UNIVERSITY OF WISCONSIN-PLATTEVILLE
WOMEN IN STEM LIVING-LEARNING COMMUNITY
A SUPPORT NETWORK TO INCREASE RETENTION OF WOMEN IN STEM MAJORS

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Abstract

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Kim Sargent

Under the Supervision of Dr. Patricia Bromley

A living learning community is a retention initiative for women in STEM majors. While there is a need for more women in many of these fields, stereotypes about their abilities in science and math and perceptions about STEM careers, keep women from choosing STEM focused majors in college. The women who initially choose these majors leave these majors in higher numbers than men. Retention initiatives are needed to support and mentor women and prepare them for the realities of working in STEM careers. A living learning community takes the middle to large campus educational experience and creates a smaller community of students who share a common interest.

This paper argues that there is a need for living learning communities on college campuses for women in STEM majors. It discusses the purpose, goals, and objectives of the Women in STEM Living Learning Community (WiSTEM LLC) at the University of Wisconsin-Platteville. Furthermore, it explains the implementation and programming and shows how study groups and tutoring were integrated into the community. Lastly, an assessment of the LLC is described and the feedback the students gave about living in the WiSTEM LLC will be provided.

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Chapter One: Introduction

The first living learning community (LLC) at the University of Wisconsin-Platteville campus was started in the fall of 2012. This living learning community is for freshman women who are interested in science, technology, engineering, and math (STEM) majors. The name of this LLC is Women in STEM Living Learning Community or WiSTEM LLC. A living learning community is a group of students who are focused on a particular area of interest and share a common residence. Living learning communities are considered a high-impact educational practice by the Association of American Colleges and Universities and the LEAP initiative (Kuh, 2008). High-impact educational practices are practices that have been widely tested and shown to be beneficial to college students from many backgrounds. A living learning community takes the middle to large campus educational experience and creates a smaller community of students who share a common interest (Wardell, Draper, & Yarrish, 2008). This interest can be major specific or theme based. Several studies and reviews have shown consistently positive outcomes from LLCs including improved student performance, increased academic engagement, personal development, greater persistence, and general satisfaction (Stassen, 2003).

The WiSTEM LLC at the University of Wisconsin-Platteville is a cross-college initiative from the Colleges of Engineering, Math, and Science (EMS) and the College of Business, Industry, Life Sciences, and Agriculture (BILSA). The WiSTEM LLC is a program under the joint direction of the Women in Engineering, Math, and Science Program and the Department of Residence Life.

Statement of the Problem

Women are disproportionately under-represented in most science, technology, engineering, and mathematics fields. The need for more women in these fields is of global concern; therefore retention in these fields in higher education is critical. Living learning

communities, as a high impact practice, can potentially increase the retention of young women in STEM.

Definition of Terms

STEM: Science, Technology, Engineering, and Math

Living learning community: It is a residence hall based program in which students live together in the same dwelling. It is designed to integrate students' in-class and out-of-class experiences. It seeks to create a more intimate learning environment, particularly for students who attend a large university (Inkelas & Soldner, 2011).

Cohort: A group whose members share a significant experience at a certain period of time or have one or more similar characteristics (Businessdictionary.com, 2013).

Stereotype threat: The threat of being viewed through the lens of a negative stereotype or the fear of doing something that would confirm that stereotype (Steele and Aronson, 1995).

Retention: For purposes of this paper, retention refers to the persistence of the students to the second year of college and staying in a STEM major.

Delimitations of Research

This project is based on one year of assessment from a living learning community of only twenty-four freshmen women in science, technology, engineering, and math. It will take several years of cohorts to show a statistically significant positive effect on retention of women in STEM at the University of Wisconsin-Platteville. The purpose of this project was to lay out a strong foundation of research that shows a need for living learning communities for women in STEM, and to describe the community that was developed, what programming was done, and the results of the assessment based on the objectives. It will also define what was learned from the first year and the future plans of the WiSTEM LCC. The research was conducted in the Karmann Library

(University of Wisconsin-Platteville) and through various other resources from training and internet searches. Key search topics included “living learning communities,” “retention of women in STEM,” and “women in STEM fields.”

Method of Approach

The method of approach for this project was to review the literature and attend workshops and conferences to learn how to develop a successful learning community. Research was done to assess why learning communities are proven best practices in higher education and how they increase retention. Research was also done as to how to write effective learning objectives in order to later assess the success of the learning community. Further research gauged how to effectively implement the learning community in order to assess those learning objectives and establish that the learning community does in fact achieve its primary purposes. From this research, it was decided that there was a need for a STEM focused LLC at UW-Platteville because of the small numbers of women in STEM majors. Research shows that first year students who participate in LLCs are more likely to be retained to the second year of college (Wardell, Draper, & Yarrish, 2008). The appendix of this paper will include a description of the implementation, programming, and assessment of the first year of the WiSTEM LLC at UW-Platteville.

Chapter Two: Review of Related Literature

Why There is a Need for More Women in STEM Fields

Science, technology, engineering, and mathematics (STEM) are considered critical to the United States economy and its ability to compete in a global economy. The National Science Foundation estimates that a little over four percent of the workforce is STEM focused but this relatively small group is considered to be critical to economic innovation and productively (Hill, Corbett, & St. Rose, 2010).

In order for the U.S. to be competitive in the STEM fields, it needs a gender diverse workforce, but in the U.S. some STEM disciplines are largely male dominated. Women made up more than half of the population of the United States in 2010, yet comprise only 28% of the workforce in science and engineering fields (NSF, 2013). Women's underrepresentation in STEM can have a negative impact on the United States' ability to be competitive in a global society due to the loss of talent and innovation that a diverse perspective in the workforce creates (Shapiro & Sax, 2011). Scientists and engineers solve problems and design and create machines and products for our society that we use daily. They also implement processes and services to make our society more efficient. When women are not involved in this process the needs of half the population may go unmet. An example of how having women involved in the engineering process may have resulted in a better product is the development of the first generation of automotive airbags designed by a predominantly male group of engineers. They were initially engineered and tested for adult male bodies. This resulted in avoidable deaths for women and children because the airbags were not designed for smaller people (Margolis & Fisher, 2002). This is one of many examples that demonstrate the importance of a woman's perspective in the STEM workplace. In order to better diversify those perspectives in the STEM workforce, women

need more opportunities to enter and be successful in those fields to make scientific research and innovation more vigorous and complete (Blickenstaff, 2005). In an increasingly global and competitive society, women are needed to create markets for all segments of the population (NSF, 2013).

Women in STEM Stereotypes

The stereotype that women are innately better at the arts and humanities and men are innately better at math and science is a common belief in United States culture. Recent research supports that this is not due to biological and hormonal differences between the genders as research once seemed to show, but more to sociocultural factors (Hill, Corbett & St. Rose, 2010). This stereotype influences female students' performance and ambitions in math and science. In elementary, middle, and high school, girls and boys take math and science in relatively equal numbers, and girls perform just as well as boys. However these stereotypes and beliefs exert an effect: fewer women than men choose undergraduate majors, and eventually careers, in certain STEM related fields (Hill, Corbett, & St. Rose, 2010). This bias has a negative impact on girls' and women's decisions to show interest in math and science and is attributed to what is referred to as stereotype threat. Stereotype threat is the threat of being viewed through the lens of a negative stereotype or the fear of doing something that would confirm that stereotype (Steele & Aronson, 1995). In other words, females steer themselves away from science and math not only because of the incorrect belief that they cannot do math and science as well males, but because they are afraid that they would fail in these areas and be judged by those failures. Research shows that boys assess their mathematical ability higher than do girls when they have equivalent mathematical achievement. Girls hold themselves to a higher standard. This leads to young girls,

when entering college, not showing interest in STEM majors (and eventually careers) because they believe they are less likely to succeed (Hill, Corbett, & St. Rose, 2010).

Gender bias is deeply ingrained in our society: boys and men are assumed to be mathematically superior and innately better suited in math and science. This is reflected in the number of women with undergraduate degrees in STEM. Women are much less likely than men to choose STEM majors, and only 20% of bachelor's degrees are earned in STEM fields. This discrepancy is even more pronounced at the graduate level (Hill, Corbett, & St. Rose, 2010).

Discrepancies are uneven among the STEM disciplines, with females relatively more willing to engage in the study of biology, mathematics and the physical sciences, and less willing to study engineering, computer science and physics. Women are exceeding men in undergraduate degrees in the biological sciences and account for 60% of all degrees in 2009. In the same year they were doing better in mathematics and the physical sciences, receiving 43% and 42%, respectively, of bachelor's degrees. But in engineering and computer science only 18% of BA's were earned by women and in physics it was only 19% (Rice, Richardson, Lopez, & Stinson, 2013). Many hypotheses try to explain why women are doing well in biology, mathematics, and physical sciences but not in other STEM fields. These hypotheses are still subject to debate. Research shows that women place a higher value on work that has a clear social purpose and contributes to society than do men (Jozefowicz, Barber, & Eccles, 1993). Areas of study such as biology and the physical sciences often lead to careers in the medical field which are often more attractive careers for women because of the perceived socially redeeming value of these careers. Medical fields are considered fields that contribute to the betterment of humankind and offer an opportunity to make a social contribution. This attracts women. However, engineering and other science and technology fields are promoted as challenging and stressful careers and are

considered the province of males. Engineering education is perceived as painful, dry, and difficult. Women are more attracted to professions that are collaborative in nature and not about individual achievements. The public perceives engineers as stereotypical nerds who lack social skills, but engineering today is more about working in teams and involves collaborative learning (Sanoff, 2005). Engineering needs to be portrayed more accurately to attract women to the profession. When choosing a college major, young women want to choose a future career that appeals to them and affords them a means of contributing to society. Women's choices of college majors are connected to their choices in careers. If they do not select and are not retained in STEM majors, then the workforce cannot become more diverse (Shapiro & Sax, 2011).

Need for Retention Initiatives in Higher Education to Keep More Women in STEM

Retention initiatives and high impact practices in STEM fields is necessary because of the imbalance of women versus men in these fields and the need to retain the women who do choose these fields. Female role models are important, if female students are to have a better chance of persisting in a STEM major. Without female role models the negative stereotypes held by girls and young women about STEM fields are reinforced (Goodman & Damour, 2011). Because they are a minority in their STEM classes at the undergraduate level, women college students need support and mentoring in order to be retained in those STEM majors. Female role models can help them persevere in STEM majors (Goodman & Damour, 2011) Women's academic interactions with instructors and peers help them form stronger commitments to STEM disciplines and increase their interest in STEM (Shapiro & Sax, 2011).

