

**Building Community for First- and Second-Year  
Students in the Agricultural and Biosystems Engineering  
Department at Iowa State University**

**Steven K. Mickelson, Patricia C. Harms, Thomas J. Brumm  
Iowa State University**

## **Abstract**

A residence hall living community has provided a new way for our first- and second-year students in Agricultural and Biosystems Engineering (ABE) at Iowa State University to build community and to become involved members of our department. An optional component of our ABE First-Year Learning Community, the ABE Living Community was recently expanded to include second-year students to accommodate student requests. Not only does the living community offer a way for students to develop friendships, it also creates an environment well suited for academic work. Our paper includes an overview of our ABE living community, which includes both engineering and technology students. We developed this arrangement to strengthen students' existing learning communities through additional interaction with ABE peers in a living community, to encourage interaction and collaboration between our two undergraduate student majors, and to increase interaction of these students with the ABE faculty. In addition, we present the results of our assessment, which includes a year-end survey, student responses to a writing prompt, and student focus groups.

## **Introduction**

Living/learning communities (LLC) bring together students in the university residence halls who have similar academic goals. Such communities offer students a collaborative living and learning environment, increased student-faculty interaction, social and academic networks essential to student success, and a sense of membership in the university community. Schuh<sup>1</sup> recently reported that residential living seems to have a positive effect on four areas of student learning related to academic growth:

1. Students who live in specially structured experiences, such as living learning centers, seem to earn better grades than those who do not.
2. Living in residence halls seems to improve student persistence to graduation, compared with students who commute.
3. Living in residence halls also is associated with increased intellectual development.
4. Finally, living in residence halls seems to be associated with increased cognitive development. (p. 2)

Parscarella, Terenzini, and Blimling<sup>2</sup> similarly concluded the following about students who participated in living learning centers<sup>a</sup> when compared to students from conventional residence halls:

1. They report a high quality social climate, engage in formal contact with faculty, and report a more intellectual atmosphere in their residence arrangement.
  2. They perform better academically.
  3. They are more likely to persist in college.
  4. They have a significant, positive indirect effect on student academic and personal growth and development, mediated by the living environments that they shape.
- (p. 40)

In an effort to provide similar positive opportunities for our students, the Agricultural and Biosystems Engineering Department (ABE) at Iowa State University (ISU) has established a living and learning community (called the ABE LLC). The living community was established as an optional opportunity for incoming ABE first-year students in the 1999/2000 year and was expanded to include sophomore students (2000/2001) due to student request.

The ABE LLC was developed in cooperation with the ISU Department of Residence as an optional housing opportunity for entering first-year students who had declared either of the two majors offered by our department: agricultural engineering (AE) and agricultural systems technology (AST). During the first year (1999/2000) of the ABE LLC, 29 AE and AST first-year students participated. In its second year (2000/2001), the ABE LLC consists of 33 first- and second-year AE and AST students, thirteen of whom are returning sophomores.

### **Overview of the ABE Living/Learning Community**

The primary goal in establishing the ABE LLC was to enhance our learning communities, which are made up of linked courses for which students can co-enroll. In addition to enhancing the students' academic and social environment, we hoped that the LLC would help to create greater unity and collaboration between the students in the two ABE majors (AE and AST). Since the same faculty members in the ABE department administer both curricula, we believed increasing interaction through this living/learning community would help to build better harmony and cooperation amongst the AE and AST students. Finally, we wanted to increase student-faculty interaction through social events held at the students' residence. Specifically, we wanted to provide an environment where:

1. Residents in the LLC tutor each other
2. Programs in the residence hall focus on issues related to academic success
3. An ABE mentor for the LLC helps to create a supportive environment on our floor
4. Students in the LLC share with each other what they are learning in class
5. Students from the LLC ask each other about their classes
6. Students in the LLC encourage each other to attend class
7. Students are satisfied with the amount of concern their LLC mentors show toward their academic success

---

<sup>a</sup> Living learning centers were defined as specific interventions designed to tie living in a residence unit to a specific program sponsored by the institution.

