I consider Dr. Mendelson a true mentor whom I can approach for help or advice.

Although the benefits are numerous, some challenges exist. Difficulties experienced by students participating in learning communities include the anxiety associated with public learning and complex group relations (Gabelnick et al., 1990).

Faculty benefits

Faculty benefit from contributing to and participating in learning communities (Finley, 1990; Gabelnick et al., 1990; Lamport, 1993; Lenning & Ebbers, 1999; Lucas & Mott, 1996; MacGregor, 1994; Matthews, 1994; Smith, 1991; Tinto, 1998). According to Lenning & Ebbers (1999), "learning communities constitute a valuable activity for faculty development" and "participation in learning communities tends to increase collegial trust" (p. 57).

At the Transforming Campuses Learning Communities conference hosted by the University of Miami, January 8-11, 1998, Dr. Vincent Tinto stated in the opening keynote address that "Faculty need learning communities too." Angelo (1997) effectively paints a picture of the faculty desire for community by stating:

> Now imagine not just students but also faculty working together as members of learning communities, collaborating on and connecting their teaching, scholarship, and service in meaningful ways. Many [faculty] hunger for the community of scholars they expected to

> find in academic life. The recent explosion of newsletters, books, conferences, listserves, and websites focused on teaching and learning is an indication of the depth of that longing. (p. 4)

"Learning communities provide faculty members with a perspective on their disciplines and a new window on pedagogy through which they can directly observe how other skillful teachers think and act. The modeling, mentoring, and learning inherent in [learning community experiences] are invaluable in faculty development" (Gabelnick et al., 1990, p. 80). *The Boyer report* states that nearly all faculty are "stimulated by the observations and criticisms of their peers" (Boyer Commission, 1998, Section I. Make Research-based Learning the Standard). Faculty members who enjoy teaching are likely to want to talk with and collaborate with other faculty members whom enjoy teaching. In addition, learning community involvement provides that faculty member with opportunities for research and publication.

Preliminary research from the University of Washington shows greater faculty satisfaction resulting from the collaborations fostered through learning community participation. Faculty find themselves "tantalized, exasperated, challenged, and rewarded in new and previously unimagined ways. Most teachers who join in a learning community are willing and even enthusiastic about teaching in this structure again" (Gabelnick et al., 1990, p. 57). These statements especially apply when the curriculum is reinvented as part of the learning community experience.

When it comes to the holistic and intellectual development of students, the single largest difference between influential faculty and their "not so" influential counterparts is the extent to which they interact with their students outside of the formal classroom (Lamport, 1993). Collison (1993) studied the Drexel University College of Engineering learning community pilot project involving approximately 100 student subjects. His findings show that faculty reported closer relationships with their students (faculty and students spent five terms together) and the curriculum was revamped with an interdisciplinary, active-learning focus. Faculty participating in learning communities will typically connect more deeply with students, discover new and more effective ways to deliver course material, expand their knowledge about pedagogy, participate in the holistic development of students, and experience a renewed confidence in their teaching. Ultimately, "faculty appreciate the results of learning communities on the amount and quality of students' learning, students' enjoyment of learning, and students' values and satisfaction" (Lenning & Ebbers, 1999, p. 57).

There are certainly challenges associated with teaching in and/or participating in a learning community. Partnerships can be challenging, time-consuming and hard work since faculty cannot team-teach without examining how they teach. In addition, the faculty promotion and tenure system may not recognize and reward faculty time and energy dedicated to this effort.

Institutional benefits

Learning communities can help build the friendly and scholarly campus climate desired by institutions of higher education, a climate that both supports and challenges the learner. "The climate of a campus can welcome new students into what is for many an unfamiliar and threatening culture; provide the social interaction, emotional support, and personal integration and validation needed for learning and retention on campus; and inspire each person to high effort" (Gardiner, 1994, p. vi). Learning communities welcome new students and set the stage for learning in and outside the classroom. Empirical data show evidence that learning communities facilitate the necessary integration into campus life thus contributing to student retention and GPA performance.

Tinto and Goodsell (1994) identified the improvement of the freshmen year experience and the community minded environment as two institutional benefits of learning communities. A sense of "community" promotes respect and the sacrifice of personal agendas for the common good. It also promotes support and service to others.

Learning communities work for the institution because they require "new levels of cross-institutional support to address issues of student recruitment, publicity, advising, and registration. They provide a coordinated response to the issues of curriculum reform and staff development. They address critical people issues in our colleges and universities by providing an effective structure for rebuilding dialogue within our institutions" (Smith, 1991, p. 45).

These communities help to break down departmentalization and subsequently reduce student attrition (Gabelnick et al., 1990; Karns, 1993). Breaking down departmentalization results in enhanced cooperation and involvement between the student affairs and academic affairs divisions. This inevitably helps to improve the overall campus climate. Institutions are being judged increasingly by the public in terms of "learning productivity, retention, and graduation rates" (Schroeder & Hurst, 1996, p. 177). At a time when students view themselves as customers, colleges and universities must deliver a total quality package, free of hassles and full of quality education, or students will take their tuition dollars elsewhere. According to Karns (1993), higher education's methods of handling student administrative details is often uncoordinated, ineffective, and a principal

source of dissatisfaction among college students. Unpleasant experiences with campus administrative offices and academic departments contribute to student attrition rates, dropouts and transfers to other colleges. Because today's students shop around, an urgency exists for colleges and universities to cut the red tape in an effort to provide not only improved service, but also a more integrated learning experience.

"Learning community curricular structures offer a successful low-cost, high-yield approach to educational reform" (Gabelnick et al., 1990). Collaboration across divisional lines is critical for the successful development and implementation of institutional policies that strengthen campus retention efforts and allow for the creative development of interdisciplinary learning communities. *The Boyer report* (1998) states:

> The principal barrier to interdisciplinary research and study has been the pattern of university organization. Administratively, all educational activity needs to *belong* somewhere in order to be accounted for and supported; that which has no home cannot exist. Courses must be offered under some kind of sponsorship; students are asked to place themselves in one discipline or another...[furthermore] departmental confines and reward structures have discouraged young faculty interested in interdisciplinary teaching from engaging in it. (Boyer Commission, 1998, Section III. Construct an Inquiry-based Freshman Year).

Institutions can benefit externally as well by embracing the learning community philosophy. Learning communities send the message to the public that they are making great efforts and strides towards improving the undergraduate experience (Smith, 1993). Learning communities can exemplify the institution's commitment to excellence and to the first year experience. Happy students and parents serve as great ambassadors for the institution thus helping with recruitment.

Institutional challenges associated with learning community programs include faculty recruitment and reward structures, funding, sustainability issues, and the difficulty of establishing cross-institutional support structures and venues for cross-disciplinary collaborations.

Bridging the academic–student affairs divide

Learning communities not only benefit the institution, its faculty, and its students, but also assist in bridging the divide between student affairs and academic affairs. In an effort to bridge this divide, student affairs practitioners must "develop collaborative partnerships with their academic colleagues and create a common view of learning on their campuses – a view that emphasizes the integration of curricular and co-curricular experiences" (Schroeder & Hurst, 1996, p. 180). "The

intentional design of purposeful and powerful learning environments must be the central focus of any student affairs division committed to integrating curricular and co-curricular experiences in the service of learning productivity and institutional effectiveness" (Schroeder & Hurst, 1996, p. 174).

"The student development movement may have represented a digression from the central educational mission of higher education." This movement sent the message that the holistic development of students was the responsibility of student affairs practitioners and "somehow separate and distinct from the educational goals of the rest of the university or college" (Bloland et al., 1996, p. 219). The Student Learning Imperative, published by the American College Personnel Association in 1994, contended that student affairs practitioners need to offer services and programs, and create environments that contribute to the central mission of higher education – student learning. Blake, Evenbeck, and Melodia (1997) contend that "innovation must be a campus priority that is supported and celebrated by all institutional agents. Student affairs professionals must intentionally develop strategies to serve students in new and innovative ways. Institutions can no longer afford programming that is peripheral to student learning" (p. 32). Student affairs professionals need to use their understanding of students and of student development theory to develop and implement programs and services that intentionally support classroom efforts.

Furthermore, Bloland et al. contend "student affairs has the responsibility for expanding, developing, and enriching the student learning environment, to include student living, social, recreational, cultural, and spiritual settings – all of which serve as natural and extended neo-classrooms" (1996, p. 219). Partnering with academic affairs to develop learning communities is one way student affairs professionals can fulfill this responsibility. They are ideally positioned within the college or university to help design learning environments that integrate the curricular and the co-curricular experiences. The development and implementation of learning communities requires collaboration among faculty and various student affairs offices such as residence life, orientation, and registrar. Dolence and Norris (1995) site "fused academic and administrative systems" as an essential characteristic of the new "Information Age" (p. 46).

Learning Community Challenges

The literature is clear that learning communities offer institutions an array of benefits, but not without presenting challenges as well. Some of the challenges include:

1. Recruiting students and faculty, funding program costs, finding an administrative home, sustaining the learning community long-term, and coordinating the administrative tasks associated with learning communities (McLaughlin, 1996).

2. Institutionalizing learning communities. "All segments of the institution must understand and articulate clear goals that the learning community strives to accomplish" (Gabelnick et al., 1990, p. 48).

3. Integrating the various people and activities associated with learning communities. The integration of in and out of class experiences, integration of student affairs and academic affairs staff, integration of academic disciplines and departmental units, and the integration of courses are major challenges (Transforming Campuses into Learning Communities conference, 1998).

4. Getting all the key players on board early and establishing an organizational support structure, including a venue for communication among involved and/or interested parties. MacGregor (1994) identifies administrative support as a challenge because learning communities "call for communication and collaboration across many campus units...deans and division or department chairs, librarians, admissions recruiters, academic advisers, the registrar, designers of the course schedule, schedulers of classroom space, residence life staff, service learning offices..." (p. 5). Keeping the "boundaries permeable" so all members of the campus community feel welcome to engage in learning communities is a challenge, but necessary for project success (Gabelnick et al., 1990, p. 8). Gabelnick et al. (1990) provide a useful "Checklist for Implementing Learning Communities" on page 51.

5. Determining what learning community model is best for the institution. Iowa State University has decided that not every learning community on campus needs to look alike; therefore, preserving flexibility and creativity in learning community design, while providing central support is a challenge. Iowa State University's position, as outlined in the Learning Community Working Group final report to the President and Provost (Iowa State University, 1998b), is to allow for a range of learning community models and experiences that fit our faculty and institutional culture.

6. Establishing a long-term plan, including financial and human resources, for the sustainability of existing learning communities and for the development of new and creative learning communities (Transforming Campuses into Learning Communities conference, 1998).

7. Establishing an appropriate faculty reward structure for learning community participation, research, and publication. This is especially challenging for research institutions.

8. Understanding that institutions cannot "expect instant results or miraculous renewal. We have observed that learning community programs take at least three years to mature" (Gabelnick et al., 1990, p. 50). Patience and refinement are crucial ingredients for success.

9. De-emphasizing competition in learning. This can be extremely difficult, especially when the cumulative undergraduate grade point average can make a difference in the acceptance into graduate school, the attainment of a professional position, and/or the achievement of academic rewards, opportunities, and scholarships. In addition, working together on assignments, tests, or other means of classroom assessment can be perceived as not doing one's own work unless the faculty member specifically instructs students to collaborate. Angelo (1997) describes a learning community as an educational haven, where faculty and students work collaboratively towards shared academic goals and have the responsibility to help the other members of the community learn , where competition is de-emphasized. Interestingly, the Iowa State University Learning Community Working Group (LCWG) debated whether to use the terminology "learning *community*" or "learning *team*" in their final report to the President and Provost. Although the LCWG recognized that the two phrases are used interchangeably on campus, the majority of the LCWG supported using "community" (which suggests collaboration) rather than "team" (which suggests competition).

10. Teaching faculty and students to effectively use group processes. This is essential for success. In an interactive classroom, instructors are only one of several sources of knowledge. Students assume responsibility for sharing and discovering knowledge. However, it is essential that group processes be taught to both students and faculty so group interactions are positive and the environment conducive to learning. Andrews (1992) offers several suggestions for creating an optimal environment for group learning. Andrews discusses the importance of helping students find their "voice" (p. 14) and "establishing a safe environment for taking risks" (p. 8). Gabelnick et al. (1990) maintained that in a group learning environment, students need to feel as though they can express their opinions without fear of being judged or admonished. Ideally, students should feel free to make mistakes and to learn from one another. "Faculty members are often amazed at the vitality that a group of students displays" (Gabelnick et al., 1990, p. 59).

11. Assessing the effectiveness and impact of learning communities on student success and retention (Lenning and Ebbers, 1999).

12. Securing adequate classroom and meeting space since learning communities often require extended meeting times and special room arrangements. Because these special arrangements

often create inefficient use of classroom/meeting space, it is important to work with room schedulers (Gabelnick et al., 1990).

13. Reconciling the traditional contact hour-credit hour model with the extended classroom learning community model where courses are not taught independently, but rather as a package (Angelo, 1997).

14. Implementing a year-long learning community program versus a one-semester learning community program given the age old issue of prerequisites and concurrent enrollment requirements. If a student fails to pass a prerequisite course first semester, he/she cannot progress to the second semester of block scheduled learning community courses. Does this mean he/she cannot continue with the learning community? This student may have passed every other course on the learning community schedule, and may even attribute his/her academic success in his/her other courses to the learning community experience (Iowa State University, 1998b).

Early challenges faced by Iowa State University included: (a) defining the purpose for learning communities and the criteria for learning communities, (b) establishing mechanisms to help learning community coordinators extend learning beyond the classroom, (c) addressing the role of pedagogy and active learning in learning communities, (d) recruiting and rewarding faculty participation in learning communities, (e) assessing the effectiveness and impact of learning communities on student success and retention, and (f) establishing a network for university-wide communication that crosses departmental boundaries. At Iowa State University, coordinating the effort across seven undergraduate colleges on a university campus with a tradition of decentralized management makes it difficult to find that delicate balance between college/department autonomy and central support and coordination. These early challenges were detailed in an learning communities issues document created by Laura Doering for discussion at the LCWG retreat in May 1998 (see Appendix E). Some of these initial issues and challenges have been resolved, while others are pending discussion and/or resolution.

Academic Effects of Learning Communities

Faculty report that learning community participation results in student gains in academic proficiencies such as problem solving skills, communication skills, and the ability to understand the connection among disciplines (Finley, 1990). In addition, students that participate in learning communities achieve higher grade point averages (Diefenbach, 1996; Gabelnick et al., 1990; Jones, 1996; Levine & Tompkins, 1996; MacGregor, 1991; Tinto, Goodsell, & Russo, 1994a; Tokuno,

1993). Additional impacts on academic development include increased class attendance and class participation (Gabelnick et al., 1990; Levine & Tompkins, 1996; Tinto & Goodsell, 1994; Tinto, Goodsell, & Russo, 1994b).

Impact of active and collaborative learning experiences

"It is clear that well-designed and -crafted cooperative and collaborative learning experiences within learning communities – as well as the existence and makeup of the learning communities themselves – greatly benefit both college students and faculty" (Lenning & Ebbers, 1999, p. 60).

The results of a study conducted on the Coordinated Studies Program at Seattle Central Community College in Washington demonstrate that learning methods associated with collaborative learning and often applied in learning communities, such as team teaching and regular small group activities, provide students with an enhanced learning experience that contributes positively to retention (Tinto, Russo, & Kadel, 1994).

Retention of material presented in the lecture format is low (Gardiner, 1989). Active learning develops intellect and values (Angelo, 1997; Bruffee, 1995a; Cross, 1998; Gardiner, 1994; Lenning & Ebbers, 1999; Terenzini & Pascarella, 1994). "Individualized and collaborative approaches to instruction are more effective [than the traditional lecture method] because they respond better to differences in students' levels of preparation, learning styles, and rates [how quickly the student learns]" (Terenzini & Pascarella, 1994).

Students teaching students and students partnering with faculty in the learning journey are strategies that facilitate higher learning. Research by Dale demonstrated that "people tend to remember only 10% of what they read; 20% of what they hear; 30% of what they see; 50% of what they hear and see; 70% of what they say; and 90% of what they both say and do (Dale, 1972, cited in Lenning & Ebbers, 1999). Structured learning communities are collaborative learning environments where students and faculty both "say and do" together creating a real synergy for learning.

"Students must take primary responsibility for learning factual information so that class time can be liberated for other issues" (Warren, 1997, p. 7). Warren indicates that students should be taught the "nuts and bolts of learning" so that they can share some of the responsibility for making their educational experience worthwhile (p. 19). Scarcia-King and Sadauskas-Harmon (1998) advocate involving the student in the design and/or implementation of the class. Giving the student input into the learning process will help the student take ownership of his/her own learning. Students should ideally be given input into the design of their learning community as well.

True impact occurs when all classes and co-curricular experiences become learning communities...a campus environment where faculty, staff and students are all partners in learning and explorers of knowledge. Some classrooms in higher education are true learning communities; however, in most instances it is difficult to achieve a learning community environment when the class meets for only one hour three times a week and lecture remains the primary means of delivering information.

Angelo (1997) states that "to many [individuals] higher education equals course taking and credit collecting. But just as no pile of bricks, however numerous, necessarily makes a building; no list of courses, however long, necessarily equals an education" (p.6). Learning community classroom proficiencies extend beyond the collection of credit, and even beyond understanding the specific content discipline. Students can develop practical life skills such as problem-solving skills, time management skills, human relations skills, and team-work skills.

Cooperative learning requires students to be responsible for each other rather than for self only. Lenning and Ebbers (1999) list the following as positive student outcomes resulting from collaborative/cooperative learning:

> academic achievement, a higher retention rate, increased critical thinking, higher-level thinking skills and strategies, motivation to achieve, self-esteem and confidence, trust in others, low levels of anxiety and stress, creativity, frequent new ideas, the ability to generalize to new situations, problem-solving ability, commitment to learning, instructional satisfaction, positive attitudes toward the major or discipline, positive attitudes toward the institution, positive attitudes toward other students, a commitment to and caring for other students, positive perceptions of the instructor, less absenteeism and tardiness, feelings of responsibility for completing assignments, willingness to take on difficult tasks, persistence in completing tasks, respect for others' perceptions and attitudes, and a commitment to peers' growth, social skills, and social support. (p. 58)

Many of the above outcomes can be achieved through a well-defined, structured learning community experience. Since learning communities are more about integration of ideas and less about memorization of presented material, learning communities can be an effective mechanism to help institutions foster a learner-centered environment where faculty and students are partners in the learning process.