Although women are a minority in many of the STEM classes at the undergraduate level, in secondary school, girls and boys take math and science courses in close to equal numbers. They are almost equally prepared to pursue degrees in science and engineering in college (Hill,

Corbett, & St. Rose, 2010). One study showed that when students are told that girls and boys are equally capable in math, the differences in their performance disappears. Mathematics courses are some of the first pre-engineering courses that college freshmen and sophomores take and are often considered "weed-out" courses for males and females alike. By providing the support, mentoring and role models to freshmen and sophomore female STEM majors, there are more opportunities to make them feel as equally capable in their math classes. The women can be mentored by upper class women and faculty who were able to make it through those tough courses. By developing a relationship with these mentors, they also will have opportunities to have discussions that can normalize their expectations. For instance, they do not have to be the best math students to be an engineer. When they can observe and learn that other women have struggled through these courses, they will have a better chance of persisting in the STEM major. One study from the American Association of University Women titled, *Why so Few Women in Science, Technology, Engineering, and Math*, showed that males and females in the engineering field are not primarily the highest-scoring math students. High math scores are not a prerequisite for success in STEM fields. But the perception of many STEM disciplines, including engineering, is that one must be the best math student in order to succeed (Hill, Corbett, & St. Rose, 2010). Women are less likely to accept that a B or C grade is good enough while a man feels that he is successful even if he doesn't get an A. Women who leave STEM majors in college tend to have higher grades than men who leave STEM majors. Mentoring programs, study groups, and taking courses with friends are recommended for retaining the number of women in STEM majors. In addition, having an advisor who is well versed in issues of women in STEM is very beneficial. Science, Technology, Engineering, and Math professionals need to

work together to create a warm and collaborative learning environment for women (Morganson, Jones, & Major, 2010).

But often the STEM learning environment is not warm and collaborative. The culture and pedagogy in college-level STEM classes can be the opposite, and is not appealing and is often offensive to many women (Shapiro & Sax, 2011). Furthermore, the culture of academic departments in many colleges and universities affects women's ability to earn degrees in STEM fields (National Academy of Sciences, 2007). Many STEM courses are competitive in nature with a fierce competition for grades. The system of weeding out students can discourage women from persisting because it is not a collaborative environment and reinforces the stereotype of the individualist nature of STEM, especially engineering. The classroom climate affects women more than men and leads to more depression about their work and lowers self-confidence. Women often feel excluded in the classroom environment and even subjected to different grading practices (Shapiro & Sax, 2011). One study found that 20% of female respondents in a technology classes did not feel comfortable asking questions in the classroom and 25% did not feel comfortable going to the professor after class. Often STEM faculty have a negative effect on female students and make them feel unwelcome in the classroom (Shapiro & Sax, 2011).

The deeply engrained culture of the STEM classroom environment and the faculty who teach these classes cannot easily be changed. These are issues with the educational system that will most likely take years, if not decades to change. But by providing first and second year female STEM majors with strong role models and mentors, study groups, structured support, and making sure they share classes with other female STEM majors, these women have a better chance of persisting in their chosen major than do students who do not have the same support

network. Living learning communities for women in STEM is one retention initiative that has proven successful.

What is a Living Learning Community?

Living learning communities are considered a high-impact educational practice by the LEAP initiative. An initiative of the Association of American College and Universities (AAC&U), Liberal Education and America's Promise (LEAP) is a "national advocacy, campus action, and research initiative that champions the importance of a twenty-first century liberal education—for individuals and for a nation dependent on economic creativity and democratic vitality" (AACU website, www.aacu/leap). High-impact educational practices are practices that have been widely tested and shown to be beneficial to college students from many backgrounds.

Living learning communities vary from program to program and university to university but most share some common characteristics. They are residence hall based and students live on the same floor or in the same building, depending on the size of the community, and share a common area of interest which is often academic. This is to increase the chances for students to have out-of-class interactions and more opportunities to learn outside of the structured classroom learning environment. (Zhao & Kuh, 2004). They are intended to create a small community and a more intimate environment particularly at larger universities (Inkelas & Soldner, 2011).

Living learning communities are designed to help students make two types of connections. The first is connecting in their academic disciplines and professional goals. This can be aided by enrolling students in cohort courses. The second connection is through social activities which help the students bond and make friends with the other members of the LLC. "As a result, students become members of a community focused on academic content which allows them to further develop their identity and discover their voices as well as to integrate what

they are learning into their world view and other academic and social experiences." (Zhao & Kuh, 2004, p. 5). Through structured academic interactions such as sharing common courses with other LLC participants, along with complementary academic and social activities, students engage in positive behaviors such as increased academic effort and more openness to diversity and social tolerance. Living learning community participation also can lead to increased interactions with peers and faculty members and to greater overall satisfaction with the college experience. This is significant for student retention, success and personal development (Zhao & Kuh, 2004; Inkelas, 2011). Several studies have found many positive outcomes of LLCs, including improved student performance, persistence, more institutional satisfaction, greater engagement in learning, and increased quality and quantity of learning (Stassen, 2003).

Living learning communities focus on community building by integrating academic and social experiences. By establishing a close network through residential proximity and a shared academic interest, members of LLCs are more likely to have a smoother transition to college life and have better persistence rates. They also report a great satisfaction with their college experience. The benefits of Living learning communities along with the need to increase retention of women in STEM majors, leads to the conclusion that a LLC for women in STEM majors is a necessity to help them persist in male dominated majors (Stassen, 2003).

The Need for Living Learning Communities for Women in STEM Majors

A LLC can provide the structured support, mentors, and role models that can help retain women in STEM through academic and social programming. By living in the same residential proximity, women in STEM majors can support one another through friendships, study groups, and a shared interest in STEM. Inkelas (2011) reports in various studies about women in STEM that LLCs show that participants are more likely to have a smoother social and academic

transition to college. They also report a higher confidence in their math and engineering courses than non-LLC women in STEM. Non-LLC participants were more likely to have lower self-confidence. This leads to an increased chance of dropping a course, doing worse in a course than expected, and feeling overwhelmed by homework (Inkelas, 2011).

Many factors can contribute to greater retention of women in STEM majors who participate in living learning communities. Through academic and social programming, LLC women can make connections with female STEM faculty and upper-class women in STEM majors. Such programming increases opportunities to have conversations with peers about academic issues and to receive faculty mentoring. It also allows for the chance to discuss the classroom climate with each other and other female mentors. This helps them realize that they are not alone in their experiences in the classroom. Living in a supportive residence hall climate can also lead to increased persistence of women in STEM majors (Inkelas, 2011). Lastly, by cohorting LLC members in their math, science, English and other significant first year courses, they are better able to study together and support one another in their academics. By creating a clear purpose, goal and a set of objectives based on successful living learning communities, a women in STEM LLC can provide a positive environment that fosters success for the women who participate.

Purpose, Goal, and Objectives of the UW-Platteville WiSTEM LLC

The overall purpose and goal of the University of Wisconsin-Platteville WiSTEM LLC is to provide a stimulating living learning environment for freshmen women. The LLC provides a support network for academics and everyday life that can contribute to the retention of undergraduate female students in STEM fields. The objectives are to develop a cohort identity

among LLC members, to help with the transitioning to college life and navigating higher education culture, and to develop identity and professional skill sets in LLC participants.

The first objective for the LLC is to help with the transitioning to college life and navigating higher education culture. This is accomplished by providing a support network for academics and everyday life; fostering a positive college environment; and providing strong, supportive relationships, both academic and social. Studies have shown that some of the positive outcomes of LLC's come from the relationships that develop through the natural socialization in the community (Stassen, 2003) Although specific social, professional, and academic programming is essential, the relationships that are formed because of the close proximity of the students due to the residential component helps the students with the transition to college life and the challenges of being in a male dominated major.

The second objective is to develop identity and develop professional skill sets in LLC participants. This is done by providing opportunities for and encouraging participation in, structured and non-structured networking, including peer mentoring, faculty advising and mentoring, and interacting with STEM professionals and alumni. Also, this is accomplished by creating a shared experience to serve the broader community through outreach and/or service activities. In addition, participants are educated about and empowered to face the challenges encountered by women in engineering, mathematics, and science fields.

The third objective is to develop a cohort identity among LLC members. A cohort is a group whose members share a significant experience at a certain period of time or have one or more similar characteristics. In the case of the WiSTEM LLC the women share the common identity of all choosing STEM majors. It is important in order to increase their chances of being successful college students that the women feel they are a valued member of a group. Often on STEM

focused campuses women are the minority on campus and in the classroom. It is not unusual for them to be the only woman or one of only a few women in their STEM classes. This can lead to feelings of isolation and not belonging. Women tend to avoid STEM careers and this is influenced by the cultural belief that science and math are for men only (Hill, Corbett, & St. Rose, 2010). Despite a 50% increase in enrollment of women in engineering in the last two years at UW-Platteville, men still outnumber women significantly. Women make up about 10% of engineering majors and 15.8% women in the College of Engineering, Math, and Science (UW-Platteville Institutional Research, 2013). This number does not include women in the College of BILSA which includes biology, animal science and agriculture majors.

The general gender make-up of the classroom is not easily overcome, but the WiSTEM LLC can provide support for these women in STEM. This is why a strong cohort identity is important. It allows the women to have a built in support system right in the residence hall where they live. This cohort identity is developed through a number of strategies.

One strategy is to provide a structure of support services, both formal and informal. The assignment of the student resident assistant (RA) is very intentional. It is imperative that (RA) is not only female, but is also a STEM major. By having a female STEM major as the RA, she is able to identify with what the LLC participants experience because she also has had or is having similar experiences. An effective RA is able to provide the structure of support needed by the members of the LLC. In addition it is helpful if the professional program manager of the LLC has a STEM degree in order to more closely identify with the obstacles a female STEM student faces. This, however, may not always be possible. More importantly, the female program manager should have the ability to engage students and make them comfortable with coming to her for support and advice. By building a relationship with the participants and establishing that

comfort level, the students are more likely to seek the director out for assistance. The director is better able to help them seek out services such as tutoring, counseling, writing centers, first year experiences office, and other resources on campus. The LLC participants also have the unique opportunity of supporting one another because of the proximity of their living arrangements. On a campus such as UW-Platteville where 65% of the population is male and only 10% percent of the females are in College of EMS majors (UW-Platteville Institutional Research, 2013), students not in the LLC are likely to have few female STEM majors living close to them. The natural consequence of living in the LLC is having that built in support system every day. The intentional structure of the community provides those formal and informal services to the students.

A second strategy is creating within the LLC an intellectually stimulating residential environment by connecting and sharing interests, passions, and academic disciplines among members of the LLC. Because all the LLC women have a strong propensity toward science and mathematics and take the same or similar courses, they can connect through these shared interests. A naturally occurring consequence of the community is that the women are able to share these interests and passions on a regular basis which leads to a strong support network and friendships. The women can see they are not the only ones going through the struggles and challenges of being a STEM major, something that both male and female students face in their STEM education. But the women may not be cognizant that the men are encountering the same challenges. Clemencia Cosentino de Cohen, a senior researcher at Mathematics Policy Research and a STEM expert states, “If women get a B, they think they are failing. A man gets a B, and he’s happy. They say they’re acing the class. Women who go into hard sciences, they’re very driven, they’re very high achieving, and if they’re not performing at that very top level, they

become discouraged, and they think that it [STEM field] is not for them" (Newlon, 2013, n.p.). Through the LLC, the women are available to each other when they need help with calculus, chemistry, or other classes they have in common. In a traditional co-ed residence hall setting at UW-Platteville the women may only have men to go to for help. Because of the cultural myth that women are not as good at science and math, seeking assistance from a male student can be intimidating and difficult for freshman female college students to do (Kane & Mertz, 2011). The environment of the LLC allows these women to realize that they are not the only ones facing these challenges.

