

# Extended Abstract - Disadvantages of Engineering Living Learning Communities

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**Abstract** - The benefits of living learning communities are well documented, and living learning communities are increasingly incorporated into the first year experience for engineering students in an effort to increase retention and performance. However, the disadvantages of living learning communities in engineering have not been similarly explored. We propose two primary disadvantages: 1) increased anxiety faced when leaving the major when it is appropriate, and 2) increased proximity and encouragement to work together on assignments, leading to a lack of individual responsibility for learning which may tempt more students to engage in academic dishonesty. This work in progress has four aims: 1) to start a discussion about these and other potential disadvantages of engineering living learning communities at other institutions, 2) to get feedback on survey questions and study designs to elucidate these disadvantages, 3) to hypothesize how strong and weak students may respond differently to these disadvantages, and 4) to brainstorm and gather solutions to mitigate these disadvantages.

*Index Terms* – living learning communities, disadvantages, anxiety, retention, academic dishonestly.

## INTRODUCTION

Living learning communities are defined as students that “1) live together on campus, 2) take part in a shared academic endeavor, 3) use resources in their residence environment designed specifically for them, and 4) have structured social activities in their residential environment that stress academics” [1]. Placing a common academic interest at the center of living learning communities has its origin in Alexander Meiklejohn’s experimental college at the University of Wisconsin in 1929, and then gained momentum during the explosion of higher education in the United States in the middle of the twentieth century [2].

Living learning communities are widely recognized as one of the high impact practices utilized in higher education. In his report prepared for the Association of American Colleges and Universities in 2008, Kuh identified high impact practices including: living learning communities, first year seminars and experiences, common intellectual

experiences, collaborative assignments and projects, undergraduate research, global learning, service learning, internships, capstone projects, and writing intensive courses [3]. The multi-institutional Wabash National Study similarly identified living learning communities as a particularly helpful high impact practice because it provides multiple key elements including: providing academic and social support, increased interaction with faculty outside the classroom, deepened learning, exposure to difference, increased time on task, and expectations that could be increased within the peer group [4] – [5]. Finally, the National Survey of Student Engagement (NSSE) has consistently reported a strong correlation between students’ participation in a living learning community and self-reported student satisfaction and engagement [6].

However, the disadvantages of living learning communities have not been explored as fully. In general, doubts have been cast on the true impact of some practices characteristic of living learning communities in the book *Academically Adrift* [7]. The authors of *Academically Adrift* found that in contrast to self-reported engagement and satisfaction in the NSSE, objective measurements of gains in critical thinking skills were negatively correlated with time spent studying with a group and with time spent in extracurricular activities, both of which are typically encouraged in living learning communities.

Engineering living learning communities are becoming increasingly popular as a means to improve retention, promote diversity, and support academic success in a rigorous program [8]. Many engineering living learning communities combine a common academic theme (engineering) with support for the first-year transition, and sometimes with specific support for women and/or minority students. However, research on engineering-specific living learning communities is somewhat limited. Much of the literature on engineering living learning communities exists in conference proceedings, such as those of the American Society for Engineering Education. Recent studies report enhanced student engagement, retention, and academic success [9] - [12].

On the other hand, a recent study on engineering specific living learning communities asked students in a free

response question to list the disadvantages of their engineering living learning community with the following response frequencies: 40% social contact limited to engineering majors, 27% no disadvantages, and less than 5% time commitment, gender imbalance, facilities, personality conflicts, and too much collaboration [13]. Unfortunately, this question was not pursued further and was not the focus of the study.

With so many different implementations of living learning communities, along with the controversial findings of *Academically Adrift* [7], it is important to link the structure and activities of engineering living learning communities with the underlying practices that positively and negatively correlate with student retention and success. We must further consider how to best implement living learning communities, how to focus resources, and how to identify and mitigate potential drawbacks.

### ELIZABETHTOWN'S LIVING LEARNING COMMUNITY

Elizabethtown College houses an ABET-accredited general engineering curriculum at a small (less than 2,000) regional liberal arts college in Elizabethtown, PA. The typical incoming class in engineering has increased from 20-30 students to 40-50 students in the last few years. Any student admitted to the College may declare an intended major in engineering. In the first year, engineering students are typically enrolled in Calculus I and II, Physics I and II, Introduction to Engineering I and II, as well as a first-year seminar, and electives such as computer science.

Elizabethtown has supported a first-year engineering living learning community for several years, named the "Partners in Engineering" (PIE) floor. The community falls under the direct supervision of the Office of Residential Life and also has 1-2 faculty advisors, 1-2 student resident advisors, and a system of upperclass tutors available five nights a week. Social events are organized approximately monthly, and are open to the entire engineering student community. Events are typically social in nature and involve at least one faculty. Last year we made the community an "opt out" option rather than an "opt-in" option, so students with an intended major of engineering are placed in the community by default unless they indicate otherwise.