Impact on academic performance as measured by GPA

Freshmen participating in the FIG program at the University of Washington in Fall 1988, 1989, and 1990 consistently earned significantly higher grade point averages during the term in which they participated in the learning community and for the three subsequent terms. FIG students earned grades .22 points higher than the non-FIG student comparison group. This finding, which was determined to be statistically significant, indicates that learning communities can positively impact GPA performance (Tinto, Goodsell, & Russo, 1994a).

MacGregor (1991) summarized a number of research projects on academic achievement in learning communities in the *Washington Center Newsline*, 6(1), pages 4-9. Ken Tokuno and Fred Campell's study at the University of Washington showed that FIG students' overall GPAs were significantly better than non-FIG students' overall GPAs even after adjusting for academic potential. Jeff Curtok at Eastern Washington University found that the FIG students completed their first year having higher GPAs than the non-FIG students who actually had higher high school GPAs, an indicator of college academic performance. Eric Mould and Judy Moore at Yakima Valley Community College have found a decrease in the number of students who fail the biology course that is collaboratively taught. Students who persisted but earned a failing grade in the learning community course decreased from 9.2% to 2.4%. The percentage of students earning D and C grades also decreased. "Although one might question the efficacy of using grades as a criterion for evaluating the success of pedagogy, we are finding that these increases in performance are occurring with more rigorous exams requiring higher level thinking and communicating skills" (Mould & Moore cited in MacGregor, 1991, p. 5). MacGregor (1991) states that learning communities "generally offer students a more complex intellectual environment. They expose students to topics from the perspectives of different disciplines, teachers and peers, and ask them to build larger connections and meanings" (p. 6).

At Eastern Washington University, the pre-college grade point averages were lower for the FIG participants than for the control group. At the end of the first semester, the FIG participants earned a higher mean grade point average than the control group (Gabelnick et al., 1990). These results suggest that, during the term of participation, students in learning communities earn higher grade point averages when compared to non-learning community participants regardless of pre-college characteristics.

Impact on intellectual empowerment

Research supports concentrated intellectual interaction between freshmen and faculty (Gabelnick et al., 1990; Lucas & Mott, 1996; Tinto, 1996; Tinto & Goodsell, 1994, 1995; Tinto, Goodsell, & Russo, 1994a, 1994b; Tinto & Russo, 1994). "The data support student evaluations that attest to the social and intellectual empowerment of learning communities, whose lessons reach beyond the classroom" (Gabelnick et al., 1990, p. 90).

In a learning community environment, interactions that occur between faculty and students are more intellectual (Smith, 1991). Levine and Tompkins (1998) consistently reported that "[students] enrolled in learning communities benefit from the more intimate classes and increased interaction with their faculty and peers" (p.6). "Learning team discussions of ideas and concerns with trusted individuals who are grappling with similar concerns provided a forum for the possibility of new insights and group generated knowledge...the learning team became a curricular structure which allowed them to develop and generate knowledge, to ask questions in the relative safety of a small peer group" (Andrews, 1992, p. 5).

Cross states "There is good, solid correlational evidence that students who are involved with the people and activities of learning communities are significantly more likely than their less involved peers to show growth in intellectual interests and values, and apparently more likely to get more out of their college education" (p. 7). Learning community structures often require that students engage more fully by participating in class and by studying/working with peers outside of class. They allow students to participate in the construction of learning.

Creamer discusses the necessity of designing learning environments that have an optimal balance of support and challenge (Creamer & Associates, 1990). Creamer also discusses the difficulty in providing an optimal balance, as this balance will likely vary from one student to the next. Therefore, the pedagogy of the learning community must engage the student in helping to construct his/her own learning experience.

The Chronicle of Higher Education Almanac, section on attitudes and activities of fall 1997 freshmen, (August 28, 1998) recorded that 36% of students reported frequently being bored in class. A faculty member at Iowa State University who taught the Introductory Biology class on the Biology Education Success Teams (BEST) learning community schedules for the first two years of the BEST program (1995 and 1996), indicated that the learning community students in the Biology section were more engaged in and excited about learning, more apt to participate in class, and more apt to learn through peer interaction than were the non-learning community students in the same Biology

section. This faculty member also commented that now, as upperclassmen, the learning community students seem to be more involved in research. Learning communities help build a community of scholars working together – faculty, graduate students, and undergraduate students.

Student Retention Effects of Learning Communities

Numerous studies and articles show that learning communities contribute positively to student retention (Astin, 1993; Collison, 1993; Diefenbach, 1996; Gabelnick et al., 1990; Jones, 1996; Lamport, 1993; Lenning & Ebbers, 1999; Pike et al., 1997; Smith, 1991; Tinto, 1998; Tinto, Goodsell, & Russo, 1994; Tinto, Russo, & Kadel, 1994; Tokuno, 1993). Preliminary research suggests that students enrolling in learning community programs not only generally achieve higher grades, but also exhibit higher retention rates (Tokuno, 1993, p. 27). In addition, research provides evidence of positive effects on class completion and retention rates. Learning community students complete courses at a higher rate than non-learning community students (Gardiner, 1997; Levine et al., 1996). Levine et al. (1996) found, at Temple University, learning community students received fewer incomplete grades and withdrawals.

Schmidt (1998) reports that John T. Masterson, Miami's vice-provost for undergraduate affairs, said that "learning communities...help students understand the connectiveness of knowledge...and as a result [the students] are more interested in their studies, and perhaps less likely to drop out. The programs also bring the faculty together around questions of what it is we really want students to learn" (p. A12).

Tinto's research identifies *community* as the essential ingredient for effective retention. Membership in even one supportive community may be enough to keep the student in school. Astin (1993) found evidence that a "lack of ...community on the campus is associated with [students] not wanting to re-enroll" (p. 280). Lamport (1993) reported that "studies, to varying degrees, confirm that student-faculty interaction increases student persistence and decreases likelihood of voluntary withdrawal" (p. 978). Lamport explained that the more immersed a student becomes in the campus environment, the less likely he/she is to dropout.

Tinto, Russo, and Kadel (1994) rigorously studied and then reported their findings on the Coordinated Studies Program (CSP). This one-quarter program at Seattle Central Community College involves significant curricular integration. Their study entailed observing CSP classrooms, interviewing student and faculty program participants, surveying several hundred students in both CSP and non-CSP classrooms at the end of their first year of college, and analyzing students' records

for evidence of academic performance. Their findings show that the persistence rate into the following fall quarter was 15% greater for students who had the CSP experience. The positive effect of the CSP on retention did not differ based on whether the student intentionally enrolled in the program or enrolled as a "last resort". The results clearly indicate that CSP students were more likely than non-CSP students to stay in school.

Through the CSP, students were able concurrently to meet two important needs – social and academic – without sacrificing one for the other. Students in the CSP were more comfortable expressing their own ideas, asking questions, and bringing their own experiences to the classroom. Tinto, Russo, and Kadel (1994) reported that CSP students felt they were members of a supportive, educationally challenging community of students and faculty where active participation was highly encouraged and valued. As a result, these students displayed significantly more positive views of the college, the campus climate, the quality of education, and the staff, faculty, and students comprising the campus community.

A longitudinal study of Freshman Interest Groups (FIG) at the University of Washington showed that students who had participated in a FIG not only earned higher grades for the term in which they participated and for the following three terms, but also were more likely to persist in college and were meeting their degree requirements more quickly than were the non-FIG students (Tokuno, 1993).

Collison (1993) studied the five-year, learning community pilot project in the College of Engineering at Drexel University involving approximately 100 student subjects. Collison indicated that Drexel University plans to expand this project university-wide due to the excellent results. To date this expansion has not yet happened (Lenning & Ebbers, 1999) . Students in the pilot project were broken into smaller groups of 10-12 and were exposed to a more hands-on, practical curriculum during their early years on campus. The results of the pilot show that learning communities positively contribute not only to retention at the University, but also to retention within the student's initially chosen major (89% of the treatment group remained in engineering, as opposed to 74% of non-learning community students).

Not all retention studies demonstrate significant differences in term-to-term persistence. Levine and Tompkins (1996) and Hamilton (1997) found no significant differences in university retention when comparing learning community students to non-learning community students.

Pike, Schroeder, and Berry (1997) also found no significant differences in retention. "The relationship between residential learning communities and students' experiences and persistence

during the first year of college was examined. Analysis of data from 2,678 students (63.6% female and 36.4% male; 85.1% White and 14.9% African American, Asian American, Hispanic, or Native American) who lived in residence halls indicated that the residential learning communities did not improve students' academic achievement and persistence directly, but did indirectly improve students' success by enhancing their incorporation into college" (p. 609).

Iowa State University Retention Information

The Iowa State University Retention Study conducted by the Office of Institutional Research shows that Iowa State University's average 6-year cumulative graduation rate is 61.5%. This rate is 2.5 percentage points lower than the average rate of Iowa State University's peer institutions. The peer average of 64.0% is based on available data for ten land grant peer universities for 1984-1996 entry cohorts. With Iowa State University's rates being below the mean, there is definitely room for improvement.

The learning community research to date, which generally shows a positive relationship between learning community participation and retention, certainly supports the President's decision to allocate funds for the expansion of the learning community movement at Iowa State University. When talking about learning communities, Iowa State University President Martin Jischke described them as the "single best idea [he's] seen to increase retention." He stated that learning communities "seem to have the potential to make a big difference."

Iowa State University data are taken from calculations based on an Administrative Data Processing (ADP) program output produced 9/8/98 for Institutional Research. The peer data are taken from College Student Retention Data Exchange (by Dr. Theresa Smith at the University of Oklahoma, 10/1/98) and the American Association of Universities Data Exchange retention data files provided to participating universities (summarized by Dr. George Stovall, University of Virginia, October 1998). Robert Bergmann, Institutional Research Analyst, takes the peer data from the various source records and calculates the peer averages.

Institutions can use retention statistics to identify potential learning communities for special, high-risk groups of students. The Hixson Opportunity Awards program is an exemplary learning community project at Iowa State University. Debra Sanborn, coordinator of the program, wrote the following in a program summary report prepared spring semester 1999:

> The Christina Hixson Opportunity Awards were created in 1995 for Iowa high school students whose challenging environments typically preclude higher education. The program

was initiated with a $5 million gift from the Lied Foundation Trust and was named in honor of its trustee, Christina Hixson. In January 1998, Hixson contributed an additional $5 million gift increasing her contribution to this award to $11.3 million. The Hixson Opportunity Awards seek to tap the potential of students beyond the measurements of class rankings and test scores. One hundred high school seniors will be selected from across the state (ideally, one from each county); they are offered a $10,000 renewable scholarship ($2,500 per year for four years). The program task is to identify and persuade these students that they are, or can be, capable scholars, and then provide them with the skills training and financial support necessary for collegiate success and retention. Recipients must achieve a grade point average of 2.00 from the end of their second academic year on to continue to receive the award. The activities and programs offered to Hixson Scholars are designed to promote the retention and success of students. These programs and resources are also aimed to build a community of students and friends within the larger Iowa State University community. In addition to being an effective program for building community, The Hixson Opportunity Awards program has achieved academic and retention success with each of the first four awarded classes. Hixson Scholars have continually persisted at rates above national and university averages and have attained above average grade points. Members of the first Hixson class will reach graduation in May 1999. Thirty-one percent of the first class will graduate *in four years*, significantly surpassing Iowa State University and national averages.

Studies Conducted at Iowa State University

This section discusses two studies conducted at Iowa State University learning communities. Both studies show that learning communities contribute positively to student retention and academic performance.

Study #1. In January 1996, Kathleen Jones, Registrar at Iowa State University, conducted a descriptive study on the fall 1995 learning communities. This study was titled *Data by Curriculum/Major for Iowa State University Students in Fall 1995 Learning Teams and Matched Group, Fall 1995 Entries Only* (Jones, 1996) and used the following methodology:

1. Selected all students enrolled in learning communities at the end of fall semester 1995; students who withdrew from the University fall semester 1995 were eliminated from the study.

2. Collected data by curriculum/major for students in learning communities and match group. Identified majors that had at least five students in learning communities at that time. Majors with fewer than five learning community participants were eliminated from the study.

3. All students were new, direct from high school fall semester 1995. Within this group, those who were learning community participants were identified and tagged.

4. Sorted data file of all students by major, high school rank, and ACT. The best match for each student in the treatment group was visually identified to establish the control group. Used a one to one closest match based on major, high school rank, ACT and gender. ACT and high school rank was obtained for all students in the study from the Registrar student information files.

5. Fall semester GPA, total hours earned at the end of fall, and spring registration status were obtained for all students in the study.

The data for all new direct freshmen were obtained by running a query of Registrar's student information files on January 29, 1996. Tenth day fall 1995 files were used to establish majors for this study, and ninth day spring 1996 files were used to obtain ACT, high school rank, fall 1995 GPA, total hours end of fall, and spring registration status. This report was intended to provide a baseline by major for assessment of learning communities. The procedure used to obtain the data for all new direct freshmen excluded any student who had a Social Security number change between the tenth day of fall semester 19965 and the ninth day of spring semester 1996; the number of students omitted from this study due to a Social Security number change is small and therefore should not significantly affect the aggregate numbers. High school rank data included only students for whom high school rank was reported. ACT data includes only students for whom ACT was reported. Spring semester 1996 registered data, fall 1995 semester GPA data, and fall 1995 total hours completed data include only students who completed at least one graded course in fall 1995.

It was evident from some of the numbers that students in some of the learning communities were not randomly selected. In such majors, the results reported may have been due to the characteristics of the learning community students and the match group. For example, the Pre-Med learning community students have an average high school rank of 94.5 in comparison to the fall 1995 Pre-Med admit class with an average high school rank of 77.9 and the learning community match group with an average high school rank of 76.2. The average fall 1995 GPA was greater for the learning community students, but this is expected given the high school rank information. High school rank is a proven predictor of academic success in college (Astin, Korn, & Green, 1987).

The results of the study showed that the learning community students (n=286) earned higher fall 1995 GPAs and registered for the next term at a greater rate when compared to both the control group (n=286) and to all fall 1995 admits in those majors/curricula offering learning communities (n=1371). Majors/curricula not offering learning communities were excluded from this study.

The mean grade point average for the learning community participants was 2.53 as compared to 2.43 for the match group and 2.50 for *all* students (including non-LC and LC students) in those majors offering a learning community experience fall 1995. The number of total registered credits for fall semester 1995 was greater for the learning community participants than for the other two comparison groups (16.6 total credits for learning community participants, 16.1 for match group, and 16.5 for all students in majors offering a learning community experience fall 1995).

Term-to-term persistence was better for learning community students (98.6%) compared to the match group (94.4%) and all students in majors offering a learning community experience (95.6%).

Study #2. Diefenbach (1996) studied the effects of learning team participation on pre-business first-year students. She looked at the effects on persistence, grade point average, and peer interaction, specifically whether or not learning community participation promotes *academic* peer relationships. Diefenbach found learning community students persisted at a significantly greater rate than did non-learning community students (98.4% compared to 90.7%). Diefenbach also found that learning community students earned a higher first semester grade point average (2.61 of 4.00) in comparison to the non-learning community students (2.33 of 4.00).

None of the learning community students required academic assistance in their classes; therefore, these students may have had a predisposition to succeed. However, a study at Eastern Washington University showed that participating in a learning community actually levels the playing ground when it comes to pre-college success predictors. The findings related to academic peer relationships showed that learning community students experienced significantly more peer interaction than non-learning community students. Learning community student comments focused on the benefits of knowing other students who could offer academic help and support (Diefenbach, 1996).

Learning Community Characteristics

As discussed earlier in this chapter, today's learning community models are as diverse as the list of institutions now in full production with, or experimenting with, learning community programs.

At Iowa State University an individual learning community experience could include any one or more of the following activities: (a) contact with students who have similar academic goals, (b) common courses, (c) innovative curriculum - experimental course or linked courses, (d) common place of residence, (e) orientation course, (f) career exploration, (g) field trips, (h) introduction to university resources, (i) peer mentoring and/or tutoring, (j) faculty mentoring, (k) increased faculty involvement outside the classroom, (l) participation in department club or organization, (m) leadership development, (n) exposure to international and/or diversity issues, (o) special programs to acquaint students with campus life, (p) improved academic proficiencies, and (q) more collaborative learning environment. The list goes on. This thesis explores the student retention and academic performance effects of the following components – common residence, common courses, curricular innovation, peer mentoring, and faculty involvement. Therefore, this section of the literature review focuses on these five learning community components.

Common residence

Learning doesn't end at the end of the class day. There is no doubt that the department of residence can be a major player in creating and sustaining a positive learning environment. A department of residence can be a key player in building learning communities that extend beyond the formal classroom and into the student's home. Residential learning communities can extend critical thinking from the classroom into the students' living experience. Residential learning communities serve as "living/learning laboratories" (Schroeder & Hurst, 1996, p. 175). In well-structured living/learning laboratories, students have the opportunity to participate in an interactive learning experience that is challenging and supportive where feedback is provided regularly.

Research has shown that grouping students in residence halls by major and/or college can affect retention positively, especially when integrated with academics. (Hamilton, 1997; Kuh, 1994; Pascarella, Terenzini, & Blimling, 1994; Schroeder, 1994a; Whitt & Nuss, 1994; Zeller, 1994). Pike (1999) and Hamilton (1997) found that participation in a residential learning community positively contributes to higher levels of involvement. Hamilton (1997) found that student participation assisted in the integration of new students into the university community. Hamilton's findings however did not support her hypothesis that residential learning community students would earn higher first semester GPAs. Hamilton used and adapted items from the College Student Environment Questionnaire (CSEQ) in her research. Pike (1999) also used the CSEQ to conduct a study of the students' level of learning and intellectual development while living in a residential learning

community. Pike found that "participation directly enhanced students' involvement and interaction and indirectly promoted integration and gains" (p. 269).

Ewell (1997) encourages educators to recognize that the whole world is a classroom and that all situations/events are learning opportunities. Departments of Residence nationwide continue to explore how they can contribute to institutional goals and priorities related to undergraduate education and student learning (Kuh, 1994; Pascarella, Terenzini, & Bliming, 1994; Schroeder, 1994a; Schroeder & Hurst, 1996; Whitt & Nuss, 1994; Zeller, 1994). Residential learning communities are evidence of such efforts designed to promote student learning in and outside of the formal classroom. It is clear empirically that not all learning occurs under a formal structure.