Another strategy is encouraging engagement in the LLC, College of EMS, and the UW-Platteville campus community. The LEAP initiative lists student engagement as an essential learning outcome for college students (Kuh, 2008). A study by George Kuh, from the Indiana University Center for Postsecondary Research, shows that when students participate in educationally purposeful activities related to academic outcomes it is linked to higher grades and persistence from the first to second year of college in the same institution (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008).

Being a part of a living learning community is one form of engagement (Kuh, 2008). At UW-Platteville the LLC orientation at the beginning of the semester introduces female students to various student organizations and participants are encouraged to get involved. Many of the engineering students become actively participate in Society of Women Engineers (SWE) and several students in other majors are involved in other organizations related to their majors. Students are also strongly encouraged to utilize the Women in Engineering, Math and Science (EMS) Mentor Center which gives them opportunities to connect with junior and senior women in STEM majors. The mentor center is a place where students can do homework, use computers,

meet for study groups, or socialize with other women in STEM majors. The Women in EMS mentor program is another way to connect with upper class women. The program matches first and second year students with third year and beyond students in similar majors for mentoring. This program is promoted to the LLC members and many choose to participate.

The Women in EMS Program provides five outreach programs for girls in grades six through twelve. These programs give opportunities for the STEM women on campus to volunteer and be STEM role models to these young girls. Living learning community members are asked to volunteer for these programs. Through the WiSTEM LLC the participants have increased exposure to the many opportunities to engage in the campus community. This exposure, that other STEM women do not get, is done through the LLC Facebook groups, emails, signs in the residence hall, and conversations with the director, RA, and other LLC members. In addition to encouraging students to engage in university organizations and programs, a few academic related programs were developed exclusively for the LLC. Although participation was optional, and attendance tended to be lower for the academic programming compared to the social programming, it is believed that academic programming is an essential component of a living learning community. This kind of programming is linked to positive outcomes such as increased academic effort and personal and interpersonal development (Zhao & Kuh, 2004). It is hoped that with better promotion and planning, future attendance will increase when students recognize the value of the programs.

The fourth strategy is that students are offered a unique social experience where they can build relationships with LLC peers. The LLC provided numerous opportunities for social interactions among the participants. Many of the social interactions come from the friendships formed in the residence hall. Although the entire LLC may not become best friends, it was

observed that the women formed clusters of friends within the LLC. These friendships ultimately led to informal social interactions with each other. Other social experiences were intentional programming, often planned by the RA, the director, or collaboration between them. This programming is in addition to the programming that all RAs on campus are required to do as part of their job. The social programs offered were well attended and students' surveys showed that they would have liked more social activities. Most learning communities provide social programming beyond the academics and the classroom. Social activities provide a connection through the ongoing interactions with the same students for long periods and active participation in these out-of-class activities is likely to increase these connections. This is important for student retention, success, and personal development (Zhao & Kuh, 2004).

The final strategy is to provide cohort scheduling in math, English, chemistry, biology, engineering success skills, and the Women in Science and Engineering general education class. Cohorting students in the same classes allows them opportunities to spend more time engaging in intellectual activities together (Zhao & Kuh, 2004). Due to the complexities of scheduling at UW-Platteville and the fact that the WiSTEM LLC was the first learning community on campus and this had not been done before, the students were not cohorted into one class together. The intention was to make sure that the majority of LLC students shared at least two classes with at least two to five other LLC members. This would allow them the opportunity to get to know one another, support one another in the academic setting, and study together outside of class.

Chapter Three: Conclusions and Recommendations

Research strongly supports the need to increase the number of women in the STEM fields in order to be competitive in an increasingly global society, to diversify perspectives in the STEM fields and to increase markets for all segments of the population. Increasing the number of women in STEM will also make scientific research and innovation more vigorous and complete by providing a prospective different from a male's point of view. By not involving women in this development of designing and creating products, services, and processes, society cannot effectively meet the needs of half our population.

Due to stereotypes about women's abilities in STEM, many women are not choosing STEM careers because they do not think they are good enough in math and science to succeed in these fields. This leads to a disproportionately low number of women choosing STEM majors when they go to college. Studies show that girls do just as well in math and science in pre-college education, but their perception is that they cannot do as well as boys. Stereotype threat also causes women to avoid STEM because they are afraid of failing and being judged by their failures and confirming the stereotype that they cannot do math and science. Many of the fields such as engineering, physics, and computer science are not seen as socially redeeming careers that contribute to society. Women are more likely to be attracted to work that has a clear social purpose and contribute to the betterment of humankind. These STEM fields are falsely promoted as challenging, stressful, competitive, individualistic and only for men. Since women are attracted to professions that are collaborative and involve teamwork, engineering and other STEM professions need to be portrayed more accurately to attract women.

It is very important to retain young women who choose STEM majors when entering college because of the imbalance of women in these fields. It is important to provide female role

models, support, and mentoring to help them form a stronger commitment to and increase women's interest in STEM disciplines. By seeing other women in the profession and upper class peers who are succeeding, but yet may have struggled to get where they are, women are more likely to persist in STEM. Women are more critical of themselves than men and think they have to be the best math or science student to succeed. Mentoring programs, study groups, taking courses with friends, and having an advisor who is knowledgeable about issues of women in STEM are all retention initiatives that help women realize that they do not have to be the top student to succeed. The culture and pedagogy in STEM at the college level is competitiveness and individualism that can often be unappealing to women. Women prefer collaboration versus competition. A competitive environment can lead to more depression and lower self-confidence. This support to first and second year female STEM majors can be provided through programming done in a living learning community.

Living learning communities are a high-impact educational practice that benefits students from many backgrounds. Students share a common residence and a shared interest. The LLC creates a smaller community of support and friendship. It connects students to their academic and professional goals and also connects them through social activities that help them bond. This leads to increased student persistence, performance, institutional satisfaction, engagement in learning, and quality and quantity of learning.

A LLC can provide many of the initiatives that retain women in STEM through academic and social programming. It can also provide the support these women need from each other just from the consequence of them living in close proximity to one another. Studies of women in STEM LLCs show they are more likely to have a smoother transition to college, greater satisfaction, and better persistence rates. Living learning community programming helps the

women make connections with female STEM faculty and upper class women in STEM which in turn provides opportunities for support and conversations about issues women face in STEM. By cohorting the LLC participants, the women can study together and share experiences which in turn fosters success for the women.

The University of Wisconsin-Platteville is committed to retaining students. By establishing a Living Learning Community for freshmen women in STEM majors, UW-Platteville has demonstrated this commitment. The overall purpose and goal of the WiSTEM LLC is to provide for the freshmen women in STEM majors a stimulating living-learning environment, a support network that contributes to retention. The objectives are to develop a cohort identity, to help with the transition to college life and navigate higher education culture and to develop identity and professional skill sets. This is done through various strategies and programming that supports these objectives. The foundation that was built through the establishing of the first Living Learning Community at UW-Platteville helped support and retain many of the women of the WiSTEM LLC and will continue to do so in future cohorts of WiSTEM Living Learning Communities.

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APPENDIX A

Implementation

The Women in STEM Living Learning Community (WiSTEM LLC) at the University of Wisconsin-Platteville was established in the fall of 2012. The WiSTEM LLC is a cross-college initiative from the Colleges of Engineering, Math, and Science (EMS) and the College of Business, Industry, Life Sciences, and Agriculture (BILSA) and includes all majors that are Science, Technology, Engineering and Math focused. Freshman women interested in STEM majors from both colleges may participate. These majors include agricultural, animal science, biology, broad field science, chemistry, civil engineering, computer science, electrical engineering, engineering physics, environmental engineering, mathematics, general engineering, general science, industrial engineering, industrial technology, mechanical engineering, ornamental horticulture, reclamation, environment and conservation, soil and crop science, sustainable renewable energy systems, and technology education. The WiSTEM LLC is a program under the joint direction of the Women in Engineering, Math, and Science Program and the Department of Residence Life. A program manager from Women in EMS was assigned to recruit and develop programming for the LLC. A resident assistant was chosen by Residence Life who was a double major in chemistry and biology. This was an excellent fit for the LLC because chemistry is in the College of EMS and biology is in the College of BILSA. The RA had a connection to both colleges that made up the LLC.

Work began with recruiting incoming students to the LLC. It was decided that an invitation would be created and sent to all accepted women who were planning on majoring in one of the STEM majors on campus (Appendix B). The invitations were designed to look like a formal invitation, with the idea that the young women would know they were being asked to join something very special. A brochure was also developed and was given out to prospective female

students interested in STEM majors when they visited the college. Twenty-five incoming freshmen agreed to be a part of the first cohort of the WiSTEM LLC. Although this was a much smaller number than the organizers hoped (there was originally space for approximately fifty-six women) this number was a good size cohort for the first year. The LLC had twenty women from the College of EMS and five women from the College of BILSA.

Programming

It was decided that for the first year, the women would not have to pay a fee to be in the WiSTEM LLC as is often the case in living learning communities. (The 2013-2014 LLC required a $100 fee.) Often participants in LLC's have to pay a fee for programming of $100 - $200, depending on the university and LLC. A budget of $10,000 was provided for the first year for programming.

Programming in a LLC can be formal or informal and social or for professional development. The reason for the programming is to provide opportunities for community building and cohort development. It also helps with the transition to college life and provides a positive support network outside of the classroom. It is important that the program manager of the LLC establishes a rapport with the women. Ideally the program manager should have a STEM background, but it is not necessarily required. The program manager can be a mentor which was the case in the Platteville LLC. The mentor can offer advice, assistance, and as a STEM professional, perspective and understanding about navigating a STEM education.

The first informal activity was helping on move-in day. This was an opportunity for the program manager to meet the students and their parents and talk about plans for the LLC. The RA was also present to check the women in and help them get oriented to their new home.

The first formal activity was the wing orientation held the first week of classes. This provided an opportunity for formal introductions with the LLC members, the program manager, and the resident assistant. The orientation was preceded by an optional dinner at Glenview Commons and about half of the LLC attended. The orientation was a mandatory wing meeting and attendance was 100%. The program manager and RA did a fun, yet insightful, clicker presentation, adapted from a presentation from the University of Iowa Women in Science and Engineering Living Learning Community (Brus, 2012), that incorporated "get to know each other and fun multiple choice questions and rules about living in the residence hall." Examples of questions were "Why did you choose UW-Platteville?"; "What do you plan to study?"; "If we brought in the sorting hat from Harry Potter, which Hogwarts house would you be in?"; "Did you share a room during high school?"; and "What are you most scared of right now?". The questions were interspersed with the residence hall code of conduct and rules. Since answers were anonymous the women were free to be honest and forthcoming. The activity gave them an idea about what the women in the LLC are like, including their similarities, differences, goals, expectations and experiences. For example, 83% of the women did not share a room with a sibling in high school. This response gave the opportunity for discussions about communication and respect related to sharing a small residence hall room with another person. Seventy-four percent of respondents were most scared of classes being too hard. This question was intended to give them a sense that they are not alone in their worries about college. The responses and results are included in this paper (Appendix C).

The next event was a pizza party/meeting a couple of weeks after the students had a chance to get to know one another and get settle into the routines of college life. The purpose of the event was to get to know one another better and to develop community, along with

brainstorming what they were interested in doing as a group. The event was well attended and the girls came up with several ideas of what they wanted to do throughout the year.