8. Students are satisfied with the academic environment that has been created in their LLC
9. Students believe the residents in their LLC engage in behaviors that support their academic success
10. Students in the LLC form individual study groups
11. There is a feeling of academic competition in the LLC
12. The academic resources mentor (from the Department of Residence) helps to create an academic environment in the LLC
13. The resident community advisor helps to create a positive living environment

The location for the ABE LLC is on a newly renovated floor in Maple Hall, located on the southeastern side of the ISU campus. A floor designated for men, Friant House, was selected by the Department of Residence. The floor houses approximately 60 students. The Department of Residence stipulated that the ABE Living Community could not take up more than two-thirds of the floor; therefore, the maximum number of students who can participate in the ABE LLC is 40.<sup>b</sup>

### ***Special features of Maple Hall***

Maple Hall was selected for the location of our ABE LLC for several reasons. First, the Department of Residence had decided to renovate this tower facility in order to provide updated housing, especially designed for living/learning communities (Please see Figure 1). Second, Maple Hall is located a short distance from the Lied Recreational/Athletic Center, which provides students with a running track, basketball courts, racquetball courts, weights, and other workout equipment, and near the Iowa State Center (a theater, a small performance auditorium, the football stadium, and our large events coliseum). Because we believe that recreational and cultural activities can contribute significantly to overall student success, we felt close proximity to these facilities would help encourage our students to become involved. Finally, Maple Hall was selected due to several special features offered by the Department of Residence, including other LLCs, community based academic support services, and an intentional co-curricular experience (Please see Figure 2).

### ***Special policies for Maple Hall***

Several special policies exist (available at [http://www.iastate.edu/~residence\\_info/](http://www.iastate.edu/~residence_info/)) for Maple Hall, which we believe help contribute to the success of our LLC. These policies include: students' rights and responsibilities, substance free environment, student involvement, visitation policies, and residence staffing.

**Students' rights and responsibilities.** Students who choose Maple Hall must commit to abiding by a students' rights and responsibilities statement. In addition, the students must agree to work toward enhancing the total community and to participation in co-curricular activities during their first semester. Students who violate policies will be expected to move on, either to another residence hall or off campus, depending upon the severity of the violation.

---

<sup>b</sup> Women who choose to participate in the ABE LLC are placed into a general agricultural learning community located one floor above Friant House. No women selected the ABE housing option during the first year; however, two sophomore women are currently participating. We are actively trying to recruit more women for next year.



**Figure 1.** Newly renovated Maple Hall was selected as the site for the ABE LLC (Friant House is located on 3<sup>rd</sup> floor).



**Figure 2.** The students who are living on the ABE LLC recently purchased a ping-pong table. Shown are two first-year students enjoying a break from studying.

**Substance free environment.** All areas of Maple are substance free, including public spaces and student rooms.

**Student involvement.** Maple residents agree to participate in one or two activities within the first semester in each of the following categories: campus organization membership, community service, and personal development. To meet this requirement, students select from a wide variety of opportunities including joining on-campus organizations, volunteering for local agencies (Habitat for Humanity is popular with our students), and attending local events (e.g., lectures, plays, concerts, etc.)

**Visitation Policy.** The Maple Hall visitation policy encourages student interaction by providing public spaces where students can meet any time (24 hours/day) to work on class projects, to study in groups, and to socialize. Visitation policies are in place for student rooms to facilitate healthy decision making by students.

**Residence staffing.** Maple Hall is supervised by a full-time Hall Director. In addition, two undergraduate staff members are assigned to each floor by the Department of Residence. One is the community advisor (responsible for developing a strong sense of community on the floor). The second undergraduate staff member is the academic resource coordinator (responsible for ensuring students have access to academic services and programs).

### **ABE LLC Peer Mentor**

The ABE LLC also includes a live-in peer mentor, an upper-level ABE student who is housed on the floor for facilitating activities that help to accomplish the LLC goals. This mentor is accountable to the ABE LLC Coordinator (Dr. Mickelson) for training and planning. Peer mentor responsibilities, as defined by the ABE LLC coordinator, include:

- Facilitating one-on-one's with the students (i.e., counseling sessions as needed)
- Building community through group activities (Please see Figure 3)
- Answering academic/curriculum questions
- Referring students to the correct resources
- Coordinating community service activities
- Attending mentor-training meetings
- Acting as a role model

The time commitment of this peer mentor is approximately 18 hour/week. The mentor is provided with single room housing (on the ABE LLC floor) and with a full meal ticket for the academic year. The cost was approximately \$5000. The ABE LLC peer mentor, currently an AE junior, is selected by the ABE LLC Coordinator.



**Figure 3.** The ABE peer mentor coordinated an information meeting with past ABE interns and co-op students in the Maple Hall lounge area.