The 1998 *Iowa State University Learning Communities, Learning Together Course Guide* describes the role of the Iowa State University Department of Residence as follows:

> The Department of Residence is the out-of-classroom "home" for several learning communities. Resident Assistants (undergraduate assistants who live on each floor) and Residence Hall Directors (professional staff who live in each residence hall) regularly interact with learning community students. We also have staff who are responsible for developing outcomes and assessment methods for each residential program. The Department of Residence believes that students who are clustered together in common courses and in their living arrangements will be able to quickly develop a supportive network of friends which will enhance their adjustment from high school to college. A typical residence hall floor (known as a "house") has 50-60 students. We prefer to cluster no more than 25 students together in a learning community, with the remaining students having particular academic affiliation. The learning community students are then able to enjoy the best of both worlds: living with students with whom they're taking courses and interacting with a variety of other students. Our goal is to work individually with each learning community to provide the necessary support to maximize the success of each program. By collaborating with learning community programs we can maximize support of the academic and personal challenges faced by our new students.

Peer mentors

In 1998-99, Iowa State University allocated significant funding for peer mentors (1 mentor per 16 students). Peer mentors often are sophomores who as freshmen participated in a learning community and therefore are not far removed from the freshmen learning community experience.

Quality training, role definition, and funding are critical to implementing a successful peer mentor program. Defining the role of the peer mentor can be difficult. Is the peer mentor role that of a supportive friend or that of an authority figure? How can the ideal balance between the two roles be attained? How do we teach peer mentors to discuss academic progress and/or enforce University regulations while remaining supportive and approachable? For example, what is the role of the peer mentor who knows one of his/her mentees is engaging in illegal or risky behavior? Peer mentors must be provided the training and given the tools to effectively handle difficult situations. The *Certified Peer Educator Program Student Workbook,* copywritten and owned by the BACCHUS and GAMMA Peer Education Network (Leschke-Hellstrom, 1994) provides students with situational exercises and other information to help them gain the skills and techniques necessary to excel as peer mentors and educators.

Learning community coordinators should consider their program goals when determining if and how peer mentoring can be used to help achieve those goals.

Common courses and/or curricular innovation as a learning community component

Tinto (1996) discusses the value in block scheduling freshmen students into a common set of courses. He describes the benefits of a course-based learning community:

> By registering students for the same courses or having all new students study the same topic, the entering students form their own self-supporting associations to give each other academic and social support. They spend more time together out of class than do students in traditional, unrelated, stand-alone classes. The common study of a subject and the co-registration brings them together fast as small communities of learners. Not surprisingly the students in these new learning communities tend to report themselves more satisfied with their first year experiences in college. And they are more likely to persist beyond the first year (p. 5).

Gabelnick et al. (1990) says that learning communities are not simply tools for block scheduling a group of students into common classes. Their primary purpose should not be to simplify the registration process and maximize room utilization, but rather to enhance student-faculty learning. Proper selection of courses for a learning community schedule is important. According to Lenning and Ebbers (1999), the faculty must determine what mix of courses will work best for the institution. The selection of courses should also be based on the desired learning outcomes for that community. When constructing a learning community schedule, the learning community coordinator

should determine what combination of courses would help achieve the desired academic proficiencies.

Peter Schmidt (1998, p. A12) reported on the Saltwater Semester at the University of Miami, a learning community experience where students take a research trip. While on the trip, the students conduct research on the underwater creatures that reside in that particular area. The courses block scheduled as part of the Saltwater Semester help students meet degree requirements and "immerse a group of marine-science students in a set of courses from several disciplines, all dealing with the sea." Courses were not arbitrarily selected, but deliberately selected with general education, core curriculum, and degree requirements as criteria. The students study zoology, biological oceanographic techniques, physical oceanography, and drawing (a Humanities basic drawing class which emphasized biological illustration). In addition, each student was required to complete an interdisciplinary research project. Smith (1991) contends that colleges and universities need to put courses on the learning community's class schedule, which meet degree requirements.

The Boyer Report discusses the positives associated with block scheduling freshmen students into common courses, same sections, during their first year. The Commission further recommends that these courses be integrated so that professors plan and deliver the course and its assignments together. These integrated courses are regularly referred to, in the literature, as "linked" courses.

Lenning and Ebbers (1999) define linked courses as:

> Sets of courses that are in some way related to one another in terms of focus or content, as determined by faculty at the institution, and for which specific groups of students co-register. The faculty of the courses may or may not be expected to coordinate their course syllabi, assignments, and activities to achieve objectives for students such as: seeing the courses as an integrated and correlated set, applying what is learned in one course to the content and assignments in the other courses, studying the courses collaboratively in relationship to one another, completing common assignments across the courses, hearing common problems, themes and concepts presented from diverse perspectives by the different instructors, and so on. (p. 20)

At the Transforming Campuses into Learning Communities conference in Miami, January 1998, MacGregor advocated that learning communities should offer students an integrated curricular experience that actually goes beyond active learning strategies employed in a single classroom. MacGregor discusses the value of linking courses and argues that linked courses should be identified based on the desired learning outcomes articulated by that learning community. For example, if the

goal of the learning community is to help students who are apprehensive about math and hard sciences excel in these disciplines, then the learning community schedule could include a math course, a chemistry course, and an analytical thinking skills workshop.

Licklider (1993) reported that students in the Linkage Program at John Jay College of Criminal Justice, a public urban institution offering both associate's and bachelor's degrees, fared better academically and persisted at a greater rate than did a control group of their peers. The Linkage Program links small groups of entering freshmen with similar academic interests and skills into a common set of three courses. In the initial year of the program (1986), freshmen were block scheduled into their entire schedule verses just three courses. Having these students take their entire course schedule together resulted in immature behavior so this practice was discontinued. The Linkage Program requires that instructors meet to coordinate some linked assignments and materials. The implementation costs of this program are low as it makes use of existing faculty and courses and requires only a part-time coordinator position and secretarial position.

Ideally faculty will participate in a block-scheduled learning community, and at minimum assign group assignments thus requiring the students to work interdependently. Some of the earlier learning communities at Iowa State University were exclusively block-scheduled experiences, with no integrated/linked courses. All learning communities at Iowa State University today extend learning beyond the classroom.

At Iowa State University, course-based learning communities are not considered an administrative convenience for registration. Automating the block registration process was a time-consuming task and building the framework for learning community scheduling each semester continues to be a labor-intensive task. Although the Office of the Registrar needs to do significant work behind the scene to facilitate learning community registration, learning community students typically experience a simplified registration process since seats are reserved for them in a designated block of courses. The registration process is automated; thus, a student can use the touch-tone registration system or the web registration system to register for his/her learning community. Gabelnick et al. (1990) advocates that because learning community registration often requires something different, obtaining input and support from the registrar is an essential step in the development process for curricular learning communities. At the Transforming Campuses into Learning Communities conference at the University of Miami, January 8-11, 1998, presenters Barbara Leigh Smith and Vincent Tinto both emphasized that the registrar plays an important role in

the establishment of curricular-based learning communities and therefore should be included in planning and visionary meetings.

Faculty involvement

Since students learn from their cumulative experiences, faculty can have significant influence both inside and outside of the boundaries of the classroom (Astin, 1993; Blake et al., 1997; Boyer, 1998; Creamer & Associates, 1990; Endo & Harpel., 1982; Gabelnick et al., 1990; Lamport, 1993; Pascarella, 1980; Rau & Heyl, 1990; Terenzini, 1994; Tinto, 1998). "The single largest difference between influential faculty and their colleagues is the extent to which interaction occurs outside the classroom" (Gaff, 1973 cited in Lamport, 1993).

Endo and Harpel (1982) studied the effects of student-faculty interaction on a variety of student outcomes and found that "the frequency and quality of student-faculty interaction had positive impacts on personal, intellectual, and academic outcomes" (p. 133). Not all research however supports that enhanced faculty-student interaction will translate to gains in student learning. Pike (1999) found that "faculty-student interaction was not as strongly related to gains in student learning and intellectual development as other involvement and interaction variables" in his study (p. 282).

Lucas and Mott's (1996) study, complete with sophisticated methodologies and well-defined control groups, at William Rainey Harper Community College found that student improvements were significantly greater for students in Coordinated Studies groups than for students in the Linked Classes groups. The National Center for Teaching, Learning, and Assessment (Tinto & Goodsell, 1994, 1995; Tinto, Goodsell, & Russo, 1994a; Tinto & Russo, 1994) found the same – student improvements were greater for students in the Coordinated Studies groups in comparison to students in the Course Clusters groups and the Freshmen Interest Groups. According to Lenning and Ebbers (1999), these results "suggest that well-done, more concentrated, longer-term approaches to learning communities that involve faculty as active, intentional participants are more effective than others" (p. 53-54). Lenning and Ebbers (1999) caution that, for both studies, "we do not have complete assurance that the different models were implemented with equal effectiveness or that the student groups were comparable on all potentially relevant variables" (p. 53).

According to Gabelnick et al. (1990), a good thermometer for learning communities is "the level of commitment among established faculty" (p. 79). This level of commitment can predict whether or not the institution has a thriving learning community project with a healthy future.

Faculty can play a variety of roles in creating, implementing, and sustaining learning communities. The first role faculty play is that of an architect. Gabelnick et al. (1990) argues that point of origination makes a difference. "If [the learning community] is the brainchild of faculty members, there is often a sense of camaraderie, ownership, and contagious zeal" (p. 39). At Iowa State University, some of the learning communities were initiated by faculty while others were initiated by professional staff members. More faculty need to come on board as creators and participators to further enhance the Iowa State University program.

Dolence and Norris (1995) refer to faculty as "architects" who "must collaboratively design the combinations of skill sets, mastery, and development that are required for awarding credit, certification, or degrees" (p. 64). Twigg and Oblinger (1997) agree that the faculty role needs to change in both the learning process and the curricular design process (p. 14). According to Twigg and Oblinger (1997) curricula and courses will be designed by teams of individuals who include, but are not limited to, subject-matter experts, instructional designers, applications designers, and technical experts.

Stark and Lattuca (1997), and Gabelnick et al. (1990) indicated that the faculty's discipline could serve as a good indicator as to his/her receptivity to and preference for particular learning community model. Sciences faculty prefer to use courses as they exist rather than to change or develop new curricula. Humanities and social sciences faculties prefer the opposite. Answering this question would be a formative research project. This type of information could help an institution better understand its culture and the preferences and interests of its faculty. Understanding institutional culture and engaging faculty is critical to establishing and maintaining successful learning communities.

The second faculty role with learning communities is that of teaching and facilitating the discovery of knowledge (Angelo, 1993; Ewell, 1997; Gabelnick et al., 1990; Wolfson, 1995). Angelo (1993) maintains that "interaction between teachers and learners is one of the most powerful factors in promoting learning" (p. 7). Angelo notes that another powerful factor is structured interaction among peers.

Gabelnick et al. (1990) stated that Dewey, one of the early fathers of learning community work and referred to as the father of student-centered and active learning, believed that close relationships between faculty and students resulting in "shared inquiry" yield significant intellectual benefits (p. 16). He advocated for joint discovery and against "handing down knowledge as a finished product" (p. 16). Ewell (1997) also argues against "dispensing of knowledge" and for

"creating of knowledge" because "the most powerful classroom learning environments are those based on a model of the student-faculty relationship in which faculty continuously model what it means to be a learner" (p. 12). Deliberately structured learning communities can accomplish this learning partnership.

The report by the Boyer Commission on Educating Undergraduates in the Research University, states that students should be provided "opportunities to learn through inquiry rather than simple transmission of knowledge" (Boyer, 1998, An Academic Bill of Rights). The report suggests that faculty, called "senior leaders" in the report, should facilitate the inquiry, and serve as both guides and companions in the search for knowledge.

The Boyer Commission report uses the terminology "accidental collisions of ideas" which occurs "when students at every level join with faculty in common inquiry." These collisions are "necessary for the continued productivity of faculty" since the presence of students can help break down the intellectual barriers among faculty members (Boyer, 1998, Section I. Make Research-based Learning the Standard). Learning communities provide an ideal platform for students and faculty partnering in the search for knowledge.

The third faculty role is that of mentor. The *Boyer report* supports faculty mentorship, which goes beyond faculty advising, and is created early and maintained throughout the student's program of study. The report states that "the teaching schedule of each faculty member needs to provide for small-group situations for baccalaureate students and a context that places them in joint exploration. Faculty course loads must also allow for research mentoring as part of normal operations rather than as poorly-compensated overloads" (Boyer Commission, 1998, Section IX. Change Faculty Reward System). Dolence and Norris (1995) maintain that faculty need to use a variety of instructional technologies optimally to free themselves from the role of instructor or disseminator of knowledge to "true learning mentors," where faculty join students in the search for knowledge as guides and companions (p. 64).

Several studies have shown that the increased frequency of student-faculty interaction is related to students' satisfaction with the academic and nonacademic aspects of college (Cross, 1998; Endo & Harpel, 1982; Pascarella, 1980). Cross (1998) contends that students who have frequent contact with faculty both in and outside of the classroom are less likely to drop out of school and believe they have "learned more than students who have less faculty contact" (p. 7).

Furthermore, frequent, quality contact with faculty outside of the formal classroom greatly facilitates the student's integration into the campus community and increases overall satisfaction with

the college experience (Licklider, 1993; Tinto, 1998). Endo et al. (1982) point out that mere frequency of interaction is not enough; quality of interaction is also important. These authors argue that faculty need to be more accessible and helpful to students outside of class. Many learning team models use *peer* mentors and/or *faculty* mentors in the learning community experience. Such mentors can continue to introduce students to the college or university after the formal orientation is over as well as assist them with their course work and personal concerns. Endo and Harpel (1982) warn "Peer advising can supplement faculty interaction, but should never replace it" (p. 133).

The Freshman Academy (FA) at Brigham Young University is an organization of learning communities with the goal of "providing a teaching-learning setting for entering Freshmen that draws on both the academic and student life resources to foster good learning through productive connections with classmates, professors, the gospel, and university resources" (Booth, Bell, Esplin, & Franklin, 1999).

> Dr. Booth, one of BYU's Freshman Academy faculty presented at the Academic Affairs–Student Affairs: Creating Synergy for Learning conference at University of Miami in January 1999. During the presentation, he shared a letter recently written to him and left under his door by one of his past Academy students. The letter read:
>
> > Brother Booth – I don't know if you remember me, but I was part of the "Booths Bunch" last year in Freshman Academy. I thought I'd stop and tell you I'm doing fine and I'm still here. I thought about leaving a couple of times, but remembered that you told us that if we decided to leave, we had to tell you and well, I didn't really want to explain that to you so I decided to stick it out. Thanks for believing in me. (FA student)

Promotion and Tenure Issues Related to Faculty Involvement in Learning Communities

The reward structure and faculty perceptions of the reward structure must be seriously considered when launching and sustaining learning communities because faculty involvement is crucial to maximize the learning community experience. "The old definitions of workload will have to be replaced. Time-worn assumptions and practices cannot be allowed to prevent needed change in undergraduate education" (Boyer, 1998, Ten Ways to Change Undergraduate Education).

The Boyer Report advocates changing the faculty reward systems. The current reward system doesn't fully embrace teaching, "even though it is inspired teaching that attracts young minds and pulls new recruits into the disciplines...The reward structures in the modern research university

need to reflect the synergy of teaching and research." Furthermore, *The Boyer Report* advocates rewarding exceptional classroom teaching in an effort to elevate the value placed on effective teaching. Rewards should be in the form of credit towards promotion and tenure, and permanent salary increases (Boyer, 1998, Section IX. Change Faculty Reward Systems).

Angelo (1997) encourages institutions of higher education interested in constructing a more productive, learning-focused campus to move "from a narrow, exclusive definition of scholarship to a broader, inclusive vision" (p. 5). He suggests institutions do this by formally recognizing the value of not only research and publication, but also integration, application, and teaching in the institution's faculty evaluation system. "The faculty evaluation system used for retention, tenure, promotion, and merit decisions is a powerful lever for redirecting time and effort. Inspired by Boyer's challenge, campuses throughout the country are working to develop ways to assess and value a broader ranger of scholarship" (p. 6). Iowa State University's Promotion and Tenure policy was recently revised in 1998. This new document defines scholarship more broadly.

The Iowa State University (1998d) promotion and tenure policy reads "Evaluation of a faculty member for promotion and/or tenure is based primarily on evidence of scholarship in the faculty member's teaching, research/creative activities, and/or extension/professional practice" (Iowa State University, 1998d, Sec. II. Promotion and Tenure, Standards for Promotion and Tenure, Introduction). Teaching is listed as one of the areas where scholarship can be demonstrated. Examples of teaching scholarship which relate best to faculty participation in learning communities include:

1. Curricular development, including collaborative courses and programs.
2. Pedagogical innovation, including the use of new approaches to learning and to assessment.
3. Faculty research opportunities, including research on how curricula is developed, delivered and received, and involvement in student research projects.

(Iowa State University, 1998d, Sec. II. Promotion and Tenure, Standards for Promotion and Tenure, Areas of Position Responsibilities and Activities)

Nonetheless, Lenning and Ebbers (1999) discuss Iowa State University's promotion and tenure policy as follows:

> Promotion and tenure at Iowa State University continue to be based largely on productivity in scholarship and research productivity, and faculty perceive that devoting major amounts of one's energy to teaching in learning communities could adversely affect one's scholarly

> productivity. Thus, until university administrators and rank/tenure committees are committed to giving significant credit toward promotion and tenure for involvement in learning communities, and until they recognize pedagogical research on innovations in and results of learning communities as legitimate scholarship, faculty in general will be reluctant to participate in such endeavors. (pp. 71-72)

Relationship of Involvement to Student Academic Success and Retention

The more positively the students view themselves as integrated and valued members of the institution, the more likely they will persist (Rendon, 1994). This involvement appears to matter the most during the first year of college (Tinto, 1998).

There is an array of research that supports student involvement with faculty and/or peers (Astin, 1993; Endo & Harpel, 1982; Kuh, 1994; Lamport, 1993; Levine & Tompkins., 1996; MacGregor, J., 1991; Tinto, Goodsell, & Russo, 1994, 1994b; Whitt & Nuss, 1994). Lenning and Ebbers (1999) state "much documentary evidence suggest that active, focused, quality involvement by students with peers and faculty in the campus environment – inside and outside the classroom – can lead to much higher academic achievement, educational aspirations, maturity, self understanding, and retention than otherwise" (p. 50).

Based on a review of 2,600 empirical studies of college's effects on students, "one of the most inescapable and unequivocal conclusions is that the impact of college is largely determined by the individual's quality of effort and level of involvement in both academic and nonacademic activities" (Pascarella et al., 1991, cited in Gardiner, 1994, p. 21). Iowa State University is an institution that offers undergraduates high-quality, meaningful experiences outside of the formal classroom. As a result, Iowa State University is recognized as a highly "involving" institution by Kuh et al. (1991). Hamilton (1997) suggested that the lack of differences between the 1996-1997 Biology Education Success Team (BEST) participants and the non-learning team control group be partially contributed to the already "involving climate at Iowa State University." Hamilton explained "the institutions where previous data had been collected are urban, commuter, or traditional community colleges; places where communities do not develop as naturally" (p. 39).