One of the most successful professional development activities was the lunches with women professors. The LLC women were assigned groups of two to five students that shared a common free lunch time. All the women STEM professors were emailed and asked to go to lunch with one or more of the groups. The participation by the professors was excellent and each group was able to have at least one professor join them for lunch. Seventeen LLC members participated and nine professors. Several of the members discussed how valuable this experience was. One member when asked what she liked about being a member of the LLC said, "The lunches with the professors from our field. It was very helpful." Having lunch with professors gave them the opportunity to network and learn about other women who have made careers in STEM fields. It also gave them the chance to ask questions about the professors' education and career path and possibly their struggles as women in STEM.

Two social activities that took place at the end of the semester were a Thanksgiving dinner and a Pre-finals De-stressor Party the weekend before finals. The Thanksgiving dinner was coordinated by the RA and some of the members of the LLC. The residence hall where the LLC was located had a full kitchen available. The entire dinner was prepared by the members of the LLC and included typical holiday favorites such as turkey, stuffing, and mashed potatoes. As a stress reliever and break from studying, the women got to attend a party the Friday before finals. It included dinner of sub sandwiches and chips, cookie decorating, and, appropriate for a group of largely engineer majors, gingerbread house building. Much to the excitement of the women, a massage therapist came and provided ten minute neck massages. The evening was well attended and provided a chance to relax, socialize, and have some fun before finals week.

The second semester opened with an exciting game night held at the home of the program manager. The women all brought games and food to share. The Women in Engineering, Math, and Science (WEMS) Program student assistants and the Society of Women Engineers (SWE) executive board were invited. These are two groups that work closely with the LLC. The WEMS students assist the program manager with recruitment, planning and coordinating of the LLC. Since the majority of the women in the LLC are engineering majors, many of them are members of SWE. It is one of the objectives of the WEMS Program to collaborate and coordinate events planned within all of these groups in order to promote capacity building within the unit. This event included all these groups in order to help support the community that the WEMS program strives to develop.

Two professional and social development events were also held spring semester. The first was called a Professor Meet and Greet. This event was a formal dinner with male and female STEM professors. The evening was an opportunity to share with the professors what a living learning community is and its purpose. The women also shared what the LLC means to them and how it has helped support them in their transition to college and their educational pursuits. It was another chance for the women to network and get to know some of the faculty on a personal level. The most impressive moment of this event occurred right before most of the professors arrived. The women showed up early as a group and took the initiative to divide themselves up amongst the several round tables in the room. The significance of this one small act was that it showed that the women valued this opportunity and understood the importance of the event. Instead of seating themselves together and staying in their comfort zone, they knew that they needed to sit with the professors and take advantage of an opportunity that few students on campus get to have.

The other professional development event was a Professional Etiquette Dinner put on by the Career Center. This was an evening of social, professional, and dining etiquette as well as networking with area business representatives. The women got to practice their mealtime etiquette, get answers to networking and etiquette dilemmas, learn the art of introductions, and learn about proper attire for business dinners. They also received tips regarding how to move gracefully though the world of networking at receptions and meal events while projecting a polished professional image.

The year ended with two social events. The first event was a trip to Dubuque, Iowa where the women were treated to a professional manicure or pedicure, a movie, and dinner at Olive Garden. It was a relaxing day towards the end of the semester and everyone enjoyed getting to do something outside of Platteville. The year was wrapped up with a picnic of grilling hamburgers, brats, and hotdogs. The women talked about their finals coming up, plans for summer, and how quickly their first year of college had gone by!

Many events and activities were planned and well attended throughout the year, but these do not include the many informal interactions and friendships developed within the residence hall. It is natural that the friends college students make their first year are often the people with whom they share a residence hall. But these women have that extra connection of sharing an interest in STEM. The WiSTEM LLC provides an environment that is social but yet beneficial to the needs of a STEM student. These needs may include a quiet study area, a mutual need to spend long hours studying, and general empathy for each other and the challenges of being women in STEM majors. The advantage of having other students around who are taking similar, if not the same courses, leads to study groups and tutoring of each other within the LLC. One of the members discussed her feeling about living in the LLC in the mid-year assessment by saying,

"I love working with students in similar disciplines. We can commiserate first, and then get back to supporting each other in our courses." And another one summed it up quite well by stating, "I like having people around me that are easy to talk to about the different courses we are taking. It made it a lot easier to make friends when we all already had something in common" (Appendix F).

Cohort scheduling, study groups and tutoring

One of the challenges of the first year was cohort scheduling. Since this was the first LLC on the UW-Platteville campus, finding an efficient way to schedule the women in classes together was not easy. As mentioned in Chapter 2, through cohort scheduling, the women have the opportunity to get to know one another, support each other in the academic setting, and study together outside of class because not only are they sharing the same classes, but they share the same sections and professor. The intention was to make sure that the majority of LLC students shared at least two class sections with at least two to five other LLC members. With the support of department chairs, seats in certain sections were held for the LLC women. When they attended their freshmen orientation, they were strongly encouraged to sign up for the designated sections. (The system for future cohorting is continuously being refined and improved to make it more efficient and easier for the staff and the students.) They were cohorted in math, English, chemistry, biology, engineering success skills, and the Women in Science and Engineering general education class. The cohorting was optional, but all of the women chose to participate in cohorting. Feedback from the women about sharing classes was generally very positive, and they felt it was a definite advantage of living in the LLC.

In addition to cohorting, the students were encouraged to form study groups with common courses they shared in STEM. During the orientation the students were asked to sign a

sheet that gave permission to share the courses they were taking with other students taking the same courses. This was a voluntary activity and they were not required to sign the release. The program manager matched students' math, English, chemistry, and any other common STEM courses that they were taking. An email was sent out to each group of students who shared a common class. For example, every student who was taking Calculus I got an email saying who was also taking Calculus I and what their residence hall room numbers were. Not all the students in Calculus I were cohorted in the same section so this gave them an opportunity to form study groups with students who were taking the same class but different sections. After the emails were sent out, the students were responsible for setting up the study groups amongst themselves. In the end of the year assessment, 58% of the students stated they formed study groups with LLC members. That assessment did not specifically ask if they formed study groups because of this process. When asked about what she liked about living in the LLC one of the members stated, "I liked that we all got along pretty well and that forming study groups was easy since we lived on the same wing." The proximity of other STEM majors in their wing was an advantage when it came to studying.

Another advantage to being a member of the LLC is math tutoring in the actual residence hall for LLC members only. Twice a week for two hours a tutor was available to the students free of charge. Almost 53% of the students said they used the tutoring one to three times. Although the attendance for the tutor was not as high as expected, it could be that the small size of the LLC was not enough to support consistent attendance at tutoring. It was decided to continue the tutoring for the 2013-2014 year with a larger cohort and attendance has increased.

Assessment

The original enrollment of the WiSTEM LLC was twenty-five women. Due to personal reasons, one of the members left UW-Platteville early in the second month of classes. By the end of the year, twenty-four members were still in the LLC. The level of participation at programs planned for the LLC varied from member to member, but most events planned by the program manager were well attended with an average of 15.7 members or 65% of the members attending each event. Seventeen of the twenty-four women were extremely engaged and each attended 60% or more of the events. Three attended 100% of the events. The rest of the women attended 40% or fewer events (Appendix D). Prior to the start of the fall term, outcomes were written for the LLC (Appendix E). One outcome was that 80% of participants attended 75% of the programs offered. There were almost 71% of the women that attended 60% of the programs. This outcome was not met but since this was the first year, many of the outcomes were just estimates.

The outcomes were used to write the assessment given at the end of the year (Appendix G). Eighteen of twenty-four participants filled out the survey although one person did not complete the survey. Overall, the results of the assessment showed that the majority of the outcomes were met and the goals were often well above what was set. For example one of the outcomes was that 50% of the students would feel more comfortable in academic and social interactions in the classroom than at the beginning of the year. The students responded with 94.45% and 88.8%, respectively, feeling a great deal, considerably, or moderately more comfortable at the end of the year. Another asked "to what extent has your participation in the LLC helped with your transition into college?" Responses indicated that 83.33% of participants felt the LLC helped a great deal, considerably, or moderately in their transition. It was important to assess that living in the LLC helped at least 50% of the participants to connect with services

on campus. According to the assessment, it helped 94.12% of the students surveyed connect with these services.

Although the majority of the survey results were extremely positive, there were some results that could be interpreted in different ways. When asked, "I have a greater sense of belonging to the university than my non-LLC peers" 47.05% of students surveyed strongly or moderately agreed, 47.06% neither agreed nor disagreed with this statement, and 5.88% moderately disagreed. In general, this is a positive answer, but it can be construed that either 47.06% didn't know if they had a greater sense of belonging or maybe had an equal sense of belonging. A few of the survey questions were just under the 80% goal but were within 10% of that goal.

Two important outcomes of the WiSTEM LLC is to have increased retention rates over non-LLC participants in STEM majors and have increased rates of retention in STEM majors over non-LLC participants after living in the LLC for one year. Because this cohort is small, that will be better assessed after several years of cohorts and data. Of the twenty-four women in the first cohort, two left UW-Platteville and their major is unknown. Both participants were not engaged in the programming of the LLC and attended very few events. One participant changed her major to a non-STEM major, but she was a very active participant. The other 21 participants are still attending UW-Platteville and are STEM majors (Appendix H). Ten of the freshmen participants chose to be a part of the sophomore WiSTEM LLC that started in the fall of 2013.

Overall the majority of outcomes were met and the assessment results were very positive. The comments made by the women about their experiences were encouraging. The women liked having other STEM women living in their wing and one woman said, "I liked that there were girls that I could always talk to about my classes, like English or math." Many strong

relationships were formed in the LLC that will continue to help support the women throughout their college career. This can be summed up with this comment from another member, "I became friends with a great group of girls!! I am extremely happy that I can trust them with anything, as well as, approach them with either academic or personal topics" (Appendix G).

APPENDIX B

Invitation sent to admitted women students interested in STEM majors

Engineering and Mathematics Living Learning Community
Where Women Prosper

The University of Wisconsin-Platteville Women in STEM would like to invite you to become a part of our Living-Learning Community. The WiSTEM LLC is a stimulating living environment where you and other women interested in STEM fields build strong personal and academic connections with each other and UW-Platteville faculty and professionals. Located on the first floor of Wilgus Hall, the WiSTEM LLC is focused on providing you with a nurturing environment, a support network for academics and everyday life, and an exciting college experience. Our Living-Learning Community will help you in your transition to college life and provide an opportunity for you to develop meaningful friendships with other women in STEM who have similar academic goals.

What benefits are there for me to participate in a LLC?

As a resident of the WiSTEM LLC, you will have many unique opportunities:

- Shared classes with other women in the WiSTEM LLC
- Enhanced academic and social opportunities
- Greater involvement in learning
- Increased satisfaction with your UW-Platteville experience
- Improved academic focus
- Better connections with classmates who may be in the same classes and programs
- Stronger academic relationships and connections with faculty members
- Extended faculty office hours in Wilgus Hall
- Focused support from a Resident Assistant who is also a STEM major

What are some of the activities and programs that I could be involved with?

