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How Social Interactions Impact the Effectiveness of Learning Communities

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ABSTRACT

The purpose of this study was to examine how social interactions influenced the effects of Learning Communities (LCs) on college students’ academic success. Previous research has shown that LC students are more socially integrated and perform better academically than non-LC students (Stassen, 2003). An ANCOVA and logistic regression on 946 first-year students found no group differences in GPA and that LC enrollment was not predictive of retention. The analyses controlled for demographic and entering academic characteristics. Results of analyzing interview transcripts revealed that students from both groups report the influence of social interactions on academic success in remarkably similar ways. Most interestingly, non-LC students often create social and study groups similar to LCs. Implications of the results and direction for future research are discussed.
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CHAPTER I: PURPOSE OF THIS STUDY

Because of concerns about student retention and the growing interest in student-centered learning, universities have continued to develop programs to ensure academic success (Smith, 2001). These concerns have been particularly relevant for supporting students during their first-year experience, where the threats to academic success have been the highest due to sudden shifts in the academic and social environments (Deberard, Spielmans, Julka, 2004; Tinto, 1997; Wilcox, Winn, Fyvie-Gauld, 2005). Colleges lose as many as 30% of their first-year students before the students transition to their sophomore year (Deberard et al., 2004). Because research has shown that social integration has been related to student success, especially for first-year students, universities have implemented programs that provide ways to support the social interactions of students. One of the most popular of these programs, Learning Communities (LCs), has grown to the point where 62% of educational institutions are using some form of LC (Laufgraben & Shapiro, 2004). The purpose of LCs has usually been to provide social experiences that support learning. In a common form of LC, students co-enrolled in their first-year classes with the same cohort of students each term. They also met during a common LC time in addition to their credited classes to socialize and study.

Smith, MacGregor, Matthews, and Gabelnick (2004), in Learning communities: Reforming undergraduate education, wrote that LCs were a major part of the educational reform movement that has brought education toward a more student-centered paradigm. For some time now, it has been understood that knowledge is not simply transferred intact from the teacher to the learner (Berger & Luckmann, 1966). Educators have been increasingly designing learning experiences intended to help learners construct knowledge as they interact with different experiences and contexts. This fusion of academics and social life could be beneficial, especially because Chesebro, Green, Mino, Snider, and Venable (1999) found that only 24% of students on
campus considered themselves to be a part of the college community. LCs were designed to facilitate the kinds of interactions that engage students academically and support them socially. The effectiveness of LCs might be explained by these kinds of interactions because students who join LCs have reported feeling a greater “sense of belonging,” which has been shown to be related to academic success (Hoffman, Richmond, Morrow, & Salmone, 2002).

The development of LCs has been supported by the research of Tinto, who has established a model that links academic and social integration to academic success (Tinto, 1993). Tinto's original 1975 work on the retention of students was more fully developed in a 1987 publication and then again in a 1993 publication. The 1993 publication utilized the latest research to understand trends in retention, included more information about the retention of minority students, and began to place a greater focus on the role of the classroom as an influential experience in students' decisions to leave college. According to Tinto’s theory, students who become more integrated into the institution by interacting with students, faculty, and extra-curricular activities would be more likely to remain at the institution. Although Tinto’s research has focused primarily on student retention, numerous research studies have linked variables of social integration, such as social involvement and social support, to GPA (Robbins, Lauver, Le, Langley, & Carlstrom, 2004).

The social benefits of LCs are extensively documented in the literature (Lindblad, 2000; Tinto, 1997; Tinto, Engstrom, Hallock, & Riemer, 2001). Tinto (1994) reported that LCs helped students build social networks that facilitated academic support. This contrasted with the non-LC classes in the study, which students described as remote, isolating, and unsupportive. Also, the research on LCs has shown that LC students have academic gains in GPA (Baker & Pomerantz, 2000; Levine & Tompkins, 1996), intellectual development and motivation (Avens & Zelley,
1992), and retention (Mackay, 1996; Tinto, 1998). Although a strong trend in LC research has pointed to their effectiveness, there have been considerable weaknesses in past research. For example, many studies have used small sample sizes, lacked a control group, or failed to control for variables such as incoming academic characteristics. Also, studies have failed to find that LC students had higher rates of academic success (Ball, Garton, & Dryer, 2001).