The Effects of Learning Communities on Diversity

Homogeneous assignment in residence halls and in courses in an effort to create community has been criticized for hurting diversity efforts. Pascarella, Terenzini, and Blimling (1994) indicate

research shows "homogeneous grouping in residence halls by major can have positive implications for persistence, both in that major and in college" (p. 37). Although homogenous grouping in residence halls can help increase university retention efforts, Pascarella et al. (1994) acknowledge that learning communities may impair institutional efforts related to diversity. Although residential learning communities can assist institutions in meeting a number of objectives, they may impair institutional efforts to increase awareness and appreciation for differences and similarities among people. In an age when institutions of higher education promote activities and require courses designed to increase student understanding of diversity, the concern related to learning communities fostering a homogenous environment cannot go ignored. Institutions have an obligation to guard against lack of diversity and create a diverse learning environment.

Learning communities, if carefully planned, can serve as an ideal environment in which to form linkages across disciplines, cultures, and other barriers that keep us from understanding and appreciating our diverse campuses and our even larger world. When structured deliberately to foster diversity, learning communities can provide "a context for students from all ethnic groups to learn together" (Gabelnick et al., 1990, p. 91). Smith (1991) advocates that learning communities address the need for exploring and understanding diverse perspectives. Warren (1997) said "Through active learning processes, students not only learn content, but also...gain a sensitivity to cultural differences" (Warren, 1997, p. 16).

At the Transforming Campuses into Learning Communities conference (1998), Anderson discussed that required participation in a structured freshmen study/learning group promotes improved academic performance and increased retention among diverse students. Anderson, in his talk, maintained that students exposed to diversity will: (a) seek out more cultural experiences, (b) report more social growth and satisfaction, (c) engage in more classroom interaction with other students different from them, (d) integrate traditional and non-traditional scholarship more completely, (e) and ask more questions about their place in the world. These learning outcomes could be accomplished by purposefully structuring the learning community experience to include diversity as an essential component.

Hamilton (1997) reported that the students enrolled in the BEST (Biology Education Success Teams) residential learning community designed for freshmen majoring in the biological sciences, "experienced a higher, although not significant, level of diversity in their student acquaintances than did the non-BEST students" (p. 33). The comparison group, referred to as non-BEST, consisted of freshmen also majoring in the biological sciences, enrolled in the same section of Principles of

Biology I, and with similar high school rank and ACT composite scores, two known measures of college success. This finding is encouraging; however, further research is necessary to (1) determine if certain learning community models impede diversity and (2) identify "best practices" on how learning communities can be structured to provide students with a rich and diverse learning experience.

The Iowa State University Learning Community Working Group (LCWG) listed "to demonstrate a better understanding of differences and similarities among people and cultures" as one of the learning community outcomes. Iowa State University learning community experiences should be structured in a manner that will foster, not hinder, student understanding and appreciation of diversity.

The Role of Learning Communities in Building Workplace Skills

According to Angelo (1997), all too often students are awarded degrees simply for persistence – simply because they collected the credits required for the degree – not because they have learned the competencies and skills required for the workplace. As a result, employers all too often complain that graduates lack the basic skills required to successfully migrate from college to the workplace. Ewell (1997) states "Employers, politicians, and citizens have growing doubts about what is really learned in college and, more importantly, what good it is in actually preparing individuals for the complex world of work" (p. 1). In this age of accountability, it is crucial that institutions of higher education respond by teaching students those skills valued in today's workplace such as team working, critical thinking, and problem solving skills.

Anderson, while presenting at the Transforming Learning Campuses into Learning Communities conference (1998), discussed what companies want in their 21st century employees. Anderson said companies want global literacy, accelerated technology, social responsibility, organizational networking, team working, problem solving, and cross group communication skills. The learning community can serve as an effective agent for building these skills.

Citizenship and leadership skills

Matthews (1994) contends "Learning communities enhance the quality of life, contribute to the development of connections beyond the college, and help prepare students for the challenge of leadership" (p. 181). Cross (1998) says that learning communities help train people for good citizenship, particularly those learning community experiences that incorporate a service learning

component into their program. Cross believes that "service learning is the ultimate learning community" (1998, p. 10). Understanding community helps students prepare "to live as responsible citizens" (Gabelnick et al., 1990, p. 11). Iowa State University has yet to fully explore how learning communities could provide a powerful venue for service learning.

Lifelong learning skills

"According to the American Society for Training and Development, by the year 2000, 75 percent of the current workforce will need to be retrained just to keep up. Lifelong learning is becoming a necessity" (Twigg & Oblinger, 1997, p. 3). Learning community curricular structures tend to emphasize the exploration of knowledge thus teaching the student *how* to learn rather than simply *what* to learn. Faculty become guides and companions in the learning process. This type of education should wet the student's appetite for knowledge and foster both his/her desire and his/her ability to engage in lifelong learning and welcome new intellectual challenges.

Required retraining is not the only reason to help students become lifelong learners. Another reason is the explosion of knowledge. "The world's volume of new information is increasing at such a rapid pace that the class of 2000 will be exposed to more new data in a year than their grandparents encountered in a lifetime. Knowledge doubles every seven years. Ten thousand scientific articles are published every day" (Forman, 1995 cited in Twigg & Oblinger, 1997, p. 6). How can a faculty member continue to present all the material on a particular subject matter during his/her fifty-minute class period three times a week for one semester? Time is at a premium. Faculty concerned about material coverage over student comprehension should redirect. Given the "knowledge explosion" (p. 7), there is not enough time to cover all the material, so faculty must teach students how to learn (Nelson in Transforming Campuses into Learning Communities, 1998).

Teamwork, critical thinking, and problem-solving skills

According to McBride (1999), teamwork ranked as the second highest skill employers want. With 5.0 being the high end of the scale and equal to extremely important, teamwork ranked 4.65. The skills listed include interpersonal (4.67), teamwork (4.65), analytical (4.56), oral communication (4.53), flexibility (4.52), computer (4.32), written communication (4.12), leadership (4.08), work experience (4.05), internship experience (3.77), and co-op experience (3.37). Employers are sending the message loud and clear that they want employees to be able to work in a team. Learning communities structured effectively are living laboratories and can help students build marketable skills as well as prepare students to enter the workplace successfully.

The *Chronicle of Higher Education Almanac* in the section on attitudes and activities of fall 1997 freshmen (August 28, 1998) recorded that 47% of students reported having tutored another student and 84.1% of students reported having studied with other students. These responses reflect some of the attitudes and characteristics of the fall 1997 freshman class in the United States. It is important to note the large number of students reporting studying in groups. Students learning from other students is one of the underlying conditions which make learning communities work.

Angelo (1997) advocates that higher education must grow highly effective team players, individuals who are apt at team work and capable of making connections across all kinds of boundaries. Angelo (1993) says "...the professional world never tires of pointing out, our students need to learn to work more effectively in teams" (p. 7). Team work skills are essential if our graduates are going to be successful managing and coping with our world's complexity. Angelo (1997) argues that institutions desiring a learner-centered environment must shift "*from* a culture that emphasizes and privileges individual struggle for private advantage *to* one that encourages collaboration for the common good and individual advancement" (p. 6).

Cross (1998) discusses that knowledge is socially constructed rather than discovered. "We construct and maintain knowledge not by examining the world but by negotiating with one another in communities of knowledgeable peers" (Bruffee, 1995a cited in Cross, 1998, p. 5). *The Boyer report* (Boyer Commission, 1998) advocates small group work for the purpose of building friendships and engaging in direct intellectual contact with other students and faculty. Working with others on a complex project builds critical thinking, problem-solving, and interpersonal communication skills.

Cross (1998) contends "The argument for group work from the knowledge-as-foundational viewpoint is that two heads (or more) are better than one. So even in this traditional view of knowledge as reality waiting to be discovered, group learning may prove advantageous" (1998, p. 5).

In order to build trust in the classroom and an environment conducive to team work, Angelo (1993) maintains that faculty must "de-emphasize" competition for grades and emphasize meaningful, cooperative group interactions. Angelo (1993) also advocates students teaching students. Requiring a student to explain what they've learned to another student is an effective active learning strategy.

Angelo (1997) states "Research has demonstrated that nearly all students learn more and better through well-structured, well-run group work than on their own, and that it particularly benefits the less privileged and less prepared" (p. 6). Both faculty and students need training in group-process skills. Group-process skills are not inherent and must be taught in order to achieve group

effectiveness. The importance of teaching group skills to students and faculty is stressed in the Lenning and Ebbers (1999) monograph.

Technology skills

"Proficiency in using technology...is becoming another basic skill" (Twigg & Oblinger, 1997, p. 3). By the year 2000, 95% of the workforce will use some type of information technology in their jobs (Twigg & Oblinger, 1997, p. 3). Learning communities can serve as yet another forum for students to use technology, e.g. on-line classes, study groups, and/or chat groups. Technology mediums, when used deliberately for the purpose of connecting students to students, and students to faculty, can serve as effective tools for building community.

Incorporating Research into the Freshmen Learning Community Experience

Both the Boyer Commission and the Kellogg Commission reports lend support for incorporating research into the freshmen experience. *The Boyer report* (Boyer Commission, 1998) suggests making research-based learning the standard – beginning in the freshmen year. Learning is achieved through "reciprocity," meaning faculty learning from students and students learning from faculty. The report discusses how students described college as one course after another where information flows one way, from the teacher to the student. The student is expected to absorb the information and regurgitate the information on an examination. "Too often the freshman curriculum is a bore and freshman instruction inadequate. Freshmen, the students who need the very best teaching, may actually receive the worst, and more of them fall away by the end of the freshman year than at any other time. The freshman experience needs to be an intellectually integrated one, so that the student will not learn to think of the academic program as a set of disparate and unconnected requirements" (Boyer, 1998, Sec. II. Construct an Inquiry-based Freshman Year).

The Boyer Commission recommends turning the undergraduate experience into one that is a collaborative search for knowledge. The report urges that all undergraduate courses provide the student with an opportunity to discover knowledge through research. The Commission suggests that undergraduate students become "junior members" of research teams (Boyer Commission, 1998, Sec II. Construct an Inquiry-based Freshman Year).

The Kellogg report (Kellogg Commission, 1997) suggests "strengthen[ing] the link between discovery and learning by providing more opportunities for hands-on learning, including undergraduate research" (p. vii). *The Kellogg Report* states "In the learning community of tomorrow,

the college experience will demonstrate that excellence in teaching is valued as much as excellence in research – and that the two can be linked by involving undergraduates in research." (p. 20).

Carney (1999) reports in the *Des Moines Register* that "dramatic changes are ahead for education" (p. 1M). Although the focus of this article is elementary and secondary education, its lessons and predictions about the future also speak to higher education. Carney reports that Jolene Franken, president of the Iowa State Education Association, the 32,000-member teachers' union, believes the business of education will become like the business of medicine, "more research-based, applying discoveries about brain processes, for instance, to how kids learn" (p. 1M).

University of Michigan's Research Opportunity Program is described in The University of Michigan Bulletin (1998-99) entitled *Michigan Learning Communities*. This program offers freshmen and sophomores the opportunity to partner with faculty on research projects. Projects are available in all academic disciplines, and students work on their research project from six to twelve hours weekly. Students also receive academic credit, or work-study funding if eligible to receive this type of financial aid. Students are grouped based on their research interest and are assigned a peer advisor who provides direction not only on the research project, but also on university life in general. ROP students share their research via forums and symposia, learn important research and time management skills, discuss ethical issues and emerging trends in research, and in some cases co-author publications and/or present with their faculty partner(s).

The University of Michigan identifies the faculty-student connection as the most important reason to participate in ROP. An ROP freshmen or sophomore is partnered with a faculty person who not only mentors him/her during the program, but typically continues to provide support throughout his/her educational journey. *The University of Michigan Learning Communities Bulletin* reads "We don't want to overstate the case for joining a Michigan University Learning Community, but why take a chance missing out on something *monumental* during your first year on campus?" (University of Michigan, 1998-99).

Iowa State University's Undergraduate Research Assistantship (URA) Program offers juniors and seniors who have demonstrated outstanding academic ability and financial need (defined as work study eligible) the opportunity to engage in hands-on research with a faculty member. Students and faculty are matched based on their research interests. This program is limited to 215 juniors and seniors who can demonstrate financial need of at least $3200 by filing the Free Application for Federal Student Aid (FAFSA) and who have maintained an Iowa State University cumulative GPA of 3.25 or better.

The Iowa State University Freshmen Honors Mentor Program provides about 130 motivated, first-year honors students with the opportunity to engage in research with a faculty member, researcher, or specialist; the student works as part of a research team. This particular program is limited to Freshman Honors Program students.

We know that faculty play a critical role in student retention. Getting students connected to faculty early in their college career will also connect them to the institution (Lucas & Mott, 1996; Tinto & Goodsell, 1994, 1995; Tinto, Goodsell, & Russo, 1994a; Tinto & Russo, 1994). The *Boyer report* and *Kellogg report* strongly advocate the introduction of research into the freshmen experience. Getting freshmen involved in research activities early fits with the spirit of a Research I institution.

Incorporating Technology into the Learning Community Experience

Today's technologies allow students and faculty from across the globe to participate in regular and on-going discussions over the Internet. According to Dolence and Norris (1995), "Fully integrated technologies create synergy" (p. 37). Synonyms for "synergy" are union, togetherness, fellowship, sharing, and association – all words that describe the objective of a learning community. Institutions of higher education should further explore the role of technology in building learning community experiences rich with synergy that will help freshmen form a strong union with the campus.

Learning communities could be categorized as "learning-ware," which Dolence and Norris (1995) define as "applications for the facilitation and management of learning" (p. 49). Dolence and Norris (1995) talk about how "learners will demand access to knowledge resources from any location" (p. 50). Technology is the instrument that will enable higher education to push out its boundaries to serve individuals everywhere (p. 51). Technologies could be tapped to facilitate rich learning community experiences for the adult, commuter student. To make learning communities work for this student population, the institution must make group work convenient and resources readily available through technology. "Students and professors in a virtual learning community may never meet in person, because such a learning community may have members across a wide geographical area" (Lenning & Ebbers, 1999, p. 107). The Boyer Commission cautions, however, that technology cannot be a substitute for direct interactions between human minds (Boyer Commission, 1998, Section VI. Use Information Technology Creativity). The Commission also discerningly discusses the need to assess students' readiness to use technology.

Summary

The findings in the review of the literature show that intentional, well-structured learning communities can positively impact student retention (Astin, 1993; Collison, 1993; Diefenbach, 1996; Gabelnick et al., 1990; Jones, 1996; Lamport, 1993; Lenning & Ebbers, 1999; Pike et al., 1997; Smith, 1991; Tinto, 1998; Tinto, Goodsell, & Russo, 1994; Tinto, Russo, & Kadel, 1994; Tokuno, 1993) and student academic performance as measured by grade point average (Diefenbach, 1996; Gabelnick et al., 1990; Jones, 1996; Levine & Tompkins, 1996; MacGregor, 1991; Tinto, Goodsell, & Russo, 1994a; Tokuno, 1993). The findings also support that a variety of learning community characteristics such as common residence, peer mentoring, common courses, curricular innovation, and faculty involvement (extended beyond the classroom) all contribute positively to student retention and academic success.

The scale and complexity of learning community models are as diverse as the list of institutions now in full production with, or experimenting with, learning community programs. Institutional culture and mission should significantly influence what learning community model is implemented. Lenning and Ebbers (1999) write "It is clear that well-designed and –crafted cooperative and collaborative learning experiences within learning communities – as well as the existence and makeup of the learning communities themselves – greatly benefit both college students and faculty" (p. 60). Results of the study conducted by Lucas and Mott (1996) suggest that comprehensive learning community experiences that involve faculty yield the greatest benefits. The literature review clearly indicates the importance of giving faculty credit towards promotion and tenure for their scholarly and creative participation with learning communities.

Gabelnick et al. (1990) state that successful learning community implementation requires extensive coordination across departmental boundaries, an administrative home, and administrative support. The review of the literature demonstrates that the learning community concept needs to undergo further scholarly and rigorous assessment in order to talk conclusively about the academic and retention effects of learning communities.

CHAPTER 3: METHODS

A discussion of the methods and an explanation of the inferential and descriptive statistics used in this study follows. This chapter will also outline procedures for the continuation of this Iowa State University longitudinal learning community retention study.

Population and Establishment of Database

The cohorts for this study were entering new freshmen, academic years 1995, 1996, and 1997. The population for this study was defined by the University Retention Study file maintained by the Office of Institutional Research at Iowa State University. Data for this file were drawn from data kept by the Office of the Registrar and the Office of Admissions. This file defines who the University studies for retention purposes and includes only students with admission type 1. Admission type 1 includes all students who first registered as a new student for that fall semester (1995, 1996, or 1997), as well as students who first registered as a new student the summer term prior to that fall term.

This study compares the retention and cumulative grade point averages of learning community students to non-learning community students. This study also compares the different learning communities based on various learning community characteristics. For all comparisons, the researcher split the database file by year, meaning the data were grouped and analyzed by entry term and year.

Cases were eliminated from this study if (a) not on the University Retention Study file, specifically students not considered new freshmen (n=437); (b) deceased (n=2); (c) enrolled exclusively in one off-campus course (n=1); or (d) coded as "G" (graduated) on the University retention file rather than as "R" (registered) or "N" (not registered). "G" means that the student graduated (n=3 in the 1995 cohort). For this study, all "P" (pre-professional program) codes were converted to "R" (registered) codes. For the purpose of the University retention study, students who enter a pre-professional program, such as vet med, are coded as "P" and treated as graduates. For the purpose of this study, these students were considered enrolled and retained.

A total of 269 students (years 1995-97) had a cumulative grade point average of zero (0.00) on their permanent record. The researcher reviewed the permanent record of each of these 269 students to determine if their zero (0.00) grade point average was the result of receiving all failing grades, or if the 0.00 grade point average was indicative of no grade point average because the

student withdrew from the University during his or her first semester, and subsequently no grades were recorded on the permanent record. The researcher eliminated students who withdrew (zero grade point average and no completed courses on the Iowa State University transcript) from all grade point average comparisons, but retained these students in the persistence comparisons.

The freshmen learning community students were then identified by using Office of the Registrar class schedule information. At Iowa State University, all learning community students are tagged with a learning team reference (ID) number on their fall semester class schedule. This reference number identifies participants for the purposes of research and assessment, and assists the University Registrar in enrollment management.