- Student study groups
- Faculty office hours in Wilgus Hall
- Network with local professionals through various activities
- Interactive meetings and events with faculty and professionals
- Women in STEM Mentor Program
- Shopping trips in Platteville, Dubuque, Madison, etc.
- Theatre and concert performances
- Presentations and workshops on academic involvement, community service, research
- opportunities, career exploration, résumé building and interviewing
- Social activities such as potlucks, cookie decorating, carving pumpkins and ice cream socials
- Community service activities such as tutoring at the local middle and high schools
- Student organization meetings

What makes me eligible for the program?

Freshman or transfer female student in fall 2012 majoring in one of the following programs:

Animal Science	Industrial Technology
Biology	Industrial Engineering
Chemistry	Mathematics
Civil Engineering	Mathematics – Secondary Education
Computer Science	Mathematics – Actuarial
Electrical Engineering	Mathematics – Finance
Engineering Physics	Mechanical Engineering
Environmental Engineering	Microsystems and Nanotechnology
General Engineering	Ornamental Horticulture
General Science	Reclamation
Soil and Crop Science	Technical Education

I'm concerned about time management. Will living in the LLC take more time?

Becoming a part of our WiSTEM LLC will not take any more time than non-participating students devote to being successful at UW-Platteville. In fact, the LLC can help you develop better time management skills by providing built-in opportunities for study groups and making new friends with similar academic interests. Instead of having to meet a study group across campus, you are able to easily get together right in your shared residence hall. Forgot your textbook for a study session? No problem, your room is just down the hall!

Why is a living and learning community important?

The Association of American Colleges and Universities and the Leap Initiative both identify residential living-learning communities as high impact educational practices. High impact educational practices are active learning practices that have been widely tested and have been shown to be beneficial for college students from many backgrounds. Educational research suggests increased rates of student retention and student engagement when students participate in living-learning communities.

This program is for me. What do I do to get signed up?

- Fill out the included postcard along with your regular housing application to reserve your place in the WiSTEM living-Learning Community.
- Indicate Wilgus Hall as your number one preference on your housing application. If you have already turned in your housing application, we will make sure that Wilgus is your first choice.
- Submit your housing application and $100 pre-payment for the housing contract
- Register by Friday, Jan. 27, 2012.
- Applications are accepted on a first come first serve basis for any conditionally admitted students.

APPENDIX C

Results of orientation power point

Turning Results by Question

Session Name: New Session 9-4-2013 7-52 PM

1.) Why did you choose UW-Platteville? (multiple choice)

	Responses (percent)	Responses (count)
It's a family tradition	0.00%	0
For a specific academic program	37.50%	9
It has a great atmosphere	20.83%	5
Tuition is affordable!	37.50%	9
WiSTEM LLC!	4.17%	1
Totals	100%	24

2.) What do you plan to study at UW-Platteville? (multiple choice)

	Responses (percent)	Responses (count)
S- Sciences	25.00%	6
T- Technology	0.00%	0
E- Engineering	66.67%	16
M-Mathematics	8.33%	2
Totals	100%	24

3.) Are you a… (multiple choice)

	Responses (percent)	Responses (count)
Dog person	70.83%	17
Cat person	25.00%	6
Fish person	4.17%	1
Totals	100%	24

4.) Why did you choose UW-Platteville? (multiple choice)

	Responses (percent)	Responses (count)
It's a family tradition	0%	0
For a specific academic program	32.14%	9
It has a great atmosphere	21.43%	6
Tuition is affordable!	32.14%	9
WiSTEM LLC!	14.29%	4
Totals	100%	28

5.) What do you plan to study at UW-Platteville? (multiple choice)

	Responses (percent)	Responses (count)
S- Sciences	14.29%	4
T- Technology	0%	0
E- Engineering	85.71%	24
M- Mathematics	0%	0
Totals	100%	28

6.) Are you a… (multiple choice)

	Responses (percent)	Responses (count)
Dog person	53.57%	15
Cat person	32.14%	9
Fish person	14.29%	4
Totals	100%	28

7.) Would you rather… (multiple choice)

	Responses (percent)	Responses (count)
Play a game with friends	64.29%	18
Curl up with a good book	32.14%	9
Ride a bike	3.57%	1
Totals	100%	28

8.) If you could describe yourself as a bird, which of the following would you be? (multiple choice)

	Responses (percent)	Responses (count)
A falcon: I'm fierce, strong willed, and k how to get what I want	25%	7
A flamingo: I'm quirky, like to stand out, and not afraid to be different	17.86%	5
An owl: I'm quiet, thoughtful, and like to fit in with those around me	57.14%	16
Totals	100%	28

9.) If we brought in the sorting hat from Harry Potter, which Hogwarts house would you be in? (multiple choice)

	Responses (percent)	Responses (count)
Gryffindor: Courage, bravery, and loyalty	60.71%	17
Hufflepuff: Hard work, tolerance, and fair play	10.71%	3
Ravenclaw: Intelligence, creativity, and wit	17.86%	5
Slytherin: Ambition, cunning, and leadership	10.71%	3
Who is Harry Potter?	0%	0
Totals	100%	28

10.) How big was your hometown? (multiple choice)

		Responses (percent)	(count)
Don't blink, you might miss my town! (up to 5,000)		32.14%	9
We were lucky to have one stoplight… (5,000 to 10,000)		14.29%	4
3. We have a Wal-mart! (10,000-100,000)		46.43%	13
4. Platteville is culture shock!! (100,000 and up)		7.14%	2
	Totals	100%	28

11.) How many siblings do you have? (multiple choice)

		Responses (percent)	(count)
I'm an only child		0%	0
I have one sibling		53.57%	15
I have two siblings		17.86%	5
I have three or more		28.57%	8
	Totals	100%	28

12.) Did you share a room during high school? (multiple choice)

		Responses (percent)	(count)
Nope, I was Queen of the Castle!		64.29%	18
Oh yes, I have always shared my room		14.29%	4
Yes, but not always		21.43%	6
	Totals	100%	28

13.) Did you have your own bathroom in high school? (multiple choice)

		Responses (percent)	(count)
Of course I did! I need a LOT of mirror time, I'm worried about sharing		7.14%	2
I had my own, but I'm not worried about sharing		14.29%	4
I've always had to share a bathroom		78.57%	22
	Totals	100%	28

14.) How do you like to study? (multiple choice)

	Responses (percent)	Responses (count)
I need absolute quiet and generally study alone	35.71%	10
I like to have music or the TV on while I study	53.57%	15
3. I prefer studying with a group of friends	7.14%	2
4. Study…what's that?	3.57%	1
Totals	100%	28

15.) Are you a… (multiple choice)

	Responses (percent)	Responses (count)
Morning person	32.14%	9
Night owl	42.86%	12
As long as I get my coffee, I can be anything	25%	7
Totals	100%	28

16.) How much International experience have you had? (multiple choice)

	Responses (percent)	Responses (count)
My feet have never left U.S. soil	50%	14
I have travelled to countries outside of the U.S.	42.86%	12
I have studied in a country other than the U.S.	3.57%	1
I have lived in a country other than the U.S.	3.57%	1
Totals	100%	28

17.) How much experience do you have with a second language? (multiple choice)

	Responses (percent)	Responses (count)
I studied a language other than English in high school, but I'm far from fluent	92.86%	26
I am bilingual, English and another language	7.14%	2
My first language is not English, but I am learning quickly!	0%	0
4. I speak three or more languages fairly fluently	0%	0
Totals	100%	28

18.) Have you ever felt bullied or disrespected by others? (multiple choice)

		Responses (percent)	(count)
No, I've always felt that others treated me fairly		10.71%	3
Once or twice, but it was never a big deal		50%	14
Yes, it has happened on many different occasions		39.29%	11
	Totals	100%	28

19.) Do you have a social networking page? (multiple choice)

		Responses (percent)	(count)
Yes!		96.43%	27
Not yet…		3.57%	1
Nope, not going to happen		0%	0
	Totals	100%	28

20.) Have you ever had something mean written about you on a social networking page? (multiple choice)

		Responses (percent)	(count)
Nope, never had to worry about it		60.71%	17
Yes, but only once or twice		39.29%	11
Yes, I have had to deal with it more than a few times		0%	0
	Totals	100%	28

21.) Have you ever written something mean about another person on a social networking page? (multiple choice)

		Responses (percent)	(count)
Nope, never felt like I needed to		85.71%	24
Yes, but only once or twice when I was really, really mad		14.29%	4
Yes, I like being able to trash people I dislike this way, instead of face-to-face		0%	0
	Totals	100%	28

22.) If you could choose one of these superpowers, which would you choose? (multiple choice)

		Responses (percent)	(count)
The ability to fly		78.57%	22
The ability to be invisible		21.43%	6
	Totals	100%	28

23.) What are you most scared of right now? (multiple choice)

		Responses (percent)	(count)
Not knowing anyone at UW-Platteville		7.14%	2
Classes being too hard		85.71%	24
Living in the residence hall		0%	0
Being the only woman in a class		7.14%	2
	Totals	100%	28

APPENDIX D

Program attendance

Student	Orientation	Programming Meeting	Thanksgiving Dinner	Lunches with Professors	Prefinals De-Stressor Party	Game Night	Professor Meet and Greet	Ettiquette Dinner	Dubuque	Picnic	Totals per Member	Percent
1	P	P	P	P	P	P	A	A	A	P	7	70%
2	P	P	P	P	P	P	A	A	A	P	7	70%
3	P	P	P	A	A	P	A	P	A	P	6	60%
4	P	P	P	P	P	P	P	A	A	P	8	80%
5	P	A	A	A	A	P	A	A	A	A	2	20%
6	P	P	P	P	A	A	A	A	A	A	4	40%
7	P	P	P	A	P	A	A	A	P	P	6	60%
8	P	P	Left school								2	100%
9	P	P	P	P	P	A	A	A	P	A	6	60%
10	P	P	A	P	P	P	P	P	A	P	8	80%
11	P	A	A	A	A	A	A	A	P	P	3	30%
12	P	P	P	P	A	P	P	A	P	P	8	80%
13	P	A	A	A	A	A	A	A	A	A	1	10%
14	P	P	P	P	P	P	P	P	P	P	10	100%
15	P	P	P	P	P	P	P	A	A	A	7	70%
16	P	P	P	P	P	P	P	P	A	A	8	80%
17	P	P	P	P	P	P	P	A	P	P	9	90%
18	P	P	P	P	P	P	P	P	P	P	10	10%
19	P	A	A	A	A	A	A	A	A	A	1	1%
20	P	P	A	A	P	A	A	A	A	A	3	3%
21	P	P	A	P	P	A	A	A	A	A	4	4%
22	P	P	P	P	P	P	P	A	P	P	9	9%
23	P	P	P	P	P	P	P	P	P	P	10	100%
24	P	P	P	P	P	P	P	A	P	P	9	90%
25	P	P	P	P	P	P	P	A	P	P	9	90%
	25	**21**	**17**	**17**	**17**	**16**	**12**	**6**	**11**	**15**		
	100%	**84%**	**71%**	**71%**	**71%**	**67%**	**50%**	**25%**	**46%**	**63%**		
	Average Attendance				**15.7**							
	Average Percent Attendance				**65%**							

APPENDIX E

UNIVERSITY OF WISCONSIN
PLATTEVILLE
WOMEN IN STEM
LIVING-LEARNING COMMUNITY

WiSTEM LLC for Freshmen
Program Overview

Program Objectives

The overall purpose and goal of the University of Wisconsin-Platteville Women in STEM Living-Learning Community is to provide a stimulating living-learning environment for freshmen women. The LLC provides a support network for academics and everyday life that contributes to the retention of undergraduate female students in STEM fields.