The major problem with LC research, however, is the lack of attention that has been given to how social integration translates into academic success. Tinto noted in his early work on the relationship between social integration and academic success that knowing that specific variables are related to academic success is different from knowing how specific variables are related to academic success. This understanding is still missing from the research literature today. Although Tinto (1993) discussed the importance of acknowledging the classroom's influence on students' academic success, he did not discuss specifically how social or academic integration experiences in the classroom would ultimately translate into higher rates of retention or better grades. After an extensive review of 63 LC studies that confirmed the academic benefits of LCs, Lindblad (2000) noted that more research was needed on the process within LCs that “brings about the intended and unintended results.” Most of the LC research has focused on the social or academic outcomes of LCs, rather than exploring specifically how social integration affects academic success. One recent qualitative research by Thompson (2008) has shown that social support was important to students for encouraging their success in college, but that study only focused on social support as a measure of academic integration and did not investigate LCs or operationalize academic success as retention or GPA. While studies have indicated that socialization is a major part of the LC experience, it isn't clear how these social experiences affect retention and GPA.
The purpose of this study was to answer the question: “How do social interactions impact the effectiveness of LCs on academic success.” In order to answer this question, two areas of investigation were necessary. First, this study sought to determine the effectiveness of LCs in this study. Then, this study sought to better understand how social interactions influenced that effectiveness.

This study addressed weaknesses in the research literature by utilizing a mixed-methodology that first statistically examined whether LCs had an impact on first-year retention and GPA and then analyzed student interviews to better understand how students believed their social interactions influenced those measures of academic success. An ANCOVA was used to compare the GPAs of LC students and non-LC students, and logistic regression was used to determine if enrollment in a LC was predictive of sophomore retention. This study also analyzed the interview transcripts of first-year LC students and first-year non-LC students to compare how these students reported the effects of social interactions on their GPAs and decisions to enroll in their sophomore year. The transcripts were analyzed using grounded theory because very little research has been conducted to understand the answer to this question. Using grounded theory, the interviews were examined for themes in the kinds of social interactions that students reported had affected both their GPAs and their decisions to enroll for the sophomore year (Gliner & Morgan, 2000). After these social-interaction themes were established, the student responses for LC students and non-LC students were categorized into each theme and compared against each other to highlight differences in the ways the students interacted. The summary of group differences for each social-interaction theme is presented in the results.

The extensive theoretical and empirical work of Tinto and other researchers has established connections between social integration and academic success. Also, the research that
was specific to LCs has shown that LC students have higher GPAs and retention rates than non-LC students. For these reasons, it was hypothesized that the results of this study would show that LC students would not only have higher GPAs and retention rates, but would also report social interactions with other students that were more frequent and more supportive of their academic success than the non-LC students. Because the research has shown that social interactions can influence important components of learning such as critical thinking, study habits, and academic motivation, it was hypothesized that LC students would describe, more than non-LC students, that their social interactions influenced their academic success through variables of learning such as these.