Acknowledging possible differences between the group of students choosing to participate in a learning community, and the group of students either choosing not to participate or not having the option to participate in a learning community, the researcher compared these two groups based on ACT composite score or the equivalent SAT score, and high school rank (HSR), two pre-college traits known for their correlation with success at the university level (Astin, Korn, & Green, 1987).

A total of 298 cases (years 1995 through 1997) were missing an ACT composite score or SAT scores. The researcher used the series mean method for replacing missing values. A mean test score was figured separately for each year in the study. Missing high school ranks (n=6) were also replaced with the mean for the series delineating by entry year.

A number of subjects had SAT scores rather than ACT scores. The researcher, when transforming SAT scores to ACT score equivalents, used the standard conversion table used by Iowa State University and consistently rounded up employing standard rounding procedures. A small number of the SAT scores were below the lowest score on the conversion chart. Using regression analysis, the researcher extended the chart below the ACT composite score of 15 in an effort to determine the ACT composite equivalent score for all cases. When extending the chart, the researcher made the assumption that the relationship between the ACT and SAT scores would stay linear.

An independent two-sample t-test for equality of means was performed on both the ACT composite scores and the high school ranks (HSR) of the learning community (LC) group and the non-learning community (non-LC) group for each of the three years. The results of the test are presented in Table 1.

Table 1. Comparison of Mean ACT Composite Scores (ACT C) and Mean High School Rank (HSR) for Learning Community (LC) Students and Non-LC Students by Year of Entry

	N	M(SD)	t	p
1995				
ACT C			-2.51	.01*
LC	324	23.67 (3.30)[@]		
Non-LC	2953	24.16 (3.83)		
HSR			.51	.61
LC	324	75.87 (16.79)		
Non-LC	2953	75.34 (17.80)		
1996				
ACT C			-4.22	< .01*
LC	598	23.89 (3.80)		
Non-LC	3004	24.64 (4.00)		
HSR			1.72	.09
LC	598	75.66 (16.88) [@]		
Non-LC	3004	74.34 (18.38)		
1997				
ACT C			-2.81	.01*
LC	633	24.05 (3.81)		
Non-LC	3378	24.53 (3.92)		
HSR			-2.81	.01*
LC	633	75.98 (17.08)		
Non-LC	3378	74.25 (18.16)		

[@] Equal variances not assumed.
$p < .05$

For all three years, the LC students had a statistically significant lower mean ACT composite score. For all three years, the LC students had a higher mean HSR, but the difference was only statistically significant in year 1997. This information suggests that the two groups do vary on characteristics that correlate to college success at the university level, with the non-LC student group for both 1995 and 1996 being more likely to succeed. The 1997 LC student group had a significantly higher mean HSR, yet a significantly lower mean ACT composite score.

Hypotheses

Based on the research questions presented in the introduction and the findings from the review of the literature, the following hypotheses were made:

1. Students who participate in a freshmen learning community at Iowa State University will *earn higher cumulative grade point averages* than students who do not participate in a freshmen learning community.

2. Students who participate in a freshmen learning community at Iowa State University will *persist at the University from semester to semester* at a higher level than students who do not participate in a freshmen learning community.

3. Students who participate in a *residential* freshmen learning community will earn higher cumulative grade point averages than students who participate in a non-residential learning community.

4. Students who participate in a *residential* freshmen learning community will persist at the University from semester to semester at a higher level than students who participate in a non-residential learning community.

5. Students who participate in a freshmen learning community that utilizes *peer mentors* will earn higher cumulative grade point averages than students who participate in a learning community that does not use peer mentors.

6. Students who participate in a freshmen learning community that utilizes *peer mentors* will persist at the University from semester to semester at a higher level than students who participate in a learning community that does not use peer mentors.

7. Students who participate in a freshmen learning community and *take a common set of courses* will earn higher cumulative grade point averages than learning community students who do not take a common set of courses together.

8. Students who participate in a freshmen learning community and *take a common set of courses* together will persist at the University from semester to semester at a higher level than learning community students who do not take a common set of courses together.

9. Students who participate in a freshmen learning community that is *course-based with innovative curriculum* (linked or experimental courses) will earn higher cumulative grade point averages than learning community students who do not.

10. Students who participate in a freshmen learning community that is *course-based with innovative curriculum* (linked or experimental courses) will persist at the University from semester to semester at a higher level than learning community students who do not.

11. Students who participate in a freshmen learning community that *has faculty involvement outside of the classroom* will earn higher cumulative grade point averages than learning community students who do not.

12. Students who participate in a freshmen learning community that has *faculty involvement outside of the classroom* will persist at the University from semester to semester at a higher level than learning community students who do not.

Instrumentation

The researcher obtained permission for her research from the University Human Subjects Review Committee (see Appendix A) and from the Office of the Registrar (see Appendix B). In January 1999, a survey (see Appendix C) was administered to all learning community coordinators for years 1995-1997 via e-mail. The researcher followed up with a phone call to all nonrespondents. Ultimately, the researcher obtained a 100% response rate. The instrument included questions to determine whether or not their respective learning community students lived together in a common residence hall, had a peer mentor assigned to them, enrolled in a common set of courses together, experienced curricular innovation, and increased their involvement with faculty outside of the classroom. The data collected were then used to indicate on the database file the various activities reflective of each learning community. This information enabled the researcher to explore which characteristics of learning communities make a difference. The intent was not to definitively answer this question, but rather increase the understanding on this topic.

Analysis

The Statistical Package for the Social Sciences (SPSS 8.0 for Windows, © 1997) software was used to analyze the data. Retention data and cumulative grade point average data were used to compare LC and non-LC students, and to compare the different learning communities based on five characteristics, specifically common residence, peer mentors, common courses, curricular innovation, and faculty involvement. When comparing the learning communities, only cases identified as learning community participants were included in the analysis. When comparing grade

point averages, cases identified as withdrawals during the first semester and having no Iowa State University courses on the transcript record, were excluded from the analysis.

A mean and standard deviation were calculated for the cumulative grade point average comparisons. The statistical procedures used to test the hypotheses addressing cumulative grade point differences included Levene's Test for Equality of Variances and the two-sample independent t-test for equality of means.

The statistical procedure used to test the hypotheses addressing retention was the directional measure Somers' d. The Somers' d value was used because it indicates both the direction of the relationship (-1 to +1) and the strength of the relationship. In addition, Somers' d controls for ties and generally doesn't overstate the strength of the relationship since it yields a conservative interpretation. A risk estimate was also factored to determine the casualty rate ratio with learning community participation being the independent variable, and term to term persistence being the dependent variable. Retention data for first semester (fall 1) to second semester (spring 1), fall 1 to second fall semester (fall 2), fall 1 to third fall semester (fall 3), and fall 1 to fourth fall semester (fall 4) were analyzed for the *1995 cohort* at the university-level and by college. Retention data for first semester (fall 1) to second semester (spring 1), fall 1 to second fall semester (fall 2), and fall 1 to third fall semester (fall 3) were analyzed for the *1996 cohort* at the university-level and by college. Retention data for first semester (fall 1) to second semester (spring 1), and fall 1 to second fall semester (fall 2) were analyzed for the 1997 cohort at the university-level and by college.

CHAPTER 4: RESULTS AND DISCUSSION

The results of the statistical data analysis, described in Chapter 3, and research findings are presented in this chapter. There are four sections in this chapter: (a) Grade Point Average Comparisons (GPA) between LC and Non-LC Students at the University-level, (b) Retention Comparisons between LC and Non-LC Students and the University-level and by College, (c) Grade Point Average (GPA) Comparisons based on Learning Community Characteristics, and (d) Retention Comparisons based on Learning Community Characteristics.

An alpha level of .05 was used for determining significance on all statistical tests. The independent variable for grade point average and retention comparisons between LC and non-LC students was learning community participation. The independent variables for the grade point average and retention comparisons based on learning community characteristics were common residence, peer mentors, common courses, curricular innovation, and faculty involvement outside the classroom.

GPA Comparisons between LC and Non-LC Students at the University-level

The summary of analysis of Grade Point Average Comparisons between LC and non-LC is presented in Table 2.

The mean cumulative grade point average for each of the three cohort years was higher for the LC student group than the non-LC student group. The relationship between LC participation and academic performance, as measured by grade point average, is positive. However, for all three years, the difference was not statistically significant. The lack of significance could be attributed to limited curricular innovation. For the purpose of this thesis, curricular innovation is present if the learning community schedule includes linked courses, and/or a course developed solely for, and offered only to, participants in the learning community. Only 18% of the learning community students experienced curricular innovation in 1995. In 1996 and 1997, only 21% of the learning community students experienced curricular innovation.

The majority of the 1995, 1996, and 1997 learning communities were course-based, meaning the students enrolled in a common set of courses. In 1995, 100% of the learning community students in this study enrolled in common courses. In 1996, 86% of the learning community students enrolled in

Table 2. GPA Comparisons between LC and Non-LC Students at the University-level

	N	M(SD)	t	p
1995				
CUM GPA			-1.09	.28
LC	324	2.62 (.72)[@]		
Non-LC	2919	2.57 (.84)		
1996				
CUM GPA			-.08	.94
LC	592	2.60 (.77)[@]		
Non-LC	2972	2.59 (.85)		
1997				
CUM GPA			-.90	.37
LC	626	2.62 (.75)[@]		
Non-LC	3378	2.59 (.81)		

Note: Cases identified as withdrawals during the first semester and having no Iowa State University courses on the transcript record were excluded from the analysis.
[@] Equal variances not assumed.
$p < .05$

common courses. In 1997, 79% of the learning community students enrolled in common courses. The decline in the percentage rate reflects the increase in residential-only learning community offerings; it is not indicative of learning communities deciding to no longer include common courses as part of their total learning community experience. Although taking the same courses together made it easier for students to form study groups and connect with other students having similar academic interests, the courses on the LC schedule were not delivered differently to the LC group. Little curricular innovation emerged in response to the Iowa State University learning community initiative.

Retention Comparisons between LC and Non-LC Students at the University-level and by College

The summary of analysis of Retention Comparisons between LC and non-LC Students at the University-level and by College is presented in Tables 3-6. The analysis includes percentages, Somers' d values, p values, and risk estimates at the University-level and also by college. Table 3 displays retention data at the University level. Tables 4-6 display retention data by college and year.

Table 3. Retention Comparisons Between LC and Non-LC Students at the University-level

	N	1 Semester (F1 to S1)	1 Year (F1 to F2)	2 Years (F1 to F3)	3 Years (F1 to F4)
1995					
Retention Rates					
LC	324	99%	88%	78%	75%
Non-LC	2950	93%	81%	73%	70%
Somers' d		.06	.08	.05	.06
p value		< .01*	< .01*	.04*	.03*
Risk estimate		7.98	1.80	1.32	1.33
1996					
Retention Rates					
LC	598	96%	85%	76%	
Non-LC	3004	94%	82%	74%	
Somers' d		.02	.03	.03	
p value		.03*	.08	.19	
Risk estimate		1.51	1.23	1.15	
1997					
Retention Rates					
LC	633	96%	86%		
Non-LC	3378	94%	83%		
Somers' d		.02	.03		
p value		.05	.03*		
Risk estimate		1.44	1.30		

$p < .05$

Table 4. Retention Comparisons Between LC and Non-LC Students by College - Year 1995

1995	N	1 Sem (F1-S1)	1 Yr (F1-F2)	2 Yrs (F1-F3)	3 Yrs (F1-F4)
Agriculture					
LC	39	100%	90%	77%	77%
Non-LC	402	94%	83%	76%	71%
Somers' d		.06	.07	.01	.06
p value		< .01*	.17	.91	.44
Risk estimate		@	1.85	1.05	1.34
Education					
LC	18	100%	89%	89%	78%
Non-LC	94	94%	83%	78%	75%
Somers' d		.06	.06	.11	.03
p value		.02*	.48	.20	.76
Risk estimate		@	1.64	2.30	1.20
Engineering					
LC	56	100%	88%	66%	68%
Non-LC	844	96%	84%	77%	74%
Somers' d		.04	.04	− .11	− .06
p value		< .01*	.45	.10	.33
Risk estimate		@	1.33	.58	.74
FCS					
LC	14	93%	79%	71%	82%
Non-LC	69	94%	90%	83%	79%
Somers' d		− .01	− .11	− .11	− .04
p value		.86	.34	.39	.73
Risk estimate		.80	.41	.53	.77
Business					
LC	134	99%	87%	79%	75%
Non-LC	176	88%	73%	68%	61%
Somers' d		.12	.14	.12	.15
p value		< .01*	< .01*	.02*	< .01*
Risk estimate		18.88	2.49	1.81	2.00
LAS					
LC	63	98%	92%	84%	76%
Non-LC	1070	92%	79%	68%	64%
Somers' d		.07	.14	.17	.13
p value		< .01*	< .01*	< .01*	.03*
Risk estimate		5.16	3.19	2.53	1.82

Note: The College of Design had no learning communities in 1995.

@ No risk estimate calculated for those learning communities having 100% retention (Agriculture, Education, and Engineering).

$p < .05$

Table 5. Retention Comparisons Between LC and Non-LC Students by College - Year 1996

1996	N	1 Sem (F1-S1)	1 Yr (F1-F2)	2 Yrs (F1-F3)
Agriculture				
LC	97	98%	90%	84%
Non-LC	418	95%	88%	82%
Somers' d		.03	.02	.01
p value		.13	.63	.73
Risk estimate		2.39	1.18	1.11
Education				
LC	29	90%	90%	76%
Non-LC	138	91%	80%	67%
Somers' d		- .02	.10	.09
p value		.79	.14	.35
Risk estimate		.83	2.21	1.52
Engineering				
LC	96	97%	87%	78%
Non-LC	800	97%	87%	81%
Somers' d		.00	.00	- .03
p value		.95	.99	.56
Risk estimate		1.04	1.00	.85
FCS				
LC	25	96%	92%	68%
Non-LC	78	89%	80%	73%
Somers' d		.08	.13	- .05
p value		.16	.08	.63
Risk estimate		3.13	2.97	.78
Business				
LC	203	95%	82%	75%
Non-LC	171	93%	81%	70%
Somers' d		.02	.01	.06
p value		.40	.81	.21
Risk estimate		1.46	1.07	1.34
LAS				
LC	147	96%	83%	74%
Non-LC	1087	93%	79%	69%
Somers' d		.03	.04	.05
p value		.10	.19	.21
Risk estimate		1.79	1.33	1.27

Note: The College of Design had no learning communities in 1996. One student designated as a Design College major and another designated as a Vet Med major were eliminated from this year's analysis.
$p < .05$

Table 6. Retention Comparisons Between LC and Non-LC Students by College - Year 1997

1997	N	1 Sem (F1-S1)	1 Yr (F1-F2)
Agriculture			
LC	161	97%	88%
Non-LC	350	93%	85%
Somers' d		.02	.02
p value		.20	.50
Risk estimate		1.79	1.20
Design			
LC	49	96%	88%
Non-LC	326	95%	81%
Somers' d		.01	.07
p value		.64	.18
Risk estimate		1.37	1.72
Education			
LC	47	94%	87%
Non-LC	128	93%	81%
Somers' d		.01	.06
p value		.88	.32
Risk estimate		1.11	1.58
Engineering			
LC	64	98%	92%
Non-LC	956	96%	88%
Somers' d		.02	.05
p value		.19	.20
Risk estimate		2.47	1.66
FCS			
LC	12	100%	83%
Non-LC	107	92%	81%
Somers' d		.08	.02
p value		.01*	.86
Risk estimate		@	1.15
Business			
LC	196	94%	82%
Non-LC	203	90%	77%
Somers' d		.05	.04
p value		.09	.29
Risk estimate		1.86	1.30
LAS			
LC	104	96%	89%
Non-LC	1307	93%	81%
Somers' d		.03	.09
p value		.13	.01*
Risk estimate		1.87	2.00

@ No risk estimate calculated for Family and Consumer Sciences due to 100% LC retention.

$p < .05$

University-level

See Table 3 for summary data. For all three cohorts, the retention rates were always higher for the LC group compared to the non-LC group. For the 1995 cohort, the difference was statistically significant for all three years including first semester to second semester retention (F1 to S1), first fall to second fall (F1 to F2), first fall to third fall (F1 to F3), and first fall to fourth fall (F1 to F4). First semester to second semester retention (F1 to S1) was statistically significant for the 1996 cohort also. First fall to second fall (F1 to F2) was statistically significant for the 1995 and the 1997 cohorts. In all cases the Somers' d value indicated a positive relationship between persistence and learning community participation. For 1995, the risk estimate suggests students have 8 times the risk of failing to persist from F1 to S1 if they are not in a learning community. The risk estimates are not as strong for years 1996 (1.5 times the risk) and 1997 (1.4 times the risk) although they still favor learning community participation.

College-level

See Table 4 for 1995 summary data. For cohort 1995, the first semester to second semester persistence (F1 to S1) was significantly higher for the LC group in all colleges with the exception of Family and Consumer Sciences (FCS). The Somers' d value showed a negative relationship for FCS although the strength of the relationship was extremely weak (Somers' d = -.01) and the number of cases limited (n-14). The relationship for FCS continued to be negative and weak from F1 through F4. The relationship the Engineering College begins positive through F2, but becomes negative, although not statistically significant, for F1 to F3 and F1 to F4.

The College of Liberal Arts and Sciences and the College of Business continued to show statistically significant results favoring the relationship between LC participation and persistence from F1 through F4. The risk estimate (casualty rate ratio) for F1 to S1 for the College of Business indicates that students have 19 times the risk of failing to persist if they do not participate in a learning community. The risk estimate for F1 to S1 for the College of LAS indicates students have 5 times the risk of failing to persist if they do not participate in a LC. The F1 to S1 risk estimates for the other colleges were not nearly as high as Business and LAS. Risk estimates could not be calculated for learning communities having 100% retention F1 to S1 (Agriculture, Education, and Engineering). Risk estimates for F1 to F2, F1 to F3, and F1 to F4 vary from .41 to 3.19.

See Table 5 for 1996 summary data. For cohort 1996, the first semester to second semester persistence was higher for the LC group in all colleges with the exception of the College of

Education. No p values were significant for year 1996 (F1 through F3). For F1 to S1, the Somers' d value indicated a positive relationship for all colleges with the exception of Education. The direction of the relationship for Education was negative and the strength of the relationship was weak (Somers' d = −.02). The relationship for Education moved from negative (F1 to S1) to positive (F1 to F2 and F1 to F3). The relationship for Engineering and FCS moved from positive (F1 to S1) to negative (F1 to F3); however the relationship was weak and not statistically significant.