### **Faculty-Student Dinners**

Faculty-Student dinners are an important feature of our LLC. Coordinated once each semester, the faculty-student dinners are held in Maple Hall. The events begin at 5:15 p.m. with pre-dinner appetizers (catered by the ISU Department of Residence) in the Friant House lounge. During this informal time, faculty and students are able to engage in conversation in a relaxed environment outside the classroom. Around 5:45 p.m. the group moves down to the Maple dining hall for dinner. We have been able to reserve a small section of the facility, so our group can sit together. The events are handled rather informally (faculty and students are invited by the ABE LLC coordinator via email) and through announcements/reminders in the linked courses. Students and faculty alike have commented on how much they enjoy these dinners.

### **ABE Living and Learning Community Recruitment**

Students for the learning and living community are recruited through university, college, and department mailings and contacts. The ABE LLC description is part of the *Iowa State University: Learning Communities* brochure that is made available to all prospective students. Links have also been made to these same descriptions using the Colleges of Engineering and Agriculture homepages on the World Wide Web. Students who attend various ISU recruiting events are also told about this opportunity.

The department sends out a mailing in March to incoming students who declare AE or AST as the curriculum of their choice. This mailing describes the benefits of the optional ABE



Learning/Living Community. Students are further encouraged to participate in the ABE LLC at the time of summer orientation.

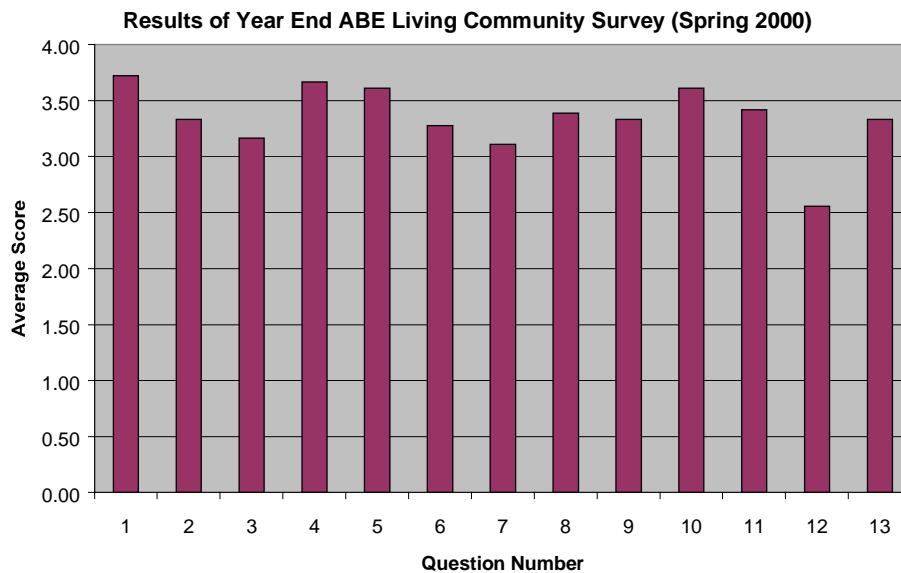
## **Results**

Assessment of the ABE LLC was conducted using a student survey and a writing prompt in English 105 during the Spring 2000 semester, and student focus groups during the Fall 2000 semester.

### ***Results from year end survey***

At the end of the first academic year for the ABE Learning Community students, the first-year students were asked to complete a survey to help determine if the objectives for this new program were being met. Eighteen of the 29 ABE learning community students completed the survey. Figure 4 shows the average responses to thirteen different survey statements related to each LLC objective. A response of a three or higher meant that the student agreed or strongly agreed with a statement. A response of lower than a three was correlated to a student who disagreed or strongly disagreed with a statement. An average response of a three or higher was desired to verify that an objective had been met successfully.

For twelve of thirteen statements, the average response was three or higher. Statements 1, 4, 5, and 10 all scored a response higher than a 3.5 and all related to academics (i.e., tutoring each other, sharing what they are learning in class, being asked about their classes, and forming of study groups). Only one statement had an average response of less than three; this was statement 12 (“The academic resources mentor helped to create an academic environment in my living community.”) This response may have been due to the closer relationships built with the community advisor and the peer mentors due to the fact that both were engineering students. The academic resources mentor was a non-engineering major. With the exception of statement 12, each of our predefined objectives were met, indicating the success of the ABE LLC during the 1999-2000 year.