The results of this study will help educators and researchers understand how social interactions support students' academic success. The knowledge from this study could be used to offer explanations about why LCs are, or are not, effective, and also to address the contradictory evidence in the research literature about the effectiveness of LCs. The variables that influence the effectiveness of LCs are numerous, but because social integration is the primary emphasis of LCs, understanding how social interactions affect academic success will help educators and researchers design LCs that maximize their benefits. College instructors might also be able to use the results of this study to design learning activities within their classrooms that use the kinds of social interactions that are most supportive of academic success. It is also hoped that the results of this research will help students themselves become more aware about how their interactions influence their own academic success, as well as the academic success of other students.
CHAPTER II: REVIEW OF LITERATURE

Research has shown that the social involvement of students with their academic institution is related to academic success (Robbins et al., 2004; Tinto, 1997). This approach to understanding academic success has been largely influenced by Tinto’s research on the impact of academic and social integration on student retention. His original work, published in 1975, focused extensively on the institutions’ role in supporting the academic and social integration of students. This theory has been developed by Tinto (1993) over the years to include a stronger emphasis on the role that classrooms play in promoting students' social integration into the institution. Since then, empirical research has found that social integration influences a variety of academic outcomes including retention and GPA (McKenzie & Schweitzer, 2001). In an effort to support the academic success of students, academic institutions have increasingly used programs that foster the social integration of students. Since the 1920s, academic institutions have used Learning Communities (LCs) as a way to support the academic and social needs of students (Smith et al., 2004). The social and academic outcomes of LCs have been researched extensively in the literature, and the majority of research has concluded that LC students make social and academic gains compared to non-LC students (Lindblad, 2000).

This literature review presented the research on LCs that points to the need to examine the social interactions within LCs in order to understand their effectiveness. First, an overview of the LC design, purpose, and history was presented, followed by the theoretical underpinnings and empirical evidence that supports them. After the empirical evidence of the influence of LCs on academic success was presented, the reader’s attention was drawn toward an existing gap in the LC research that separates the reported social outcomes of LCs and the reported academic outcomes of LCs. If, as Tinto’s theory and other empirical research have suggested, the academic
gains of LC students have been related to the social processes that occur within the LC, then understanding these social processes would be instrumental to understanding the effectiveness of LCs. Although LCs are designed to support the academic and social integration of students and although the research on LCs has demonstrated that LCs are effective in supporting the academic success of students, little research has been conducted to understand how the social interactions among the students within the LC translates into academic success.

Learning Communities

There are a variety of designs and purposes for LCs. Models that are discussed as LCs in the research literature have included groups of students within a single college course, team-taught programs, residence-based LCs, and cohorts of students who enrolled in the same classes throughout an academic period (Gabelnick, MacGregor, Matthews, & Smith, 1990). This current study focused on the last type of LC in that list. This type of LC has typically been comprised of a cohort of students who take two or more classes together and have sometimes been centered around a common theme (Smith et al., 2004), such as an interdisciplinary approach to an academic topic. For example, students in a “Mind and Body” themed LC might all in enroll in the same Philosophy of Mind, Health and Wellness, and Biopsychology classes, and might meet outside of class during a common time each week to study, discuss what they are learning, and support each others' academic progress. In more developed programs, students might continue to enroll in their LC for each academic term during their first year and the LC might also contain a peer leader. A peer leader, usually a student who has advanced beyond their first year, helps initiate learning and social activities within the LC to ensure a successful social and academic environment.
Educational institutions have established LCs to achieve a variety of goals, including: to bolster student retention, to encourage deeper levels of critical thinking (Fitch & Kirby, 2000), or to encourage spiritual development (Harris, 2001). LCs have incorporated a variety of curricular designs, including elements such as structured study time and experiential learning activities (MacGregor, Tinto, & Lindblad, 2000). Regardless of the specific design, LCs have a common goal: to provide social experiences that support learning. Because students are taking many, or all, of the same classes as the other students in their LC, their LC meeting time can be used to study in groups, receive individual assistance on course work from other students, continue in-class discussions, or expand on the course material by discussing current events or real-world application of the material.