The risk estimates for the 1996 cohort range from .78 to 3.13. The risk estimates for Agriculture, Engineering, FCS, and LAS decreased from F1 to F2 to F3 which is expected given the students become further removed from their freshmen year learning community experience as they persist to their sophomore and junior years. Learning communities are particularly important for freshmen because the research clearly indicates that student attrition is the highest from first semester to second semester. The research on student attrition shows that the withdrawal from school rate is highest during the first term, the freshmen year (Tinto, 1998).

For cohort 1997, the first semester to second semester (F1 to S1) persistence was consistently higher for the LC group in all colleges, although the only statistically significant p value was the value for FCS (p= .01). However, the number of cases for FCS was only 12, and subsequently the Somers' d value (.08), although positive, indicates an extremely weak relationship. The first fall to second fall (F1 to F2) retention again was consistently higher for the LC group in all colleges, with the p value (p = .01) statistically significant for LAS. No other p values for F1 to F2 were significant. None of the Somers' d values indicate a strong relationship. The risk of failing to persist ranges from 1.11 times higher to 2.47 times higher if not in a learning community; a risk estimate could not be calculated for the College of Family and Consumer Sciences due to 100% retention.

For all cohorts, fall 1995 through 1997, the Colleges of Agriculture, Business, and Liberal Arts and Sciences consistently reported higher retention for the LC group. The other colleges, in most cases, also reported higher retention for the LC group. These data show us that the relationship between retention and LC participation is positive. Differences in retention, and ultimately in graduation rates, should continue to be monitored by a longitudinal study.

Grade Point Average Comparisons based on Learning Community Characteristics

All hypotheses are directional. The researcher anticipated finding that the various learning community characteristics all contributed positively towards earning higher cumulative grade point

averages. This was not the case; the results varied by year and by characteristic. The summary of the analysis of Grade Point Average Comparisons based on Learning Community Characteristics is presented in Tables 7-9. Results are represented in separate tables for each cohort year. Cases identified as withdrawals during the first semester, and having no Iowa State University courses on the transcript record, were excluded from the data analysis. When analyzing data based on learning community characteristics, only those cases where learning community participation equaled "yes" were included. No analysis was completed on the learning community characteristic called common courses for 1995 because all 1995 learning communities in this study had courses in common. For 1995, 1996, and 1997, the results showed no significant differences as a result of LC students living together, or being assigned a peer mentor.

For year 1995, the mean cumulative grade point average was higher for learning communities having the following characteristics: peer mentors and faculty involvement. Living together and curricular innovation showed a negative relationship with the mean cumulative grade point average. Nothing was significant in year 1995. See Table 7 for summary data for year 1995.

Table 7. GPA Comparisons based on Learning Community Characteristics, Year 1995

1995 LC Students	N	M(SD)	t	p
Common Residence			1.25	.21
Yes	161	2.57 (.70)		
No	163	2.67 (.73)		
Peer Mentors			- 1.05	.92
Yes	178	2.63 (.70)		
No	146	2.62 (.74)		
Common Courses #				
Yes	324	2.62 (.72)		
No	0			
Curricular Innovation			1.33	.18
Yes	59	2.51 (.80)		
No	265	2.65 (.70)		
Faculty Involvement			-.64	.53
Yes	215	2.64 (.70)		
No	109	2.59 (.76)		

Note: Cases identified as withdrawals during the first semester, and having no Iowa State University courses on the transcript record, were excluded from the analysis.

All 1995 learning communities included in this study had common courses.

@ Equal variances not assumed.

$p < .05$

For year 1996, the mean cumulative grade point average was higher for learning communities having the following characteristics: common residence, peer mentoring, curricular innovation, and faculty involvement. The only LC characteristic that showed a negative relationship with mean cumulative grade point average was common courses. The difference for the characteristic common courses (p = .01*) was statistically significant in favor of learning communities not enrolling students in a common set of courses. This finding contradicts the findings discussed in Chapter 2. The differences for the characteristics curricular innovation (p = .02*) and faculty involvement (p = < .01*) were statistically significant in favor of learning communities changing the way courses are delivered to LC students and increasing faculty involvement outside of the classroom. These findings support the findings discussed in Chapter 2. See Table 8 for summary data for year 1996.

Table 8. GPA Comparisons based on Learning Community Characteristics, Year 1996

1996 LC Students	N	M(SD)	t	p
Common Residence			− 1.88	.06
Yes	352	2.65 (.77)		
No	240	2.53 (.77)		
Peer Mentors			− .46	.65
Yes	301	2.61 (.79)		
No	291	2.58 (.75)		
Common Courses			2.70	.01*
Yes	507	2.57 (.79)[@]		
No	85	2.78 (.64)		
Curricular Innovation			− 2.33	.02*
Yes	126	2.74 (.82)		
No	466	2.56 (.76)		
Faculty Involvement			− 5.01	.00*
Yes	490	2.66 (.76)		
No	81	2.20 (.76)		

Note: Cases identified as withdrawals during the first semester, and having no Iowa State University courses on the transcript record, were excluded from the analysis.
[@] equal variances not assumed
p < .05

For year 1997, the mean cumulative grade point average was higher for learning communities having the following characteristics: common residence and curricular innovation. The other characteristics (peer mentors, common courses, and faculty involvement) showed a negative relationship with mean cumulative grade point average. The differences for common courses ($p = < .01$*) and curricular innovation ($p = .04$*) were statistically significant.

The finding related to common courses suggests that LC students not sharing a common set of classes perform better academically when academic performance is measured by cumulative grade point average. This finding contradicts the numerous studies discussed in Chapter 2. For example, at Eastern Washington University, the pre-college grade point averages were lower for the FIG participants enrolled in common courses than for the control group. At the end of the first semester, the FIG participants earned a higher mean grade point average than the control group (Gabelnick et al., 1990).

A future study at the college or department level, controlling for perceived degree of difficulty of degree program, might help explain why the data in this study, in some cases, contradicts the greater body of literature on how various learning community characteristics positively affect student academic performance. This study did not analyze data at the degree program level due to the small number of observations in most cases.

These results suggest that, during the term of participation, students in learning communities earn higher grade point averages when compared to non-learning community participants regardless of pre-college characteristics. Tinto (1996) advocates the value in block scheduling freshmen students into a common set of courses. He says that students enrolled in a common set of courses "spend more time together out of class than do students in traditional, unrelated, stand-alone classes. The common study of a subject and the co-registration brings them together fast as small communities of learners" (p. 5). See Table 9 for summary data for year 1997.

Comparing cumulative grade point averages for all three cohorts at the end the first semester might yield better information on the academic effects of certain learning community characteristics than comparing cumulative grade point averages taken at the same time for all three cohorts. The researcher captured cumulative grade point averages for this study for all three groups on count day (the 10^{th} day of fall semester 1998). Therefore, the fall 1995 group was further removed from their freshmen learning community experience than the fall 1997 group.

Table 9. GPA Comparisons based on Learning Community Characteristics, Year 1997

1997 LC Students	N	M(SD)	t	p
Common Residence			– 1.60	.11
Yes	370	2.66 (.77)		
No	256	2.57 (.70)		
Peer Mentors			.73	.47
Yes	348	2.60 (.78)		
No	278	2.65 (.70)		
Common Courses			3.82	.00*
Yes	494	2.57 (.76)		
No	132	2.84 (.67)		
Curricular Innovation			– 2.07	.04*
Yes	130	2.74 (.77)		
No	496	2.59 (.74)		
Faculty Involvement			1.98	.05
Yes	523	2.60 (.77)[@]		
No	103	2.73 (.57)		

Note: Cases identified as withdrawals during the first semester, and having no Iowa State University courses on the transcript record, were excluded from the analysis.
[@] equal variances not assumed
$p < .05$

Iowa State University does not embrace one learning community model for all. The creation and implementation of each learning community varies by college, department, or program. Subsequently, the degree to which a particular characteristic is effectively integrated into the learning community experience varies from one learning community to another and varies from one year to another. The degree of effectiveness is also dependent on the student participants, and the coordinating and supporting LC faculty/staff personnel.

In summary, the learning community characteristic comparison numbers varied and no apparent pattern emerged. Again, this could be an artifact of student motivation and skills, the degree of difficulty of the program of study, the point in time when grade point averages were recorded for this study, the degree to which a particular characteristic is effectively integrated into the learning community experience, and/or the degree to which the student participants and the coordinating and supporting LC faculty/staff personnel are effective.

Retention Comparisons based on Learning Community Characteristics

The literature review supports the premise that the more comprehensive and integrated the learning community experience, the better the retention. Thus the hypotheses are all directional. Although a one-tailed test typically is employed with a directional hypothesis, the researcher used a two-tailed test to generate conservative results. The researcher anticipated finding that the various learning community characteristics all contributed positively to retention. The hypotheses were not unequivocally supported.

No values were significant for the 1995 and 1997 cohorts. No comparisons were reported for the common courses characteristic for the 1995 cohort because all learning communities in this study had courses in common in 1995. For 1996, the p value (.03*) for common courses was significant and the Somers' d value (–.01) for indicated a weak, but negative relationship. The relationship for common courses was also negative, but not significant for year 1997.

Although not significant, the data for common residence consistently showed a negative relationship to persistence for 1995, a positive relationship to persistence for 1996, and a negative relationship to persistence for 1997. The data for peer mentors consistently showed a negative relationship for all three cohort years; the p values were not significant. The data for curricular innovation consistently showed a negative relationship to persistence for 1996, and a positive relationship to persistence for 1997; the p values were not significant. The data for faculty involvement consistently showed a positive relationship to persistence for 1995; the p value was not significant. See Tables 10-12 for summary data for years 1995, 1996, and 1997.

In summary, the learning community characteristic retention comparison numbers varied (much like the cumulative grade point average comparisons). No pattern emerged. Again, this could be an artifact of student motivation and skills, the degree of difficulty of the program of study, the degree to which a particular characteristic is effectively integrated into the learning community experience, and/or the degree to which the student participants and the coordinating and supporting LC faculty/staff personnel are effective. Further exploration is warranted to determine why specific learning community activities, designed to enhance the learning community experience, are showing a negative relationship thus suggesting the LC experience would be better without that characteristic. All of the Somers' d values indicate both the positive and negative relationships are weak. Given that the strength of all relationships are weak, and the Iowa State University learning community initiative is in its early developmental stage, overinterpretation of these results should be avoided.

Table 10. Retention Comparisons based on Learning Community Characteristics, Year 1995

1995	N	1 Sem (Spring1) % reg	1 Yr (Fall2) % reg	2 Yrs (Fall3) % reg	3 Yrs (Fall4) % reg
Common Residence					
Yes	161	99%	87%	77%	71%
No	163	99%	90%	79%	78%
Somers' d		−.01	−.03	−.02	−.07
p value		.56	.47	.74	.18
Risk estimate		.49	.78	.92	.71
Peer Mentors					
Yes	178	99%	88%	79%	74%
No	146	99%	89%	77%	76%
Somers' d		−.00	−.01	.02	−.02
p value		.67	.70	.68	.62
Risk estimate		.61	1.85	1.19	.88
Common Courses #					
Curricular Innovation					
Yes	59	98%	88%	80%	70%
No	265	99%	88%	77%	76%
Somers' d		−.01	−.00	.02	−.06
p value		.59	.97	.69	.33
Risk estimate		.44	.98	1.15	.73
Faculty Involvement					
Yes	215	99%	89%	81%	75%
No	109	99%	87%	72%	73%
Somers' d		.00	.02	.09	.02
p value		.99	.66	.07	.71
Risk estimate		.99	1.17	1.69	1.11

p < .05

All learning communities in this study had courses in common in 1995; therefore, no comparisons reported for this characteristic

Table 11. Retention Comparisons based on Learning Community Characteristics, Year 1996

1996	N	1 Sem (Spring1) % reg	1 Yr (Fall2) % reg	2 Yrs (Fall3) % reg
Common Residence				
Yes	355	96%	85%	78%
No	243	95%	85%	75%
Somers' d		.01	.01	.03
p value		.46	.85	.36
Risk estimate		1.37	1.05	1.20
Peer Mentors				
Yes	303	95%	83%	77%
No	295	96%	87%	76%
Somers' d		−.01	−.04	.00
p value		.59	.17	.93
Risk estimate		.80	.73	1.02
Common Courses				
Yes	513	96%	84%	75%
No	85	97%	92%	85%
Somers' d		−.01	−.08	−.01
p value		.72	.03	.03*
Risk estimate		.82	.47	.54
Curricular Innovation				
Yes	470	95%	84%	73%
No	128	96%	86%	77%
Somers' d		−.02	−.02	−.04
p value		.46	.60	.38
Risk estimate		.69	.86	.82
Faculty Involvement				
Yes	516	96%	85%	78%
No	82	96%	84%	67%
Somers' d		−.01	.01	.11
p value		.79	.80	.05
Risk estimate		.85	1.09	1.73

p < .05

Table 12. Retention Comparisons based on Learning Community Characteristics, Year 1997

1997	N	1 Sem (Spring1) % reg	1 Yr (Fall2) % reg
Common Residence			
Yes	373	95%	86%
No	260	97%	88%
Somers' d		-.01	-.02
p value		.39	.43
Risk estimate		.71	.83
Peer Mentors			
Yes	350	95%	85%
No	283	97%	89%
Somers' d		-.01	-.04
p value		.41	.13
Risk estimate		.72	.70
Common Courses			
Yes	500	95%	86%
No	133	97%	90%
Somers' d		-.02	-.04
p value		.36	.21
Risk estimate		.64	.70
Curricular Innovation			
Yes	502	97%	89%
No	131	95%	86%
Somers' d		.02	.04
p value		.39	.24
Risk estimate		1.51	1.40
Faculty Involvement			
Yes	528	96%	86%
No	125	95%	89%
Somers' d		.01	-.03
p value		.79	.45
Risk estimate		1.15	.79

$p < .05$

CHAPTER 5: SUMMARY AND CONCLUSIONS

Summary

The first purpose of this study was to increase our understanding of whether freshmen learning communities at Iowa State University contribute positively to student persistence at the University and to academic achievement measured by grade point average. The second purpose of this study was to begin to explore which characteristics of learning communities at Iowa State University make a difference. This study compared the retention rates and GPA performance of learning community students based on the five learning community characteristics. The study concentrated on the following experiences that extend learning beyond the classroom, integrate curriculum, and/or encourage interactive learning between students, and between students and faculty: (a) lived together in a residence hall; (b) assigned a peer mentor; (c) enrolled in a common set of classes together; (d) experienced curricular innovation (enrolled in linked courses, or an experimental course developed specifically for that learning community); and (e) increased involvement with faculty outside of the classroom.

The cohorts for this study were entering new freshmen, academic years 1995, 1996, and 1997. The population for this study was defined by the University Retention Study file maintained by the Office of Institutional Research at Iowa State University (see Chapter 3 for methods). The freshmen learning community students were identified by using Office of the Registrar class schedule information. The following hypotheses were established based on findings from the review of the literature:

1. Students who participate in a freshmen learning community at Iowa State University will *earn higher cumulative grade point averages* than students who do not participate in a freshmen learning community.

2. Students who participate in a freshmen learning community at Iowa State University will *persist at the University from semester to semester* at a higher level than students who do not participate in a freshmen learning community.

3. Students who participate in a *residential* freshmen learning community will earn higher cumulative grade point averages than students who participate in a non-residential learning community.

4. Students who participate in a *residential* freshmen learning community will persist at the University from semester to semester at a higher level than students who participate in a non-residential learning community.

5. Students who participate in a freshmen learning community that utilizes *peer mentors* will earn higher cumulative grade point averages than students who participate in a learning community that does not use peer mentors.

6. Students who participate in a freshmen learning community that utilizes *peer mentors* will persist at the University from semester to semester at a higher level than students who participate in a learning community that does not use peer mentors.

7. Students who participate in a freshmen learning community and *take a common set of courses* will earn higher cumulative grade point averages than learning community students who do not take a common set of courses together.

8. Students who participate in a freshmen learning community and *take a common set of courses* together will persist at the University from semester to semester at a higher level than learning community students who do not take a common set of courses together.

9. Students who participate in a freshmen learning community that is *course-based with innovative curriculum* (linked or experimental courses) will earn higher cumulative grade point averages than learning community students who do not.

10. Students who participate in a freshmen learning community that is *course-based with innovative curriculum* (linked or experimental courses) will persist at the University from semester to semester at a higher level than learning community students who do not.

11. Students who participate in a freshmen learning community that *has faculty involvement outside of the classroom* will earn higher cumulative grade point averages than learning community students who do not.

12. Students who participate in a freshmen learning community that has *faculty involvement outside of the classroom* will persist at the University from semester to semester at a higher level than learning community students who do not.

The statistical measures employed to test the hypotheses addressing cumulative grade point differences included Levene's Test for Equality of Variances and the two-sample independent t-test for equality of means.

The statistical measures employed to test the hypotheses addressing retention was Somers' d. The Somers' d value was used because it indicates both the direction of the relationship (-1 to +1)

and the strength of the relationship. A risk estimate was also factored. Retention data for first semester
(fall 1) to second semester (spring 1), fall 1 to second fall semester (fall 2), fall 1 to third fall semester (fall 3), and fall 1 to fourth fall semester (fall 4) were analyzed at the university-level and by college for the 1995 cohort. The same data were analyzed for the 1996 cohort minus fall 1 to fall 4 (not yet available), and for the 1997 cohort minus fall 1 to fall 3 and fall 4 (not yet available).

Conclusions

Students who participate in freshmen learning communities at Iowa State University earn higher cumulative grade point averages and persist at the University at a higher level than students who do not participate in freshmen learning communities. This finding is particularly interesting given the mean ACT scores were significantly lower for the non-LC group than for the LC group suggesting that the non-LC group should persist at a greater rate and earn a higher mean grade point average.

At the University-level, the risk estimates (casualty rate ratios) for all three years (1995-1997) consistently show that students have a greater risk of failing to persist if they are not involved in a freshman learning community. At the college-level, nearly all the risk estimates also support learning community involvement. For 1995, the University-level risk estimate suggests students have 8 times the risk of failing to persist from F1 to S1 (first semester to second semester) if they are not in a learning community. Also in 1995, the risk estimate for F1 to S1 for the College of Business indicates that students have 19 times the risk of failing to persist if they do not participate in a learning community.