**Figure 4.** Average responses to the following ABE LLC statements (N=18)  
(1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree):

1. Residents in my living community tutor each other.
2. Programs in my residence hall have focused on issues related to academic success.
3. The ABE mentors for the living community helped to create a supportive environment on
4. our floor.
5. Students in my living community share with each other what they are learning in class.
6. Students from my living community ask me about my classes
7. Students in my learning community encourage each other to attend class.
8. I am satisfied with the amount of concern my learning community mentors show toward my academic success.
9. I am satisfied with the academic environment that has been created in my living community.
10. I believe the residents in my living community engage in behaviors that support their academic success.
11. Students in my living community form individual study groups.
12. There is a feeling of academic competition in my living community.
13. The academic resources mentor helped to create an academic environment in my living community.
14. The resident community advisor helped to create a positive living environment.

### ***Results from English 105 writing prompt and focus groups***

In addition to survey data, we also gathered information from students about the living community through an end of the semester writing assignment for English 105 (Spring 2000) and with student focus groups conducted during the Fall 2000 semester. Twenty-four first-year, second-semester AE students wrote responses to an English 105 writing prompt which asked them to make recommendations about the ABE learning community and/or living community. Three focus groups were held at regular intervals during the Fall 2000 semester. Nine first-year, first-semester AE students who were co-enrolled in Engineering 170, English 104, and Engineering 101 volunteered to participate in the focus groups, which were facilitated by a doctoral student researcher.



When prompted to discuss the ABE living community, students reported that the living community provided an opportunity to make friendships.

*"The living community provides an excellent opportunity for student in the ABE department to form friendships.... Over the course of this year I have made many new friendships that probably would not have formed if I had not been involved with the ABE living community" (student paper, May 2000).*

In addition, several students reported that the learning community was an asset to their academic development.

*"The living community helped me with the academic aspect [of college] because it gave me the opportunity to work with other students and help one another on things some of us didn't understand about classes. Many of the classes that engineers face are very tough and sometimes it can feel like you are the only one struggling. However, with the living community you realize that you are not the only one facing these tough times. This in turn makes these classes feel much easier because you realize you are all struggling as a group instead of individually" (student paper, May 2000).*

*"I like it [the ABE living community] because it helps me study. Because it seems like everybody's in the same classes and everybody's always doing the same thing, so it helps me study" (student focus group, September 2000).*

Students also reported that they often asked each other class-related questions, studied together, and tutored each other as a result of the living community.

*"Unlike most dorm floors, the majority of the students on the floor have similar academic goals and similar backgrounds which makes it easy to relate to each other. This is also nice when it comes to doing homework. If anyone has a question, it is almost a guarantee that someone on the floor knows the answer because we are all in the learning community classes" (student paper, May 2000).*

*"A lot of guys who live on the floor are in the same class. It's [Chemistry] 167. It's a lot of stuff, and they go over stuff really fast. They're all pretty difficult, so we all study together and go over stuff. Before quizzes and tests we usually have study sessions—two or three before the last test where we all got together and just talked about it and went over some problems. Some guys know it a lot better than others and they help the other guys out. It's really nice" (student focus group, September 2000).*

*"I have found that having classmates on the same floor encourages group study sessions. These study sessions are a great benefit to students by providing a chance for students to tutor students" (student paper, May 2000).*

Other students not living in the ABE living community were also aware of the academic advantage of this option.

*[The ABE living community] allows the residents to work on homework and projects easily because of their close proximity to others in their classes. This has been hard on me, and I can assume the other females in our class, because we don't live anywhere near the living community, so it is hard for us to get together with the people who do live on the living community floor" (student paper, May 2000).<sup>c</sup>*

While most comments were positive, a few students did note that having classes and living with many of the same people did become a little overwhelming at times.

*"You're always talking to the same kind of person. Whereas if you lived in another place, you might be talking to a business major or you might be talking to someone who has interests in... soccer or something different. Right now, maybe since I'm about done with my first year, that's what I'm looking for. Something else besides a bunch of farmers" (student focus group, December 2000).*

*"One of the negative aspects, which I hear many people around the floor discussing, is the fact that we see the same people day in and day out all of the time.... This can be overwhelming to students who feel that they want to meet new students and have no way to do this because they are constantly in classes with the same students" (student paper, May 2000).*

Finally, a few students participating in the Fall 2000 focus groups reported that while they felt the living community greatly enhanced their academic skills, it did so perhaps at the expense of further developing their social skills. The following is an excerpt of their conversation regarding this issue (December 2000):

Student 1: *The living community is a lot of the same, you know, a lot of the same people. And it's kind of frustrating living there cause you see the same people every day... It's really not--I definitely won't be there my sophomore year for sure, because I can't imagine myself going through college and only meeting maybe twenty people. That would just suck. I'd come out being a dope, ya know?*

*I wouldn't have any experience with people. It was nice the beginning of the year, but it's starting to confine me now. Because there's a lot of people that don't want, they always want to study there. They don't [even] want to study somewhere on campus. You know, like staying after class and studying at a different place. They're like, "Let's go back to Maple." Why, you know?...*

*No offense to you guys... it's nice to talk to people with the same interests, but at the same time, it gets old...*

---

<sup>c</sup> During the 2000-2001 academic year, women wanting to be involved in the living community were placed on a general agricultural learning community floor located directly above the ABE living community.