Despite the innovative-sounding style of LCs, they are not new. They have grown from the philosophical, structural, and pedagogical roots of John Dewey and the introduction of the "Experimental College" by Alexander Meiklejohn during the 1920s (Smith, 2001). Both of these educators recognized that community and social interaction support learning and they sought to design formal educational experiences around this idea (Smith et al., 2004). Although Meiklejohn's experiment did not last long, many institutions have developed models based on his original work (Matthews, Smith, MacGregor, & Gebelnick, 1997; Stassen, 2003). Forms of social learning continued to develop as universities around the country altered their curricula to incorporate variations of LCs, both successfully and unsuccessfully. The 1960s and 1970s saw innovative approaches to LCs as educational institutions attempted to personalize the learning environment through more interactive work between students to support interactive learning and discussions. This was followed by another resurgence of LCs in the 1980s (Zhao & Kuh, 2004).
Today, LCs are prominent in the discourse about academic success, with 62% of educational institutions using some form of LC (Laufgraben & Shapiro, 2004).

Smith et al., (2004), in Learning Communities: Reforming Undergraduate Education, says that LCs are a major part of the educational reform movement that has brought education toward a more student-centered paradigm. LCs have been a successful part of this movement because they have been compatible with the evolving understanding of how learners deal with knowledge (Cross, 1998). Traditional teacher-centered learning experiences have not always encouraged valuable interactions with other students. Social interactions allow students to hear different perspectives and allow their own ideas to be encouraged or critiqued by a group of their peers. It is becoming increasingly apparent that knowledge is not simply transferred intact from the teacher to the learner. Rather, learners construct knowledge as they interact with different experiences and contexts (Berger & Luckmann, 1966).

Social Integration and Academic Success

Because the social influences on learning have been well established within the literature, considering the extensive influence of Bandura and Vygotsky, this literature review did not include a discussion of social learning theory. Instead, this literature review focused on the empirical evidence that ties LCs to the social aspects of learning presented in Tinto's theory of social integration and academic integration. Also, this literature review presented the evidence that has linked social integration to the effectiveness of LCs that has been measured by academic outcomes.

First, in light of the low rates of persistence in college undergraduate programs, it is important to point out that many students have not felt socially integrated into the university, especially at the freshman and sophomore levels where retention has been the lowest. A study by
Chesebro et al. (1999) found that only 24% of students on campus considered themselves to be a part of the college community. Additionally, research found that students who considered social communication difficult were also the students most likely to be at-risk students (Inkelas et al., 2006), and a study on students with developmental-education needs found that LCs helped them bridge the gap between education and social development (Tinto, 1998).

Academic and social involvement have emerged as critical factors for many students’ persistence (Schwartz & Washington, 1999; Tinto, 1993). Students who join LCs have reported feeling a greater “sense of belonging,” which has been shown to be related to student retention (Hoffman, Richmond, Morrow, & Salmone, 2003), and peer support has been shown to be related to persistence (Tinto, 1998). When students were asked why they chose to join a LC, “meeting people” was given as a main reason (Goodsell & Tinto, 1994). When students were asked what they liked most about the LC, “gaining friendships” and a “sense of belonging” are the most common responses given. Freshman students have said that having a group of friends with whom they shared classes was a great motivator for them to stay in college (Gabelnick et al., 1990).

The Social Needs of First-Year Students

The influence of social integration is particularly important for first-year students (Tinto, 1997). During the first year, social integration might actually be more important to students than academic success (Wilcox et al., 2005). Tinto (1994) reported that academic stress and other factors related to the first year in college have made the academic success of these students especially vulnerable. More recent research has shown that freshmen students seek additional social support, especially in comparison to their high school years (Thompson, 2008). Research has consistently shown that the first year has been particularly stressful for students as they made
the transition from high school (Deberard et al., 2004) and began to experience a sense of loneliness in college (Wilcox et al., 2005). Because support networks established in high school were gone, students frequently sought this support from other college students, and often preferred it to support from faculty (Giddan, 1988). These threats to first-year students’ academic success were unfortunate because scholars believe that the first year presents an important opportunity to integrate students into the learning environment of the college (Milem & Berger, 1997; Tinto, 1994). Freshman LCs have been created by institutions to provide the kinds of support that first-year students need. Because the academic demands of college are higher, the campus and number of students is larger, and the need to make friends is stronger, LCs have provided a way for institutions to help first-year students meet their academic and social needs.