The portion of this study that looked at various learning community characteristics contradicted the findings in the literature review. The literature review supports building a comprehensive learning community experience complete with a number of activities designed to build community among the students and the faculty/staff (Lenning and Ebbers, 1990). The learning community characteristic retention and grade point average comparison numbers varied; no pattern emerged. This could be an artifact of student motivation and skills, the degree of difficulty of the program of study, the degree to which a particular characteristic is effectively integrated into the learning community experience, and/or the degree to which the student participants and the coordinating and supporting LC faculty/staff personnel are effective.

Further exploration is warranted to determine why specific learning community activities, designed to enhance the learning community experience, are showing a negative relationship thus suggesting the LC experience would be better without that characteristic. All of the Somers' d values indicate both the positive and negative relationships are weak. Given that the strength of all relationships are weak and the Iowa State University learning community initiative is in its early developmental stage overinterpretation of these results should be avoided.

Recommendations for Expanding, and Improving Iowa State University Learning Communities

Interest in learning communities at Iowa State University has increased significantly since 1995. Iowa State University has demonstrated its desire to become a genuine, collaborative learning community through its financial commitment, various committee and task force initiatives, and its strategic plan. The following documents support this statement: (a) the *Iowa State University Strategic Plan for 1995-2000* (Iowa State University, 1995); (b) the Iowa State University task force report entitled *Commitment to Undergraduate Education* (Iowa State University, 1997); (c) the Kellogg Commission report entitled *Returning to Our Roots: The Student Experience* (Kellogg Commission, 1997); (d) the *Proceedings of the Sixth Annual Iowa State University Faculty Conference* (Iowa State University, 1998c) and (e) the *Learning Communities Working Group Final Report to the President and the Provost* (Iowa State University, 1998b). Iowa State University currently is working to expand and improve its learning community initiative. Following is a list of suggestions for expanding and improving Iowa State University's learning communities based on (a) outcomes of the study, (b) observations of the researcher and professional staff member due to her high level of involvement in developing and implementing Iowa State University learning communities, and (c) findings from the literature review.

Recommendations based on study outcomes

1. Continue to fund and support the Iowa State University learning community initiative as it is contributing positively to both University retention in terms of number of students retained and academic performance as measured by grade point average.

2. Further exploration is warranted to determine why the results of this study show that specific learning community experiences, designed to enhance the learning community experience, show a negative relationship thus suggesting the LC experience would be better without that characteristic. All of the Somers' d values indicate both the positive and negative relationships are

weak. Given that the strength of all relationships are weak, and the Iowa State University learning community initiative is in its early developmental stage, over interpretation of these results should be avoided and further study should be undertaken.

Recommendations based on observations of the researcher/professional staff member

These recommendations are made based on observations of the researcher who is also a professional staff member at Iowa State University involved with learning communities. The researcher/professional staff member has played a leadership role in the development and implementation of learning communities at Iowa State University since fall 1995, and has presented on the Iowa State University Learning Community initiative at numerous national and regional conferences. She serves on the University Learning Community Advisory Committee which provides leadership and direction to the learning community movement at Iowa State University. Recommendations are categorized into three areas: (a) organization and administration, (b) faculty and resources, and (c) student involvement.

Organization and administration

1. Provide long-term support for rigorous and scholarly assessment. The LCWG final report (Iowa State University, 1998b) recommends creating "university wide assessment tools and prototype program assessment tools that can be used as a starting place for individual Learning Community program assessment efforts [as well as] assist[ing] Learning Community coordinators with developing their individual program assessment efforts" (p. 10). Gardiner (1987) says we need to use research, not ignore it. Iowa State University should continue to collect data on the effectiveness of learning communities, at both the university and program level, and then use these data to improve its learning community program. Findings should be shared with the Iowa State University community. These findings could be used to refine existing learning communities, to identify areas for expansion, and to improve upon the vision of the learning community initiative.

2. Continue to refine the organizational support structure for learning communities, and the venue for communication among involved and/or interested parties. At Iowa State University, coordinating the effort across seven undergraduate colleges on a campus with a tradition of decentralized management presents the challenge of finding that delicate balance between college/department/program autonomy and central support and coordination. The LCWG final report (Iowa State University, 1998b) states "Given the complexity and challenges of delivering a

university-wide program, dependent upon a full range of collaboration between academic and student affairs professional, thoughtful organization is imperative" (p. 7).

3. Clear objectives/goals and expectations should be established and communicated to all learning community participants. Each participant in the learning community should understand his/her role and whenever possible have significant input into the definition of his/her role, e.g., peer mentor role, faculty participant role, student participant role, learning community coordinator role. All group members should understand the objectives/goals of the group.

4. Develop specific policies, which address various scheduling issues that learning communities generate. E.g.: Can or should learning communities use full sections of courses that are not linked? How much of a section should a learning community constitute if not the entire section? What should the scheduling priorities be for learning community students verses non-learning community students?

5. Preserve the "one size does not fit all" model at Iowa State University. Encourage a diversity of learning community offerings including, but not limited to, service learning communities, thematic learning communities, problem-based learning communities, disciplinary learning communities, multicultural and international learning communities, and a Research Opportunities Program (ROP).

6. Market the recruitment value of learning communities. Continue to fund the development of learning community publications and the learning community website aimed at prospective students and their families. Use the "personal touch" whenever possible in marketing learning communities, e.g. hand-signed letter of invitation. Use current learning community participants to help recruit next year's group.

7. Continue to develop the Iowa State University learning community website. This site should serve as an excellent vehicle for publicizing Iowa State University's learning community initiative to individuals external to the university, other colleges and universities, prospective students, current students, and University faculty and staff.

Faculty and resources

1. Continue to provide funds to sustain existing, successful learning communities and to develop new, creative learning communities. The LCWG final report (1998) recommends, as demand warrants, providing additional staff and funding to the various university programs that support learning community programs, such as the Registrar's office, student affairs, academic

affairs, residence, Project LEA/RN, peer mentors, supplemental instruction, WiSE, Honors, Project Opportunity, etc.

2. Involve faculty in learning community concept, design, implementation, and research. The learning community research undeniably supports both faculty involvement and curricular re-structuring as tools for building strong learning communities. Continue to provide funding for, and encourage faculty to attend, Project LE/ARN, an established program which promotes and teaches active learning strategies. Whenever possible, use Project LEA/RN faculty to teach learning community classes.

3. Provide resources for faculty and staff wanting to collaborate across departments and disciplines in an effort to help students better understand the connectiveness of knowledge. "Learning is not a way of life for students [today]. Instead it is something that they fit into their busy lives. Thus they are likely to experience learning in a fragmented fashion and may have difficulty making sense of what they are learning" (Wolfson, 1995, p. 23). Faculties have the power to help construct meaning and understanding for their students. However, restructuring how curriculum is delivered requires a commitment of human, financial and space resources. Faculty may need a road map for crossing departmental boundaries; release time and financial resources for developing coordinated curricula; and credit for their efforts. The Department of Residence, the Office of the Registrar and the Department of Facilities & Planning may need additional computer support, such as the development of scheduling algorithms, to assist them in scheduling the large number of students and space necessary to accommodate the delivery of curricula in a non-traditional manner. Computer systems will need to keep up with the curricular and co-curricular innovation at Iowa State University; scheduling systems will need to be able to handle creative scheduling of courses, credits, people, classrooms, and residence facilities.

4. Continue to offer learning community workshops at Iowa State University with the goal of supporting faculty and staff in developing and maintaining exemplary learning community projects.

5. Contribute to the national agenda on learning communities through presentations and publication. Iowa State University should position itself to contribute to the body of research and literature on topics such as the effects of learning community participation on faculty at a Research I institution, the longitudinal effects of learning community participation on retention and student learning, and the challenges and benefits associated with implementing and sustaining multiple learning community models at one university.

6. Accept the recommendation in the LCWG final report (Iowa State University, 1998) which reads "Create a significant Iowa State University internal grant program similar to the Miller Fellowship program or create a Learning Community Scholars program similar to the Center for Teaching Excellence Faculty Fellows model. Faculty and staff would be encouraged to develop and expand collaborative, interdisciplinary Learning Community programs and apply for competitive awards" (p. 9).

Involve students

1. Include a representative from the Learning Community Advisory Committee on the committee which will develop Iowa State University's next strategic plan.

2. Involve students. Ask learning community students what activities they would like to engage in as part of their learning community experience. Provide them with a menu of ideas/activities and plenty of room to offer their own creative ideas/suggestions. Peer mentors are also a good source for ideas/suggestions.

3. Add student representation to the Learning Communities Advisory Committee.

4. Use current learning community students as a rich resource for sharing information. Learning community coordinators could require participants, both students and peer advisers, to write letters containing advice for the next generation. Participants in the Freshmen Academy wrote letters to future Academy students on how to be successful in college. Letters were written on a variety of topics such as leadership, getting connected, getting started, and obstacles. In addition, peer advisers for the Academy wrote letters of advice to future peer advisers on how to be successful as mentors/advisers. Letters were written on a variety of topics such as relationships, faculty involvement, leadership, and looking back what would I do differently. In both cases, letters were brief with the intent to give helpful advice.

5. Provide annual training for learning community peer mentors on how to effectively use peer mentoring to maximize the learning community experience. Develop a web training module, with a beginner's, intermediate, and advance track.

<u>Recommendations based on the literature review findings</u>

1. Communicate *and demonstrate* to the faculty the rewards associated with spending time and energy developing and sustaining successful learning communities. Iowa State University's new promotion and tenure policy defines scholarship more broadly. The language in the policy suggests that faculty can be rewarded for their creative participation in, and their research on, learning

communities. Tinto (1998) recommends that institutions of higher education organize workload so that faculty can collaborate across disciplines...with reward (p. 170). Lenning and Ebbers (1999) state: "It is doubtful that faculty work will change markedly unless the reward structure and support for undergraduate education (and learning communities) becomes institutionalized into, and rewarded by, the process involved in rewarding faculty and granting tenure. And they must be institutionalized to the point of making a difference" (p. 98).

2. On course-based learning community schedules, include at least one small enrollment course. Richard Light (1992) assessed the learning of Harvard graduates and learned that having one small enrollment course on the schedule contributed to freshmen students having a significantly better educational experience.

3. Identify "graveyard courses," those having high failure rates, for inclusion on learning community schedules. One goal of the learning community is to provide an academic support network whereby students form study groups, share notes, and essentially help each other in the course. These behaviors will likely result in a greater number of students passing courses labeled as graveyard courses (Light, 1992).

4. Implement a Research Opportunities Program modeled after the University of Michigan's Research Opportunities program. This program connects senior faculty with freshmen to conduct research. Both the *Boyer* (Boyer Commission, 1998) and the *Kellogg* (Kellogg Commission, 1997) *reports* lend support for incorporating research into the freshmen experience. Both reports advocate the value of getting freshmen students involved in research. Students who get hands-on experience with research better understand the relationship between discovery and learning. In addition, this type of program fits well with the land-grant philosophy – research, teaching, and extension. Iowa State University's Freshman Honors Mentor program currently provides a venue for freshmen honors students to engage in research early in their undergraduate education. This concept could be expanded to all interested freshmen and sophomore students via a Research Opportunities Program.

5. Provide support for creating a variety of learning community experiences, some for residential students and some for commuter students. A commuter student, in Tinto's and Goodsell's 1994 qualitative case study of Freshman Interest Groups at a large, public, research university, said that he felt unable to connect with the other students in his FIG. He felt the connection did not occur because he did not reside in the residence hall system like the majority of the students in his FIG. Institutions should consider asking students to participate fully in all aspects of the total team

experience. For example, if the community is residential, all students in that community must live together in the residence hall.

6. Encourage faculty to explore the feasibility of problem-based learning communities for freshmen and sophomores." [This] community hypothesis is based on the notion that individuals in groups can produce better solutions to problems than can isolated individuals, especially if they work cooperatively" (Finley, 1990, p. 50). Ewell (1997) contends that one thing we know about learning is "learning occurs best in the context of a compelling problem" (p. 8). Problem-based learning communities gives the student and faculty the opportunity to discuss solutions for real-life problems within the discipline, problems the student may someday face as a professional. Juniors and seniors could serve as mentors and/or discussion leaders/prompters, especially since juniors and seniors will have completed more course work and/or practicum work thus making them more familiar with real-life situations. In this type of learning community experience, the student must take responsibility for his/her own learning. The premise is that through discussion and problem solving comes discovery. Support for problem-based learning can be found in *Bringing Problem-Based Learning to Higher Education: Theory and Practice* by Donald Woods (1996).

7. The literature shows that learning communities can serve as a powerful tool for preparing students for the workforce (Anderson, 1994; Angelo, 1993, 1997; Cross, 1998; Ewell, 1997; Twigg & Oblinger, 1997). Communities, having a deliberate focus on diversity and/or international perspectives, could help prepare students for an increasingly complex, diverse, and global world thus making the student even more marketable. Such communities could provide students with experience in handling conflict that can arise when dealing with differences – differences in opinion, differences in culture, differences in purpose. Conflict resolution and the ability to demonstrate vision beyond one's own context are skills valued in today's global marketplace. Learning communities could be structured to help students develop a sense of social ethics, social responsibility, and appreciation for individual differences. Communities focusing on diversity and/or international perspectives would not only include a diversity/international perspectives course on the learning community schedule, but also demonstrate diversity in its membership, instructional method, and group work assignments. The diversity/international perspective theme would be woven into the course schedule, residential environment and other characteristics making up the total learning community experience.

8. Determine if and how to incorporate technology into learning communities. Would virtual learning communities be a viable venue for building community among students who take the

majority of their classes away from the central campus, e.g., Internet, ICN, videotape? How can technology contribute to community building efforts aimed at on-campus students? Do computers (electronic mail, listserves, and the internet) enhance the level of community or reduce it by decreasing interpersonal interaction? Lenning and Ebbers (1999) contend that "cooperation among colleges and universities through the use of the Internet and computer technology...could create virtual learning communities that can lead to improved enrollment figures and expanded services to on-campus students at participating institutions" (p. 103).

Recommendations for Future Research

Research shows that learning communities have the potential for increasing student retention and academic performance. Rigorous and scholarly research will help institutions better understand how learning communities contribute to student success, and how to make the learning community experience even better. Learning communities present to the academic community many opportunities for research and assessment. Following are recommendations for future research in five categories – self-selection factor; learning community model and student characteristics; faculty involvement; difficulty of degree program; and impact on curricular change.

Self-selection factor

The researcher could control for motivational factors related to students' self-selection into a learning community. The population for this study would include three groups - (a) the treatment group; (b) a control group comprised of students who desired the learning community experience, but were not selected to participate; and (c) another control group comprised of students not interested in the learning community experience. Are students who select the learning community experience pre-disposed to succeed? Cautionary note: If control groups are established, Iowa State University will need to address ethical issues related to students, who want, but are not provided opportunity to participate in a learning community.

Learning community model and student characteristics

The researcher could conduct a study to determine the common characteristics of students attracted (and not attracted) to learning communities. Do student learning styles, personality type, personal motivation, and/or gender help predict whether or not a student will self-select into a learning community? Explore if there are special groups of students at Iowa State University who could benefit from a learning community, e.g. high-risk students, minority students, adult students.

Another recommendation for future research on learning community models is to conduct a qualitative study using focus groups and student, faculty, and learning community coordinator interviews to obtain more in-depth information. Is there a particular model, or combination of certain learning community characteristics, that yield the greatest results for Iowa State University? Lucas and Mott's (1996) study at William Rainey Harper Community College and the study by the National Center for Teaching, Learning, and Assessment (Tinto and Goodsell, 1994, 1995; Tinto, Goodsell-Love, and Russo, 1994, 1994b; Tinto and Russo, 1994) found that student improvements were significantly greater for students in Coordinated Studies groups than for students in Linked Classes, Course Clusters and Freshmen Interest groups. The Coordinated Studies Program model is a more-concentrated, longer-term approach to learning communities. These results suggest that the greater the curricular innovation and the more comprehensive the learning community experience, the greater the positive effect on students.

Faculty involvement

Determine the effect of learning community participation on Iowa State University faculty. Studies show that faculty benefit from organizing and participating in learning communities (Finley, 1990; Lucas & Mott, 1996; Matthews, 1994; Tinto, 1998). Consider the differences in faculty outcomes based on whether their learning community experience involved collaboration with other faculty, and/or a change in how course content was developed and delivered to the students. Determine if there are common characteristics of faculty interested in participating in learning communities. Also consider idiosyncratic structural differences in faculty inducements to participate and the internal reward structure at the department, college, program, and university levels.

Determine what types of student-faculty contact appear to have the greatest influence on educational outcomes at Iowa State University. This information will assist learning community coordinators as they construct their learning community experience. Pascarella (1980), in his critical review and synthesis of the research to date on how student-faculty informal, non-class contact affects various outcomes of college, states "...it would appear that informal contacts focusing on intellectual/literary or artistic interests, value issues, or future career concerns have the greatest impact. In short, the most influential informal contacts between students and faculty appear to be those which extend the intellectual content of the formal academic program into the student's non-classroom life"
(p. 565).

Perceived difficulty of degree program

The researcher could conduct a longitudinal study, by degree program, to determine the effect of learning community participation on retention and graduation rates. Do students, who participate in learning communities as first-year students, have higher graduation rates? Do they graduate in four, five, or six years? Is there a positive relationship between learning community participation and student persistence, degree program completion, and academic performance (measured by grade point average) longitudinally?

Using this data set, the researcher could control for perceived difficulty of degree program in relationship to student persistence and academic achievement. The researcher could compare learning community student attrition and GPA performance for a specific degree program to the mean attrition rate and the mean GPA for that degree program.

Also, using this data set, the researcher could employ a logistic regression model to make appropriate adjustments for initial differences in exposure or risk level. E.g.: Is there a higher attrition rate in specific disciplines? How does learning community participation affect the attrition rate in these disciplines?

Impact on curricular change

Determining the impact of learning communities on curricular change *and* the impact of curricular change on learning communities would contribute new information to the existing body of literature on learning communities. The researcher could study the effectiveness of learning community structures as change agents for curricular innovation, as well as look at the effect of curricular innovation on learning community students. Are courses delivered differently to learning community students? How do these differences impact student learning outcomes?

Summary

Preliminary studies demonstrate that well-constructed, intentional learning communities can positively impact student academic success and retention; however, the learning community concept needs to undergo further scholarly and rigorous assessment in order to talk conclusively about the effects of learning communities.

This study showed that students who participate in freshmen learning communities at Iowa State University earn higher cumulative grade point averages and persist at the University at a higher level than students who do not participate freshmen learning communities. The portion of this study

that looked at the effect of various learning community activities or characteristics on retention and student academic performance contradicted the findings in the literature review. The literature review findings support building a comprehensive learning community experience complete with a number of activities designed to build community among the students and the faculty/staff and to connect disciplines. In this study, the learning community characteristic retention and grade point average comparison numbers varied; no pattern emerged. Iowa State University does not embrace one learning community model for all. The creation and implementation of each learning community varies by college, department, or program. Subsequently, the degree to which the various activities associated with the learning community are effectively delivered also varies.