At Elizabethtown, we have found benefits similar to those reported elsewhere in our engineering living learning community. Results of a survey administered at the end of the 2011-2012 academic year showed residents reporting the following: 85% strongly agreed that their academic performance was enhanced, 76% strongly felt a sense of community on their floor, and 81% strongly felt an enhanced sense of appreciation for engineering.

However, we have also encountered some potential negative impacts of the living learning community that should be studied further.

### SPECIFIC AIMS OF PROPOSED WORK

This work in progress has four aims: 1) to start a discussion about these and other potential disadvantages of engineering living learning communities at other institutions, 2) to get feedback on survey questions and study designs to elucidate these disadvantages, 3) to hypothesize how strong and weak students may respond differently to these disadvantages, and 4) to brainstorm and gather practices to mitigate these disadvantages.

#### I. Proposing Disadvantages

Based on the body of higher education evidence and our own observations, we propose two primary disadvantages: 1) increased anxiety faced when leaving the major when it is appropriate, and 2) increased proximity and encouragement to work together on assignments may lead to a lack of individual responsibility for learning, which may result in academic dishonesty.

These concerns are related to the literature on positive high impact practices and on negative correlations found in *Academically Adrift* [7]. One of the reasons that living learning communities have impact is the enhanced social support and interaction with faculty outside the classroom. However, these peer and faculty relationships may increase anxiety at leaving the major, especially if social contact is limited to students and faculty only in engineering.

One explanation for the reason that group study negatively impacts students' progress in critical thinking is that students' "study time" is really "social time" where deep studying is not done, and where individual responsibility and reflection does not occur because "the group" understands the material collectively or gets sidetracked. *Academically Adrift* further points out that students who spend less than 15 hours a week studying show no increases in critical thinking, while college students in general are spending increasing amounts of time socializing [7]. A living learning community where there is no separation between "work time and space" and "social time and space" may contribute to decreased time studying and decreased individual responsibility for learning, which may also lead to enhanced opportunities for academic dishonesty.

#### II. Elucidating Disadvantages

The following is a list of questions being considered to elucidate these issues. The questions would be added to an existing survey, and asked anonymously of our living learning community students next year:

- What are the disadvantages of the PIE floor?
- What percentage of your friends are engineering students?
- On a scale of 1 to 5, how comfortable would you be leaving the engineering department? Why?
- What is your approximate GPA in physics, math, and engineering courses?

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- How confident are you that you can graduate with an engineering major?
- How many hours a week do you spend studying individually?
- How many hours a week do you spend studying in a group?
- Where do you typically study?
- How many times have you witnessed an incidence of academic dishonesty by your engineering classmates?
- How many times have you actively participated in an incidence of academic dishonesty?

### III. Differing Student Responses

It is likely that these potential disadvantages of living learning communities do not affect all students to the same extent. For example, strong students do not have to consider leaving the major if they do not wish to do so. Furthermore, a strong student who works frequently in a group may be tutoring the other students, enhancing understanding. However, a weak student may be hiding behind the group knowledge so that group work beyond a certain point does not help. Similarly, not all students may be engaging in academic dishonesty to the same extent, or may not equally feel the need to cheat.

The question on the survey regarding the student's approximate GPA and confidence about finishing the major could be used to divide student responses into strong and weak students to determine if the disadvantages affect both groups in the same way.

### IV. Mitigating Disadvantages

Ultimately, the goal of this work is to identify potential disadvantages of living learning communities so that practices can be developed and disseminated to mitigate drawbacks. It may be that some variations on the living learning community avoid most disadvantages, and those best practices can be identified and adopted. It may also be that certain student populations, such as weak or underserved students, are more affected and can be targeted with specific programming.

### FUTURE WORK

The proposed first step in this study will take place at the First Year Engineering Experiences conference in August 2012 in Pittsburgh, Pennsylvania. The conference presentation provides a forum to discuss these and other disadvantages with faculty mentors at other living learning communities. It would also be desired at the conference to get feedback on the survey questions, and to form a cohort of participants interested in distributing the finalized survey at their institutions. Finally, the conference presentation will elicit brainstorming ideas on implementation practices that might mitigate these disadvantages.

This work begins the conversation about potential disadvantages of living learning communities in

engineering. The work seeks to identify disadvantages and connect them to higher education theory, to assemble an initial benchmark program (and hopefully a benchmark cohort at various institutions), to provide a survey instrument to measure effects of those disadvantages, and to brainstorm intervention ideas to implement and measure.

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