Tinto's Theory of Academic and Social Integration

This current study built on Tinto's theory (1993) of academic and social integration to examine how student-student interactions influence academic success. According to Tinto’s theory, which focused mostly on retention and persistence, academic success is directly related to the extent that students are academically and socially integrated into the institution. Tinto (1993) discussed academic integration as the students' evaluation of and interactions with the academic system (e.g., administrators, faculty, staff) and social integration as the students' experiences and interactions with other students and extracurricular activities. Students who have strong connections with other students and faculty are hypothesized to be more likely to remain at an institution than students who do not form these connections. Thus, institutions will experience higher rates of persistence if administration and faculty create opportunities that support academic and social integration into the campus.
This model takes into account prior experiences and individual characteristics that influence students' commitments to institutions. Once in college, however, the institution’s system of classes, extracurricular activities, and learning activities as well as the interactions that occur with faculty and students play a major part in integrating students academically and socially into the institution. According to Tinto, this academic and social integration ultimately influences students' academic success. The current study examined the impact of LC social interactions on academic success, measured by sophomore retention and GPA. Thus, the review of the literature for this study focused on the social integration discussed in Tinto's theory. Although Tinto's work focused extensively on retention as a measure of academic success, Tinto, as well as other scholars have found relationships between social integration, retention, and other measures of college success, including GPA (McKenzie & Schweitzer, 2001; Robbins et al., 2004).

The empirical research on Tinto's model confirms the link between social integration and academic success. In some studies, social integration has even shown to be a better predictor of academic success than academic integration (Stage, 1989; Tinto, 1997). In a meta-analysis of 109 studies to analyze the impact of psychosocial skills on college outcomes, Robbins et al. (2004) found consistent relationships between psychosocial variables, such as social support and involvement, and retention in college. In a study by Gerdes and Mallinckrodt (1994), students who reported having at least one person of social support had higher academic success than students who reported no support. Also, Milem and Berger (1997) found a link between engagement with the university and students' intentions to reenroll. Although the extensive meta-analysis by Robbins et al. did not find a consistent relationship between psychosocial variables
included in their study and GPA, other studies (Deberard et al., 2004; Gerdes & Mallinckrodt, 1994; Mckenzie & Schweitzer, 2001) have established this relationship.

The validation of Tinto's model has been strongly supported by empirical research that established a relationship between reported social integration and measures of the academic success of students. What is largely missing from the literature, as Tinto (1975) himself pointed out early in his research, is a clear understanding of how integration translates into academic success. Tinto pinpoints activities within the classroom as the place where academic and social integration is most likely to occur and, thus, to have an impact on measures of academic success such as persistence. He writes, "Though it is evident that classrooms matter, especially as they may shape academic integration, little has been done to explore how the experience of the classroom matters, how it comes, over time, to shape student persistence" (Tinto, 1997). The influence of the classroom on academic and social integration has been a major part of the development of his theory. This question about the specific ways that integration translates into academic success is still not fully explored in more recent research and is identified as an important piece in understanding the effects of social interaction on learning (Lindblad, 2000; Thompson, 2008). What is needed to understand the role of classrooms, is a thorough examination of the kinds of interactions that occur in relation to students’ coursework that students feel have a direct impact on their academic success. Although the specific interactions between students that support academic success are still unexplored, the social and academic benefits of LCs, which were built on the theoretical link between academic and social integration, are well established in the literature.
Measuring LC Effectiveness

The design of LCs builds upon social theories of learning to support academic success. LCs are designed to support students socially by providing an established network of students. Especially for freshmen students, who often enter institutions without extensive social connections, it can be very comforting to have an established community of familiar classroom faces to ask questions and explore the campus. Also, LCs provide a time during the week for students to gather and study with other students in the same courses. The next section presents the empirical evidence on the effectiveness of LCs. The empirical evidence has shown that students in LCs typically have greater academic success than students who are not in LCs at the same institutions. This next section of the literature review focuses on two outcomes of LCs pertinent to this study: social integration and academic success.