1. Develop a cohort identity among LLC members by
    - providing a structure of support services, both formal and informal;
    - creating an intellectually stimulating environment by connecting and sharing interests, passions or academic disciplines with members of the LLC.
    - cultivate strong, supportive relationships, both academic and social;
    - encouraging engagement in the LLC, College of EMS, and the UW-Platteville campus community;
    - offering students a unique social experience where they can build relationships with LLC peers;
    - offering cohort scheduling in math, English, chemistry, engineering success skills, and Women in Science and Engineering general education class.

2. To help with the transition to college life and navigating higher education culture by
    - providing a support network for academics and everyday life;
    - fostering a positive college environment;
    - providing strong, supportive relationships, both academic and social;

3. Develop identity and professional skill sets in LLC participants by
    - providing opportunities and encourage participation in structured and non-structured networking including peer mentoring, faculty advising and mentoring, and interactions with STEM professionals and alumni;
    - creating a shared experience to serve the broader community through outreach and/or service activities.
    - educating participants about and empowering participants to face the challenges encountered by women in engineering, mathematics, and science fields.

Program Description

The Women in STEM Living-Learning Community is for freshmen women who are majoring in any of the STEM focused majors from the College of EMS and the College of BILSA and share a common residence. In the College of EMS, this includes all the engineering disciplines, broad field science, chemistry, computer science, mathematics, general science, and sustainable renewable energy systems. In the college of BILSA, this includes agricultural education, animal science, biology, industrial technology, ornamental horticulture, reclamation, environment, and

conservation, soil and crop science, and technology education. The WiSTEM LLC provides programming that supports the transition to college life and connects the women in academic and social competence while building a strong STEM co-hort.

Program Participation
This program is for first year female students. Capacity is based on number of rooms in the wing selected for the living-learning community.

Program Planning & Timeline
Programming should be a mixture of social and professional/personal development activities. Typically one activity per month will be planned that is either social or professional development type activities.
Proposed activities (subject to change):

1. September: Orientation and pizza party; EMS Mentor Program (as mentees)
2. September: Career Fair Preparation
3. Sept – Nov: Lunches with STEM Professors
4. October: Hayride, horseback riding, and/ or a pumpkin patch with freshmen LLC
5. November: Thanksgiving Dinner
6. December: Pre-Finals De-stressor Party
7. February: Game Night with Freshmen LLC, SWE Exec, and WEMS staff
8. March: Etiquette Dinner
9. April: Professor Meet and Greet
10. May: Trip to Dubuque and End of Year Picnic

Other: Promote all SWE events, STOP the Hate Presentations, and other professional/personal development presentations on campus.
Outreach and Campus Service Opportunities: Volunteer for the Thermo Fisher Women in Engineering Career Day, Sky's the Limit, or Pioneering Your Future which are all STEM focused outreach programs.

Program Costs
The budget for the program is $100 per participant.

Program Assessment

1. Student Surveys: Pre-Assessment, Mid-Year Assessment, and Post- Assessment

Program Outcomes

As a result of living in the WiSTEM LLC participants will

1. have increased retention rates over non-LLC participants in STEM majors after living in the LLC for one year.

2. have increased rates of retention in STEM majors over non-LLC participants after living in the LLC for one year.

3. be able to identify resources available on campus for academic support, leadership/involvement, personal health and wellness, or undergraduate enhancement.

4. have increased GPA over non-LLC participants.

5. share at least one class with other LLC participants.

At least 80% of WiSTEM LLC participants will

1. report positive satisfaction from living in the LLC.

2. report positive satisfaction that the LLC helped with the transition in the college life by providing a support network for everyday life.

3. report positive satisfaction that the LLC helped with the transition in the college life by providing a support network for academics.

4. more likely to engage in academic interactions in the classroom.

5. more likely to apply social skills in academic interactions outside of the classroom.

6. agree or strongly agree that the LLC fostered a positive college environment.

7. report that the LLC provided above average sense of community and belonging.

8. attend 75% of academic programs offered for the LLC.

9. attend 75% of social programs offered for the LLC.

10. participate in one community service project per semester developed by the LLC participants.

11. indicate that the LLC provided strong, supportive academic relationships.

12. indicate that the LLC provided strong, supportive social relationships.

13. recognize increased understanding of the importance of diversity (Living in the LLC increased the my understanding of the importance of diversity.

14. demonstrate that the LLC helped participants build personal relationships with other LLC participants.

15. agree or strongly agree that co-hort scheduling helped with academic connections.

16. utilize tutoring services (WATR) offered in the LLC.

At least 80% of WiSTEM LLC participants who chose to participate in the mentor program will

1. agree or strongly agree that participating in the WEMS mentor program provided a strong support network.

2. report positive satisfaction in the WEMS mentor program.

Over 50% of WiSTEM LLC participants will

1. feel comfortable or very comfortable in academic interactions in the classroom.

2. feel comfortable or very comfortable in social interactions in the classroom.

3. feel more comfortable in social interactions in the residence hall.

4. participate in study groups either formal or informal.

5. utilize tutoring services (WATR) offered in the LLC.

6. participate in the WEMS mentor program.

7. seek support from 1-2 services and resources that are available within the LLC and the campus.
   (Women in EMS Program, WATR, Office of Multicultural Student Affairs, EMS Advising Office, Counseling Services, First year experience, Services for Students with Disabilities, SAS Seminars, PAL Program, ASC, Math Learning Center, Student Health Services, Student Support Services, Women's Center, etc.)

8. indicate participation in structured networking opportunities including peer mentoring, faculty advising and mentoring, interactions with STEM professionals and alumni, career day.

9. participate in at least one SWE event.

Assessment:

1. Student Surveys: Pre-Assessment, Mid-Year Assessment, and Post- Assessment

Programs and Action Items:

1. Welcome Letter and Introductions via email

2. Cohort scheduling in English 1130

3. Orientation: first week of classes
   - Permission slip to set up study groups according to math placement
   - Clicker Activity

- Code of Conduct
- Brainstorm kinds of activities girls would like to plan: social, academic, and service

4. Set up study groups according to math placement

5. WATR tutors: Math tutor in the LLC; Chemistry tutor in Otts both semesters

6. Programming
    - Orientation and clicker activity (September)
    - Get to know you Pizza Party (October)
    - Halloween Party (October)
    - Color Party (October)
    - Soup Dinner (October)
    - Thanksgiving Dinner (November)
    - Small Group Lunches with Women Professors in STEM (November-December)
    - Pre-Finals De-stressor and Holiday Party (December)
    - Game Night with SWE and WEMS Student Assistants (February)
    - Steve's Pizza and a Movie (March)
    - Professor Meet and Greet Banquet (April)
    - Pre-Finals De-stressor and End of Year Party (May)

APPENDIX F

Survey data mid-year assessment freshmen WiSTEM LLC 2012-2013

Questions			Comments	Results		
Q1. If you were to join a WiSTEM LLC for sophomores and transfer students, what residence hall would you prefer? Rank the order of preference-Dobson						
Count	Percent					
5	22.73%	1				
9	40.91%	2				
2	9.09%	3				
4	18.18%	4				
2	9.09%	5				
22	Respondents					
Q2. If you were to join a WiSTEM LLC for sophomores and transfer students, what residence hall would you prefer? Rank the order of preference - McGregor						
Count	Percent					
8	34.78%	1				
5	21.74%	2				
5	21.74%	3				
3	13.04%	4				
2	8.70%	5				
23	Respondents					
Q3. If you were to join a WiSTEM LLC for sophomores and transfer students, what residence hall would you prefer? Rank the order of preference-Rountree Commons						
Count	Percent					
1	4.55%	1				
1	4.55%	2				
5	22.73%	3				
2	9.09%	4				
13	59.09%	5				
22	Respondents					
Q4. If you were to join a WiSTEM LLC for sophomores and transfer students, what residence hall would you prefer?Rank the order of preference- Bridgeway Commons (New residence hall: cost will be similar to Rountree)						
Count	Percent					
1	4.35%	1				
7	30.43%	2				
4	17.39%	3				
9	39.13%	4				
2	8.70%	5				
23	Respondents					

Q5. If you were to join a WiSTEM LLC for sophomores and transfer students, what residence hall would you prefer? Rank the order of preference - Southwest Hall				Goal	Percent Positive	Percent Negative
Count	**Percent**					
8	34.78%	1				
1	4.35%	2				
7	30.43%	3				
4	17.39%	4				
3	13.04%	5				
23	Respondents					
Q6. Would the cost of one of the higher priced residence halls effect your decision to not be in the LLC?				Goal	Percent Positive	Percent Negative
Count	**Percent**					
15	65.22%	Yes				
8	34.78%	No				
23	Respondents					
Q7. Would you be interested in a second year LLC for sophomores and transfer students?				Goal	Percent Positive	Percent Negative
Count	**Percent**				95.65%	4.35%
9	39.13%	Yes				
1	4.35%	No				
13	56.52%	Maybe				
23	Respondents					
Q8. If a second year LLC is offered for sophomores and transfer students, do you				Goal	Percent Positive	Percent Negative
Count	**Percent**				34.78%	65.22%
8	34.78%	Yes				
15	65.22%	No				
23	Respondents					
Q9. During the fall semester, did you form any study groups with LLC members?				Goal	Percent Positive	Percent Negative
Count	**Percent**				52.17%	47.83%
12	52.17%	Yes				
11	47.83%	No				
23	Respondents					
Q10. In what classes did you form study groups with LLC members? (Check all that apply)				Goal	Percent Positive	Percent Negative
Count	**Respondent %**	**Response %**				
12	52.17%	36.36%	Math			
8	34.78%	24.24%	Chemistry			
3	13.04%	9.09%	English			
2	8.70%	6.06%	Biology			
8	34.78%	24.24%	Other (please specify)			
	Count	**Percent**				
	1	12.50%	GE 1000			
	1	12.50%	i didn't have any study groups			
	1	12.50%	Intro to Animal Science			
	1	12.50%	Music Appreciation			
	1	12.50%	none			
	1	12.50%	None			
23	Respondents					
33	Responses					

Q11. If you shared a course with any LLC members, did you find that beneficial?				Goal	Percent Positive	Percent Negative
Count	**Percent**				73.91%	4.35%
17	73.91%	Yes				
1	4.35%	No				
5	21.74%	I didn't share any classes				
23	Respondents					
Q12. How many times did you utilize the math tutor in the LLC?				Goal	Percent Positive	Percent Negative
Count	**Percent**				34.79%	52.18%
10	43.48%	0				
5	21.74%	1 to 3				
1	4.35%	4 to 6				
2	8.70%	More than 7				
2	8.70%	Didn't know about it				
3	13.04%	Didn't take a math class				
23	Respondents					
Q13. How many times did you utilize the chemistry tutor in Ottensman Hall?				Goal	Percent Positive	Percent Negative
Count	**Percent**				13.04%	47.83%
9	39.13%	0				
3	13.04%	1 to 3				
0	0.00%	4 to 6				
0	0.00%	More than 7				
2	8.70%	Didn't know about it				
9	39.13%	Didn't take a chemistry class				
23	Respondents					
Q14. Of the following activities, which ones did you really enjoy? (Check all that a				Goal	Percent Positive	Percent Negative
Count	**Respondent %**	**Response %**				
8	34.78%	8.99%	Orientation (Clicker Activity)			
13	56.52%	14.61%	Pizza Party			
7	30.43%	7.87%	Coloring Night			
10	43.48%	11.24%	Soup Dinner			
3	13.04%	3.37%	Halloween Party			
4	17.39%	4.49%	Game Night with SWE			
14	60.87%	15.73%	Thanksgiving Dinner			
14	60.87%	15.73%	Lunches with professors			
16	69.57%	17.98%	Holiday Party			
23	Respondents					
89	Responses					