- Student 2: *I like it a lot, living there. You know everybody. It is...there's not that much diversity, not that much difference between people. And that's kind of a bad thing, but it's really easy to study with people, everybody's in the same classes you are.*
- Student 3: *It's a big study hall.*
- Student 2: *Yeah.*
- Researcher: *So, you've kinda got some negative things and you've got some positive things.*
- Student 1: *Yeah, there's good things and then there's bad things. And how I've really noticed more of the negative aspects, it's that, we're living with sophomores on the living community. Cause there's like this closed rest of the environment to the rest of Iowa State...*
- Student 2: *I think it's different for you because you have a sophomore roommate. And maybe you see it more. But I haven't, I guess. Maybe that's why I haven't experienced that.*
- Student 4: *I think our little corner of Maple Hall, third floor is like a totally different world than anywhere else.*

## Conclusions

Despite the relative few negative comments we have received about the living community, we consider the initiative to be a great success. We have taken both the positive and negative comments from the students seriously and have used them to shape our future plans. For example, we will be hosting a social event with the WISE (Women in Science and Engineering) living learning community in the Spring 2001 semester in an effort to encourage the students to meet more people outside of the living community. Also, we have encouraged our living community mentor to help encourage the students to incorporate other social events (bowling, going to ISU sports events, participating in intramural sports, volunteering for more campus activities) into their routines. The department plans on continuing this program as long as funding can be obtained for the peer mentor and the programming cost. External funds from industry will also be pursued in the near future.

## Bibliography

1. Shuh, J. H. (1999). Student learning in college residence halls: What research shows. Paper presented at the ACUHO-I 50<sup>th</sup> Annual Conference, Charlotte, North Carolina.
2. Pascarella, E.T., Terenzini, P.T., and Blimling, G.S. (1994). The impact of residential life on students. In C. C. Schroeder, P. Mable, & Associates, *Realizing the educational potential of residence halls*. (pp. 22-40). San Francisco: Jossey-Bass.

**STEVEN K. MICKELSON**

Steven K. Mickelson is an Associate Professor of Agricultural and Biosystems Engineering (ABE) at Iowa State University. Dr. Mickelson is the teaching/advising coordinator for the ABE department. His teaching specialties include computer-aided graphics, engineering design, soil and water conservation engineering, and land surveying. His research areas include soil quality evaluation using x-ray tomography, evaluation of best management practices for reducing surface and groundwater contamination, and manure management evaluation for environmental protection of water resources. Dr. Mickelson has been very active in the American Society for Engineering Education for the past 16 years. He received his Agricultural Engineering Degrees from Iowa State University in 1982, 1984, and 1991.

**PATRICIA C. HARMS**

Patricia C. Harms is a doctoral candidate in rhetoric and professional communication at Iowa State University (ISU). She has been very involved in learning communities at ISU, and her dissertation explores the effects of linked courses on engineering students' developing written and visual literacy. Ms. Harms has taught first-year composition I and II for the ISU Agricultural and Biosystems Engineering Learning Community. She has also taught business communication and visual communication in business and technical writing. Ms. Harms' research interests include learning communities, writing across the curriculum, and assessment in higher education. She has a Bachelor of Science degree in nursing from the University of Pennsylvania and a Master of Arts degree in business and technical communication from ISU.

**THOMAS J. BRUMM**

Dr. Thomas J. Brumm is an Assistant Professor in the Department of Agricultural and Biosystems Engineering (ABE) at Iowa State University (ISU). Before joining the ISU faculty in 2000, he worked in the seed industry for 10 years. He leads the Agricultural Systems Technology curriculum in the ABE department. His technical expertise includes: near-infrared analysis technology, grain processing, grain and seed quality, and the evaluation of grains and oilseeds for food and feed use. Dr. Brumm received Bachelor's degree from ISU and his Master's degree from Purdue University, both in Agricultural Engineering. He received his Ph.D. from ISU in 1990 in Agricultural Engineering with a minor in Chemical Engineering.