It is essential that Iowa State University and other learning community institutions conduct longitudinal studies to determine the longer-term retention and academic effects of learning communities on students. Both quantitative and qualitative measures should be employed to determine which learning community activities/characteristics make up the total learning community experience, and to what degree these activities/characteristics are effectively implemented. This information will enable institutions to determine which characteristics of learning communities make a difference.

APPENDIX A: HUMAN SUBJECTS REVIEW

Last name of Principal Investigator: Doering

Checklist for Attachments and Time Schedule

The following are attached (please check):

12. ☒ Letter or written statement to subjects indicating clearly:
    a) the purpose of the research
    b) the use of any identifier codes (names, #'s), how they will be used, and when they will be removed (see item 17)
    c) an estimate of time needed for participation in the research
    d) if applicable, the location of the research activity
    e) how you will ensure confidentiality
    f) in a longitudinal study, when and how you will contact subjects later
    g) that participation is voluntary; nonparticipation will not affect evaluations of the subject

13. ☐ Signed consent form (if applicable)

14. ☐ Letter of approval for research from cooperating organizations or institutions (if applicable)

15. ☒ Data-gathering instruments – An interview questionnaire used with learning community coordinators who are either faculty or professional staff to verify activities of learning team.

16. Anticipated dates for contact with subjects: STUDENT SUBJECTS WILL NOT BE CONTACTED.

First contact	**Last contact**
01-11-99	01-22-99
Month/Day/Year	Month/Day/Year

17. If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:

_____
Month/Day/Year

18. Signature of Departmental Executive Officer | Date | Department or Administrative Unit

3/2/98 | Office of the Registrar

19. Decision of the University Human Subjects Review Committee:

☒ Project approved ☐ Project not approved ☐ No action required

Patricia M. Keith — 1-12-99
Name of Committee Chairperson — Date — S

Signatures have been redacted for privacy

APPENDIX B: USE OF STUDENT RECORDS FOR GRADUATE RESEARCH FORM

Office of the Registrar
Iowa State University
February 1981
Revised April 1995

USE OF STUDENT RECORDS FOR GRADUATE STUDENT RESEARCH

A graduate student may be provided information obtained from confidential permanent record files under the following conditions:

1. The written approval of his/her major professor must be obtained.

2. The written permission of each individual student who is a part of the sample must be obtained if the information compiled for release will identify the individual student. A copy of the release statements must be filed with the Office of the Registrar.

3. Any research involving human subjects must be approved by the Committee On The Use Of Human Subjects In Research and a copy of the approval must be filed with the Office of the Registrar.

4. In most situations, it will be necessary for an employee of the Office of the Registrar to collect the required data for the research. In such situations, the researcher must agree to reimburse the Office of the Registrar for the actual costs incurred in the collection of the data.

5. Every precaution must be taken to preserve the privacy of the individual students and the confidentiality of the data collected. The researcher must acknowledge his/her responsibility in this regard and agree to preserve the confidentiality of the data.

I have read the conditions listed above, I understand and accept the obligations listed above, and I accept the responsibility to preserve the confidentiality of the information.

Signatures have been redacted for privacy

Signatures have been redacted for privacy

APPENDIX C: LEARNING COMMUNITY COORDINATOR SURVEY

DATE: Monday, January 11, 1999

TO: All Learning Community Coordinators, years 1995-1997

FROM: Laura Doering

RE: Six quick survey questions - Response requested by Tuesday, January 19, 1999

Happy New Year! My thesis topic is learning communities. I am hoping you will assist me in my research by taking approximately 3 to 5 minutes to answer the six questions below. Your participation is optional.

If you elect to participate, please respond to the questions below via email. If you coordinate more than one learning community, please complete the set of questions for each of your communities separately. If you choose not to participate, please let me know so that I do not follow-up with a phone call to you. Please respond by Tuesday, January 19, 1999. Thank you.

The purpose of this survey is to obtain information on the various activities that make up the learning community experience. This information will be used to explore what about learning communities make a difference. My study is not intended to answer this question, but rather increase our understanding on this topic.

If questions, please don't hesitate to contact me via e-mail at ljdoeri@iastate.edu or via phone at 294-0760 (work) or 515-964-8513 (home).

Name of LearningCommunity:_____

PLEASE ANSWER YES OR NO FOR EACH YEAR SPECIFIED.

1. Did your learning community students have a peer mentor in
   Fall 1995?_____
   Fall 1996?_____
   Fall 1997?_____

2. Did your learning community students live together in a residence hall in
   Fall 1995?_____
   Fall 1996?_____
   Fall 1997?_____

3. Did your learning community students take common courses (2 or more) together in
   Fall 1995?_____
   Fall 1996?_____
   Fall 1997?_____

4. Were any of the courses linked in
   Fall 1995?_____
   Fall 1996?_____
   Fall 1997?_____

(For the purpose of this survey, LINKED means two distinct courses where the faculty assigned to each course collaborate. Collaboration includes activities such as coordinating assignments, sharing textbooks, and/or team teaching.)

5. Did your learning community schedule include an experimental course designed specifically for, and with enrollment limited to, your learning community students in
   Fall 1995?_____
   Fall 1996?_____
   Fall 1997?_____

PLEASE ANSWER QUESTION SIX BY INDICATING ONE NUMBER BETWEEN 1-10.

6. On a Likert Scale of 1 to 10 (10 being the highest level of involvement), please rate the level of faculty involvement with your learning community outside of the classroom.
   Fall 1995?_____
   Fall 1996?_____
   Fall 1997?_____

Please take a moment to BRIEFLY describe how faculty members are involved with your learning community outside of the classroom.

---------THANK YOU FOR YOUR PARTICIPATION---------

Best wishes for a productive Spring Semester 1999!

APPENDIX D: LEARNING COMMUNITY CHARACTERISTIC TABLES

Fall 1995 Characteristics of Learning Communities at Iowa State University
(Includes only learning communities in this study)[#]

LEARNING COMMUNITY	Common Residence	Common Courses	Peer Mentors	Curricular Innovation	Faculty Involvement
College of Agriculture					
Agriculture		X			
Animal Ecology		X			
Animal Science		X			X
College of Business					
Business[@]	X	X	X		X
College of Education					
Exercise & Sport Science		X		X	X
College of Engineering					
Leadership Through Engineering Academic Diversity (LEAD)		X			
Engineering General		X			
College of Family and Consumer Sciences					
FCS Learning		X			
College of Liberal Arts and Sciences					
Biological Sciences (BEST - Biology Ed Success Teams)	X	X	X	X	X
Pre-Health		X			
Campus Wide/Multi-College Learning Communities					
General Core Curriculum (open to all majors)		X			

[@]Some business learning communities lived together in a common residence hall; others did not share a common residence. This is reflected in the database and subsequently in the analysis.
[#]Some learning communities were eliminated from this study - see chapter 3 on methodology.

Fall 1996 Characteristics of Learning Communities at Iowa State University
(Includes only learning communities in this study)[#]

LEARNING COMMUNITY	Common Residence	Common Courses	Peer Mentors	Curricular Innovation	Faculty Involvement
College of Agriculture					
Animal Ecology		X			
Animal Science		X			X
Horticulture		X			X
Microbiology		X			X
College of Business					
Business[@]	X	X	X		X
College of Education					
Exercise & Sport Science/Community Health		X		X	X
College of Engineering					
Engineering General		X			
Leadership Through Engineering Academic Diversity (LEAD)		X		X	X
College of Family and Consumer Sciences					
FCS		X			
College of Liberal Arts and Sciences					
Biological Sciences (BEST - Biology Ed Success Teams)	X	X	X	X	X
Political Science		X		X	
Campus Wide/Multi-College Learning Communities					
Food Science and Human Nutrition (open to students in the College of Agriculture or FCS)		X	X		X
Home Base Learning Community (open to all majors; at-risk students; coordinated by the College of LAS)	X	X			
Women in Science & Engineering (WiSE) Learning Community	X				X

[@]Some business learning communities lived together in a common residence hall; others did not share a common residence. This is reflected in the database and subsequently in the analysis.
[#]Some learning communities were eliminated from this study - see chapter 3 on methodology.

Fall 1997 Characteristics of Learning Communities at Iowa State University
(Includes only learning communities in this study)[#]

LEARNING COMMUNITY	Common Residence	Common Courses	Peer Mentors	Curricular Innovation	Faculty Involvement
College of Agriculture					
Agricultural Business		X			
Animal Science		X			X
Horticulture		X			X
Microbiology		X			X
College of Business					
Business [@]	X	X	X		X
College of Design					
Design Exchange	X		X		X
College of Education					
Curriculum and Instruction		X			
Exercise & Sport Science/Community Health		X		X	
College of Engineering					
Leadership Through Engineering Academic Diversity (LEAD)	X	X	X	X	X
College of Family and Consumer Sciences					
FCS		X			
College of Liberal Arts and Sciences					
Biological Sciences (BEST - Biology Ed Success Teams)	X	X	X	X	X
Campus Wide/Multi-College Learning Communities					
Food Science and Human Nutrition (Agriculture and FCS)	X	X			
Women in Science & Engineering (WiSE)	X				X

[@]Some business learning communities lived together in a common residence hall; others did not share a common residence. This is reflected in the database and subsequently in the analysis.
[#]Some learning communities were eliminated from this study - see chapter 3 on methodology.

APPENDIX E: LEARNING COMMUNITY ISSUES DOCUMENT

Learning Community Issues for Discussion at LCWG Retreat May 1998

(Note: This document is NOT intended to suggest future directions for Iowa State University, but rather serve as a mechanism for facilitating discussion. This list represents some of the issues facing Iowa State University.)

Mission/Vision of the ISU Learning Community Initiative

The range of issues and problems in higher education that learning communities might address has not yet been articulated at our institution, or within our colleges and departments.

Develop a mission and vision statement for learning communities at Iowa State University. What outcomes do we want? What are learning communities suppose to accomplish? Where are LCs going at ISU? What is Iowa State University's's level of commitment and coordination point --- University level? College level? Department level? Individual commitment? Student Affairs connection? How will our recommendations dovetail into the next strategic plan for ISU? How does each college strategic plan intersect with LCs?

LC Criteria, LC Models, and LC Composition

Not all learning community initiatives need to look alike. Allow for a range of models and for flexibility in LC initiatives that fit our faculty and institutional culture. How do we preserve flexibility yet provide central support?

While remaining fluid and flexible with LC models, developing minimum criteria for LC initiatives may be desirable, e.g. assessment is a requirement for all LCs. What minimally constitutes a learning community and/or the learning community initiative at Iowa State University?

Develop LC outcomes first, then determine the combination of activities that will comprise the LC total experience.

What about cross disciplinary, thematic learning communities? Initial learning community experiences should be discipline-based; advanced LC experiences could fit into themes, disciplinary relations, etc

Programs should provide substantial faculty and/or peer mentor contact with students outside of the classroom.

Most current LC initiatives are centered on the first-year experience. What about junior and senior year programs (blend theory and practice and possibly coordinate with internships)? How do we offer learning community opportunities for non-residential students? For transfer students? For Greek students? For adult, non-traditional students? For international students? How do we serve our diverse student population? The Union is interested in helping. What role could the Union play for commuter students? What about electronic LCs? Should LCs target students in the "middle" since ISU already has programs in place for students on the ends?

Most current initiatives do not attempt any "purposeful" linking of course clusters. Should this be an emphasis?

Pedagogy/Curriculum Issues

What is the role of pedagogy and active learning in learning communities? How can undergraduate research opportunities be built in? How can service learning be built in? How do we help students learn "team" skills? A curriculum component can be a powerful learning community tool if designed correctly. How do we group or link courses to optimize the learning community experience? How do we preserve diversity (homogeneous verses a diverse classroom)? Is it desirable, and if so, how do we incorporate the U.S. Diversity and International Perspectives requirement? Is there an opportunity to collaborate with Project LEA/RN? How? How would ISU manage a University-wide WAC program? WAC must be a multi-model discussion, but a clear definition of what WAC is at Iowa State University must occur first.

Engl 104 and 105 are the most commonly requested and utilized courses for learning communities. As a result, the University may need to discuss how the shift of numerous Engl 105 sections from fall to spring semester has impacted learning communities. For fall 1997, English shifted Engl 105 sections in an effort to stabilize their temporary instructor pool and offer a better quality course.

Faculty Involvement

How can ISU increase faculty involvement in the learning community effort? What is the role of faculty teaching in a learning community? Should ISU explore the faculty fellow model used at Temple University? What are the faculty incentives for being involved in a learning community? How can we encourage faculty creativity in developing learning communities? Would a "seed money" program be helpful to get faculty involved in design, implementation and evaluation?

How do we address faculty load, promotion and tenure issues? What "type" or "level" of faculty should be involved, e.g. tenured faculty verses new faculty? How do we encourage faculty to be involved with the learning community outside of the classroom? How do we help make faculty participation in a LC a valuable professional development experience?

Establishing Mechanisms to Help LC Coordinators Extend Learning beyond the Classroom

Establish a small group of individuals representing key areas to support the existing learning communities *AND* to promote out of class learning activities?

University-wide peer-mentoring program (University of Michigan model). Address role definition and role conflict issues.

How could Iowa State University incorporate a service-learning component? Opportunities to link LC students with industry professionals? Alumni connection? Seminars, workshops, special LC non-credit offerings?

Establish a venue for collecting student input; need to get students' ideas and suggestions for out of class activities.

Learning Community Mechanical Considerations

Learning community size

Is there an ideal learning community size? In fall 1996, there were no size limitations. In fall 1997, the learning community size, for course-based teams, was established at 16 maximum (unless otherwise requested). This size limitation was established in response to the English Department requesting that learning communities use either *ALL* seats in a specific section of freshmen English (26 max limit), or fewer than 17 seats. Learning communities, with a writing across curriculum (WAC) component, could be as large as the maximum section limit for freshmen English.

Learning community courses

Are there appropriate/inappropriate courses to include on a learning community's schedule? Currently, no courses are excluded although Engl 105 usage is limited due to space constraints. How do you assess and grade combined courses (two separate courses that are concurrently taught or one course that is co-taught)? Need to be clear about what outcomes you hope to achieve by linking courses. What is the ideal role of the orientation course? Should they be linked with freshmen English? Learning community coordinators request courses, but not specific sections. The Office of the Registrar assigns sections so that access to courses can be considered for both learning community and non-learning community students.

Team teaching

How do you pay for team teaching? How do you pay for two faculty in one classroom? Also, It's time-intensive for faculty to develop and deliver a linked course.

System improvements

What system improvements are needed to further facilitate or improve learning community processes associated with registration, orientation, assessment, housing, other? For residential teams, can we tie to the already existing structure of the residence "houses" or "floors"?

Timeline

Can the timeline for establishing learning communities for a given academic year be moved up? What is a reasonable timeline?

Publications – recruitment and other

The Office of the Registrar currently develops registration publications for use during the June orientation. Individual learning community programs are also developing fliers, and correspondences specific to their LC program. The URCC is interested in elevating the use of learning communities in the recruitment process. Will LCs become a significant part of the recruitment position? Capacity issues? Resources needed? New publications needed?

Website development

The Office of the Registrar has started development on a website for ISU's learning community initiative. Where should this website be located? Links to this website? Do any of the Colleges have information about their learning communities on the web? Who is the audience for the University learning community website? A prospective student? The higher education community? Faculty and staff? Students currently participating in a learning community? Other? Ideas for this website?

University coordination/awareness

Many, if not most, faculty currently teaching a course demarcated for LCs are not aware of the fact. Faculty, advisers and administrators across campus generally are unaware of the nature and potential relevance of LCs to them.

Learning community awareness needs to be increased. Those involved with learning communities need a vehicle for sharing information and discussing ideas.

Most current learning community coordinators desire some central coordination and resource center. Is there a need for a steering committee? If so, what should be the composition of this steering committee? What should be the charge of this committee? What is the role of the LCWG in the future? Would it be beneficial to identify a small group of individuals representing key areas to support the existing learning communities *AND* to promote out of class learning activities?

What is the ideal balance between central support/direction and departmental/college autonomy? Budget for human resources? For a central support? For a resource clearinghouse? For publications? For improved services, facilities and registration systems? For other resources?

How could LCs become part of the Capital campaign for external fund raising?

Assessment

Assessment data on campus (while not conclusive) show LCs are making a difference in retention and GPA. Assessment efforts on campus have not yet focused on "learning" outcomes. We know little about the efficacy of "purposefully" linking courses in LCs.

Anecdotal evidence on campus suggests that LCs are an effective marketing tool for some student and parent audiences.

Many involved in the LC effort believe that assessment should be a requirement for learning communities. Learning outcomes and learning objectives should be specified at the onset. What central assessment support should be available to learning community coordinators? What information should be collected and/or shared on learning communities? Aggregate data could be shared for the overall evaluation and improvement of ISU's learning community initiative. Do we want to share aggregate data? How, where, and with whom?

Originator: Laura Doering, Office of the Registrar
Prepared 5/20/98

APPENDIX F: LEARNING COMMUNITY FREQUENCY TABLE

Table 13. Learning Community Frequencies by Year

Learning Community Name	Frequency	Percent
1995		
Animal Ecology	17	5.2
Agriculture	3	.9
Animal Science	19	5.9
Biology	41	12.7
Engineering – LEAD	5	1.5
Engineering	52	16.0
Exercise Sport Science	18	5.6
FCS	14	4.3
Pre-Health Professions	18	5.6
Pre-Business	137	42.3
Total	324	100.0
1996		
Animal Ecology	6	1.0
Animal Science	42	7.0
Biology	88	14.7
Dietetics (FCS)	10	1.7
Engineering - LEAD	11	1.8
Engineering	36	6.0
Exercise Sport Science	29	4.8
FCS 13	2.2	
Home Base (LAS)	27	4.5
Horticulture	17	2.8
Microbiology	7	1.2
Political Science	22	3.7
Pre-Business	205	34.3
Women in Science & Engr	85	14.2
Total	598	100.0
1997		
Ag Business	50	7.9
Animal Science	54	8.5
Biology	91	14.4
Curriculum & Instruction	19	3.0
Design	48	7.6
Engineering – LEAD	13	2.1
Exercise Sport Science	27	4.3
FCS	9	1.4
Horticulture	26	4.1
Microbiology	13	2.1
Pre-Business	198	31.3
Women in Science & Engr	85	13.4
Total	633	100.0

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