Q15. What do you like about being a member of the LLC?				Goal	Percent Positive	Percent Negative
Count	**Percent**					
19	100.00%					
	Count	**Percent**				
	1	5.26%	All of the girls got along very well and Kim is awesome!!			
	1	5.26%	Being in the LLC meant that I ended up matched with a roommate who was also pursuing engineering, which turned out to be a great match as well as a good friend and study buddy. It was nice for the LLC to be located on the first floor, as well as in a dorm that is located pretty centrally on campus. The LLC is also generally rather quiet, and that was nice, so I could study in my room and not be overly distracted.			
	1	5.26%	having girls that are going through the same things i am :) it was nice to live so close to those girls!			
	1	5.26%	I like having people around me that are easy to talk to about the different courses we are taking. It made it a lot easier to make friends when we all already had something in common.			
	1	5.26%	I like knowing all the girls on campus that have similar classes to me so that I am able to get help if I need it.			

	1	5.26%	I like that I'm surrounded by a group of girls who are supportive and encouraging to one another and our in my same field.			
	1	5.26%	I like the sense of community on our wing.			
	1	5.26%	I liked that we had many opportunities to interact with each other.			
	1	5.26%	I love working with students in similar disciplines. We can commiserate first, then get back to supporting each other in our courses.			
	1	5.26%	I met a lot of girls that are willing to help me in my courses.			
	1	5.26%	I really like the people that I have met and the fact that I can ask anyone for help and not be turned away			
	1	5.26%	its rather helpful.			
	1	5.26%	Know more people within WSTEM			
	1	5.26%	Respectful residents around me with common interests.			
	1	5.26%	The advantages of studying with others in my hall.			
	1	5.26%	The benefits of knowing your neighbors more than what I would in a regular dorm.			
	1	5.26%	The connections you form with people who have similar interests and being able to help each other out with classes.			
	1	5.26%	The lunches with the professors from our field. I was very helpful and also the help you can get from other LLC members.			
	1	5.26%	There is a strong sense of community living in the LLC as opposed to in most other environments on campus.			
19	Respondents					

Q16. What don't you like about being a member of the LLC?				Goal	Percent Positive	Percent Negative
Count	**Percent**			50.00%	58.82%	41.18%
16	100.00%					
	Count	**Percent**				
	1	6.25%	Certain people			
	1	6.25%	few of the things i couldn't attend because there were conflicts in the way. Maybe before planning an event check with all the member and see what time works best for us all so that we can all be there with o excuses.			
	1	6.25%	I didn't really mesh with any of the other members of the LLC in interests or values at all, and it made the LLC a somewhat unpleasant experience for me.			
	1	6.25%	I dislike living in the all girls dorm.			
	1	6.25%	i don't have anything to complain about			
	1	6.25%	I love everything about the LLC.			
	1	6.25%	I think the only thing I don't like is that we don't get a whole lot of exposure to students with other majors unless we go out and find them by joining a different organization.			
	1	6.25%	No boys in the hall			
	1	6.25%	Nothing			
	1	6.25%	Nothing really, it was nice.			
	1	6.25%	Nothing!			
	2	12.50%	Nothing.			
	1	6.25%	There really aren't any drawbacks!			
	1	6.25%	There wasn't a whole lot to do. I felt that a lot of things were for engineering majors. Being an Animal Science major I felt like there was nothing beneficial offered for my major.			
	1	6.25%	Trying to balance being in athletics and trying to participate in activities with the group at the same time.			
16	Respondents					

Q17. What activities or programs would you like to do next semester?				Goal	Percent Positive	Percent Negative
Count	**Percent**					
16	100.00%					
	Count	**Percent**				
	1	6.25%	A large dance party. More social and fun things!!!!!!			
	1	6.25%	An activity or program outside of Platteville.			
	1	6.25%	Dinners, something fun!			
	1	6.25%	horseback riding			
	1	6.25%	I don't know, but I would like to do more of whatever!			
	1	6.25%	I really wish we could do some outdoors stuff!! We need to get off campus once or twice, even if it's just downtown or to the M or something. :)			
	1	6.25%	I think it would be neat to do more community activities, rather than campus activities, like tutoring.			
	1	6.25%	I would like to do wing dinners and informal gatherings.			
	1	6.25%	I would like to do some sort of interacting activity. More dinners together would be nice.			
	1	6.25%	I would like to go hiking or horseback riding. Maybe Kayaking as well			
	1	6.25%	I would like to have more lunches with professors and maybe have an LLC dinner every month so it gives us all a chance to sit down and talk.			
	1	6.25%	I would not mind doing anything that would be offered.			
	1	6.25%	I'm not quite sure what this question is asking, but I think it would be neat to maybe go to like a Boulders climbing gym and go rock climbing, or a high ropes course would be cool, although perhaps not the one in our gym. I think it would be helpful if the LLC had a subscription to Chegg, or something similar. Chegg is an online resource that has solution manuals to a lot of our books, and I know my study group and I found it very helpful to reference when we were stuck on homework problems in Chemistry for Engineers.			
	1	6.25%	Movie night, spa night			
	1	6.25%	N/A			
	1	6.25%	the one i see, attended and heard they were all pretty good. so nothing.			
16	Respondents					

APPENDIX G

Survey Data End-of-year assessment freshmen WiSTEM LLC 2012-2013

Questions			Comments	Results		
Q1. To what extent are you more comfortable . . . ? - More comfortable in **academic interactions in the classroom** than you were at the beginning of the year				Goal	Percent Positive	Percent Negative
Count	**Percent**			50.00%	94.45%	5.56%
1	5.56%	A great deal				
11	61.11%	Considerably				
5	27.78%	Moderately				
0	0.00%	Not very much				
1	5.56%	Not at all				
18	Respondents					
Q2. To what extent are you more comfortable . . . ? - More comfortable in **social interactions in the classroom** than you were at the beginning of the year				Goal	Percent Positive	Percent Negative
Count	**Percent**					
1	5.56%	A great deal		50.00%	88.89%	11.12%
9	50.00%	Considerably				
6	33.33%	Moderately				
1	5.56%	Not very much				
1	5.56%	Not at all				
18	Respondents					
Q3. To what extent are you more comfortable . . . ? - More comfortable in **social interactions in the residence hall** than you were at the beginning of				Goal	Percent Positive	Percent Negative
Count	**Percent**			50.00%	94.44%	5.56%
6	33.33%	A great deal				
7	38.89%	Considerably				
4	22.22%	Moderately				
0	0.00%	Not very much				
1	5.56%	Not at all				
18	Respondents					

Q4. To what extent has your participation in the LLC . . . ? - Helped you understand the importance of diversity				Goal	Percent Positive	Percent Negative
Count	**Percent**			80.00%	83.34%	16.67%
3	16.67%	A great deal				
7	38.89%	Considerably				
5	27.78%	Moderately				
2	11.11%	Not very much				
1	5.56%	Not at all				
18	Respondents					
Q5. To what extent has your participation in the LLC . . . ? - Helped with your transition into college				Goal	Percent Positive	Percent Negative
Count	**Percent**			80.00%	83.33%	16.67%
7	38.89%	A great deal				
4	22.22%	Considerably				
4	22.22%	Moderately				
2	11.11%	Not very much				
1	5.56%	Not at all				
18	Respondents					
Q6. As a result of living in the LLC, how likely are you to engage in academic interactions in the classroom?				Goal	Percent Positive	Percent Negative
Count	**Percent**					
5	27.78%	Very likely		80.00%	100.00%	0.00%
11	61.11%	Moderately likely				
2	11.11%	Neither likely nor unlikely				
0	0.00%	Moderately unlikely				
0	0.00%	Very unlikely				
18	Respondents					
Q7. Please indicate your level of agreement with the following statements: - As a result of participating in the LLC, I can apply my social skills in academic interactions outside of the classroom.				Goal	Percent Positive	Percent Negative
Count	**Percent**			80.00%	100.00%	0.00%
5	29.41%	Strongly agree				
7	41.18%	Moderately agree				
5	29.41%	Neither agree nor disagree				
0	0.00%	Moderately disagree				
0	0.00%	Strongly disagree				
17	Respondents					

Q8. Please indicate your level of agreement with the following statements: - As a result of participating in the LLC, I can apply my social skills comfortably in residence halls.				Goal	Percent Positive	Percent Negative
Count	**Percent**			80.00%	100.00%	0.00%
7	41.18%	Strongly agree				
6	35.29%	Moderately agree				
4	23.53%	Neither agree nor disagree				
0	0.00%	Moderately disagree				
0	0.00%	Strongly disagree				
17	Respondents					

Q9. Please indicate your level of agreement with the following statements: - As a result of participating in the community service project, I can appraise the importance of being an active contributor to society.				Goal	Percent Positive	Percent Negative
Count	**Percent**		80% participate in one community service project		100.00%	0.00%
4	23.53%	Strongly agree	*Note: did not do one as a group; students were encouraged to volunteer for WEMS outreach programs but attendance was not assessed*			
6	35.29%	Moderately agree				
7	41.18%	Neither agree nor disagree				
0	0.00%	Moderately disagree				
0	0.00%	Strongly disagree				
17	Respondents					

Q10. Please indicate your level of agreement with the following statements: - As a result of living in the LLC, I used services within the LLC and campus (including Women in EMS program, WATR, Office of Multicultural Student Affairs, EMS advising office, Counseling Services, First Year Experience, Services for Students with Disabilities, SAS Seminars, PAL program, ASC, Math Learning Center, Student Health Services, Student Support Services, or Women's Center, etc.)				Goal	Percent Positive	Percent Negative
Count	**Percent**					
5	29.41%	Strongly agree		50.00%	94.12%	5.88%
7	41.18%	Moderately agree				
4	23.53%	Neither agree nor disagree				
1	5.88%	Moderately disagree				
0	0.00%	Strongly disagree				
17	Respondents					

Q11. Please indicate your level of agreement with the following statements: - As a result of living in the LLC, I used structured networking opportunities (such as peer mentoring, faculty advising and mentoring, interactions with STEM professionals and alumni, or career day).				Goal	Percent Positive	Percent Negative
Count	**Percent**			50.00%	94.12%	5.88%
7	41.18%	Strongly agree				
6	35.29%	Moderately agree				
3	17.65%	Neither agree nor disagree				
1	5.88%	Moderately disagree				
0	0.00%	Strongly disagree				
17	Respondents					

Q12. As a result of living in the LLC, how likely were you to attend a Society of Women Engineers (SWE) event?				Goal	Percent Positive	Percent Negative
Count	**Percent**		50% participate in at least one SWE event		76.47%	23.52%
4	23.53%	Very likely				
5	29.41%	Moderately likely				
4	23.53%	Neither likely nor unlikely				
2	11.76%	Moderately unlikely				
2	11.76%	Very unlikely				
17	Respondents					

Q13. Please indicate your level of satisfaction with the WEMS peer mentor program:				Goal	Percent Positive	Percent Negative
Count	**Percent**		**of students who chose to participate*	80%*	58.82%	0.00%
6	35.29%	Very satisfied	***includes neither satisfied nor dissatisfied*		70.58%	**
4	23.53%	Satisfied				
2	11.76%	Neither satisfied nor dissatisfied				
0	0.00%	Dissatisfied				
0	0.00%	Very dissatisfied				
5	29.41%	I did not participate in the				
17	Respondents					

Q14. Please indicate your level of agreement with the following statements: - I have a greater sense of belonging to the university than my non-LLC peers.				Goal	Percent Positive	Percent Negative
Count	**Percent**			80.00%	47.05%	5.88%
6	35.29%	Strongly agree	*includes neither agree or disagree		94.11%	*
2	11.76%	Moderately agree				
8	47.06%	Neither agree nor disagree				
1	5.88%	Moderately disagree				
0	0.00%	Strongly disagree				
17	Respondents					

Q15. Please indicate your level of agreement with the following statements: - I believe the LLC fostered a positive college environment.				Goal	Percent Positive	Percent Negative
Count	**Percent**			80.00%	76.47%	0.00%
8	47.06%	Strongly agree	*includes neither agree or disagree		100.00%	*
5	29.41%	Moderately agree				
4	23.53%	Neither agree nor disagree				
0	0.00%	Moderately disagree				
0	0.00%	Strongly disagree				
17	Respondents					
Q16. How satisfied were you with the following? - The support network for **academics** that the LLC provided				Goal	Percent Positive	Percent Negative
Count	**Percent**			80.00%	82.35%	0.00%
5	29.41%	Very satisfied	*includes neither satisfied nor dissatisfied*		100.00%	*
9	52.94%	Satisfied				
3	17.65%	Neither satisfied nor dissatisfied				
0	0.00%	Dissatisfied				
0	0.00%	Very dissatisfied				
17	Respondents					
Q17. How satisfied were you with the following? - The support network for **everyday life** that the LLC provided				Goal	Percent Positive	Percent Negative
Count	**Percent**			80.00%	29.41%	5.88%
5	29.41%	Very satisfied	*includes neither satisfied nor dissatisfied*		52.94%	*
7		Satisfied				
4	23.53%	Neither satisfied nor dissatisfied				
1	5.88%	Dissatisfied				
0	0.00%	Very dissatisfied				
17	Respondents					
Q18. Please indicate your level of agreement with the following statement: As a result of attending cohort scheduled classes, I made greater academic connections.				Goal	Percent Positive	Percent Negative
Count	**Percent**			80.00%	70.59%	11.76%
4	23.53%	Strongly agree	*includes neither agree or disagree		88.24%	*
8	47.06%	Moderately agree				
3	17.65%	Neither agree nor disagree				
2	11.76%	Moderately disagree				
0	0.00%	Strongly disagree				
17	Respondents					

Q19. To what extent has your participation in the LLC improved your ability to create personal relationships with other LLC participants?				Goal	Percent Positive	Percent Negative
Count	**Percent**			80.00%	88.24%	11.76%
5	29.41%	A great deal				
7	41.18%	Considerably				
3	17.65%	Moderately				
1	5.88%	Not very much				
1	5.88%	Not at all				
17	Respondents					

Q20. During the spring semester, did you form any study groups with LLC members?				Goal	Percent Positive	Percent Negative
Count	**Percent**			50.00%	58.82%	41.18%
10	58.82%	Yes				
7	41.18%	No				
17	Respondents					

Q21. In what classes did you form study groups with LLC Members? (Check all that apply)						
Count	**Respondent %**	**Response %**				
9	90.00%	52.94%	Math			
7	70.00%	41.18%	Chemistry			
0	0.00%	0.00%	English			
1	10.00%	5.88%	Biology			
0	0.00%	0.00%	Other (please specify)			
	Count	**Percent**				
10	Respondents					
17	Responses					

Q22. How many times did you utilize the math tutor in the LLC during the spring semester?				Goal	Percent Positive	Percent Negative
Count	**Percent**			50.00%	58.82%	41.18%
7	41.18%	0				
9	52.94%	1 - 3				
1	5.88%	4 -6				
0	0.00%	7 or more				
17	Respondents					

Q23. What are the reasons you did not utilize the math tutor in the LLC? (Check all that apply)						
Count	**Respondent %**	**Response %**				
2	28.57%	16.67%	Didn't know about it			
3	42.86%	25.00%	Didn't take a math class			
3	42.86%	25.00%	Did not need a tutor			
1	14.29%	8.33%	Tutoring was not helping me learn concepts			
0	0.00%	0.00%	Did not like the tutor/tutor style			
0	0.00%	0.00%	Study group was sufficient			
1	14.29%	8.33%	Study partner was sufficient			
2	28.57%	16.67%	Other (please specify)			
	Count	**Percent**				
	1	50.00%	Calc 3			
	1	50.00%	Had another tutor with SSS			
7	Respondents					
12	Responses					

Q24. How many times did you utilize the chemistry tutor in Ottensman Hall during spring semester?				**Goal**	**Percent Positive**	**Percent Negative**
Count	**Percent**			50.00%	52.94%	47.06%
8	47.06%	0				
3	17.65%	1 - 3				
1	5.88%	4 -6				
5	29.41%	7 or more				
17	Respondents					

Q25. What are the reasons you did not utilize the chemistry tutor in the LLC? (Check all that apply)				**Goal**	**Percent Positive**	**Percent Negative**
Count	**Respondent %**	**Response %**				
1	14.29%	12.50%	Didn't know about it			
5	71.43%	62.50%	Didn't take a chemistry class			
1	14.29%	12.50%	Did not need a tutor			
0	0.00%	0.00%	Tutoring was not helping me learn concepts			
0	0.00%	0.00%	Did not like the tutor/tutor style			
0	0.00%	0.00%	Study group was sufficient			
0	0.00%	0.00%	Study partner was sufficient			
1	14.29%	12.50%	Other (please specify)			
	Count	**Percent**				
	1	100.00%	Schedule conflicts			
7	Respondents					
8	Responses					

Q26. What did you like **most** about being a member of the LLC?						
Count	**Percent**					
14	100.00%					
	Count	**Percent**				
	1	7.14%	All the support that the girls provided and all the extra help/opportunity we were provided with.			
	1	7.14%	Being able to relate to Kim and the fact that she was very open minded and like a mother to us.			
	1	7.14%	Being able to relate with others in the same major			
	1	7.14%	Being with people who have or are currently taking the classes you are.			
	1	7.14%	Creating a close bond with people I will be living with for another year.			
	1	7.14%	Having other hall mates that are respectful of my study time and understand the difficulty of my classes.			
	1	7.14%	I became friends with a great group of girls!! I am extremely happy that I can trust them with anything. As well as, approach them with either academic or personal topics.			
	1	7.14%	I didn't really participate in any of the activities so i can't really say either way.			
	1	7.14%	I liked that there were girls that I could always talk to about my classes, like English or Math.			
	1	7.14%	I liked that we all got along pretty well and that forming study groups was easy since we lived on the same wing.			
	1	7.14%	People had similar classes			
	1	7.14%	The constant invite to be participating in a school activity.			
	1	7.14%	The great group of girls.			
	1	7.14%	The openness of the girls around me. It was great to know that I could go down the hall and find good friends, academic help, or just a hug if I needed it. No questions asked.			
14	Respondents					

Q27. What **didn't** you like about being a member of the LLC?						
Count	**Percent**					
13	100.00%					
	Count	**Percent**				
	1	7.69%	A lot of the girls are very shy, and I can be shy too. I just wish we could hang out and do random girl-y things. But, we all tend to be a bit too busy for tat most of the time. But this is not really directly related to the LLC necessarily.			
	1	7.69%	Again didn't participate in the program much			
	1	7.69%	All girls dorm			
	1	7.69%	Being in Wilgus Hall!!			
	1	7.69%	I did not like some of the relationships we had between the girls. I felt a little rejected and out of the box.			
	1	7.69%	I didn't find anything unenjoyable			
	1	7.69%	I liked everything about the LLC.			
	1	7.69%	I thought we would do more activities together, so I wasn't very happy that we only did one or two each semester as a big group. Though, I really enjoyed the game night!			
	1	7.69%	Not being able to fit in due to my different major and likes.			
	1	7.69%	nothing			
	1	7.69%	Nothing			
	1	7.69%	Nothing!			
	1	7.69%	Nothing. I felt like it only enhanced my experience, made me more active, and gave me opportunities that I would not have otherwise.			
13	Respondents					

Q28. What are your suggestions for future WiSTEM I						
Count	**Percent**					
10	100.00%					
	Count	**Percent**				
	1	10.00%	Don't be shy! Talk to your hall mates and hang out whenever you can. Don't be afraid to approach one another.			
	1	10.00%	Get involved with the groups within in the LLC and outside of it.			
	1	10.00%	I don't have any suggestions			
	1	10.00%	I don't have any.			
	1	10.00%	Let's do more fun stuff together!			
	1	10.00%	Maybe getting to know each member to a deeper level, it could help with the relationships between peers.			
	1	10.00%	More activities as a whole group, and maybe more activities to help the community.			
	1	10.00%	More get togethers			
	1	10.00%	Nothing at the moment!			
	1	10.00%	Try reaching out to more majors outside of the stem program.			
10	Respondents					

APPENDIX H

Majors of WiSTEM LLC participants from first to second year

Freshmen Year Major	Sophomore Year Status	Still in STEM
Civil Engineering	Music Education	No
Mechanical Engineering	Mechanical Engineering	X
Environmental Engineering	Environmental Engineering	X
General Engineering	Industrial Engineering	X
Civil Engineering	Environmental Engineering	X
Animal Science	Animal Science	X
Animal Science (Pre-Vet)	Biology	X
Chemistry with Criminalistics emphasis	Biology	X
Microsystems and Nanotechnology	Engineering Physics	X
Civil Engineering	Left UW-Platteville	Unknown
Mechanical Engineering	Mechanical Engineering	X
Chemistry	Chemistry with Criminalistics Emphasis	X
Engineering	Civil Engineering	X
Animal Science/Ornamental Horiculture/ Reclamation	Animal Science	X
Civil Engineering	Civil Engineering	X
Engineering Physics	Engineering Physics	X
Mechanical Engineering	Mechanical Engineering	X
Biology	Biology	X
Biology	Left UW-Platteville	Unknown
Mechanical Engineering	Mechanical Engineering	X
Mathematics-Secondary Education	Mathematics-Secondary Education	X
Engineering	Mechanical Engineering	X
Mechanical Engineering	Engineering Physics	X
Mathematics and Business	Mathematics-Secondary Education	X
Percent still at UW-Platteville	**22/24**	**92%**
Percent still in STEM at UW-Platteville	**21/24**	**88%**