The social benefits of LCs have been extensively documented in the literature (Lindblad, 2000; Tinto, 1997; Tinto et al, 2001). The primary benefit of LCs comes from their ability to allow social and academic integration to occur simultaneously. Because LCs frequently have times set aside for study and planned activities that support social interaction, students can simultaneously develop relationships with others students as they learn the course material. Studies on LCs have shown that LC are socially supportive of students (Baker & Pomerantz, 2000; Levine & Tompkins, 1996) and encourage involvement in social activities, even for non-residential students (Tinto, 1997). Tinto (1994) reported that Freshman Interest Groups, a LC design similar to the LCs in this study, supported student interactions and helped build social networks that facilitated academic support. This contrasted with the non-LC classes in the study, which students described as remote, isolating, and unsupportive. The research by Tinto, Love, and Russo (1997) on first-year LC students found that these students experienced greater
academic success because the LC allowed them to connect their social and academic needs by establishing a network of peers.

The impact of LCs on academic success is well documented as well. Studies on students in LCs show that these students have fewer incompletes and withdrawals (Levine & Tompkins, 1996), were less likely to be placed on academic probation (Baker & Pomerantz, 2000), have higher college GPAs (Baker & Pomerantz, 2000; Levine & Tompkins, 1996), and have greater intellectual development and increased motivation (Avens & Zelley, 1992) than non-LC students. Additionally, freshmen students who are enrolled in LCs show higher rates of retention (Mackay, 1996; Tinto, 1998) and LC students have expressed a stronger interest in continuing their education (Tinto & Love, 1995), even outperforming other programs aimed at retention (Johnson, 2000). These retention rates have translated into higher graduation rates as well (Mackay, 1996), with one program that boasted a 90% graduation rate (Smith, 2001).

LCs for students with developmental needs have proven to be effective in supporting academic success, as well. This is an important aspect to consider, because it is estimated by one study that 40% of students enter college with some form of developmental education need (Tinto et al., 2001). A study by Tinto and Love (1995) suggested that LCs might actually be able to replace developmental classes because these students would get the support they needed from the LC.

While there are numerous studies that support the notion that students in LCs show gains over non-LC students at the same institutions, some of the studies have found competing evidence. Ball et al. (2001), Kelsey & D’Souza (2004), and Minkler (2002), did not find evidence that the students in LCs had higher grades or were retained at higher rates than non-students. At the same time, researchers raise concerns that LCs might “corral” freshmen students
into hanging out with other freshmen students, denying them the benefits of forming mentoring friendships with older students. Also, the social momentum of LCs can backfire. Misinformation about assignments or class notes can spread quickly in these efficient social networks, and the growing alliance of students can sometimes create an “us versus them” mentality against professors. Or, these same forces of alliance can create factions within a LC. One professor (Jaffee, 2004) recalled trying to start a discussion in a LC that, unknown to him, had split into two tension charged groups. He said “I felt like I was holding a discussion between two warring tribes.” Also, the social learning benefits of LCs may not work for some students because these students believe that only professors have worthwhile knowledge (Hurd & Stein, 2004).

Despite the research above, which presents findings contrary to the social and academic benefits of LCs, the overwhelming majority of evidence points to concluding that LC students have higher rates of retention and persistence, higher GPAs, and show greater intellectual and social developmental gains than their non-LC peers (Lindblad, 2000).

Demographic and Entering Academic Characteristics

Because the current study focused on LC effectiveness, it is important to examine the literature to isolate the effects of participating in a LC from other influences on academic success. The demographic variables of gender (Deberard et al., 2004; Pan, Guo, Alikonis, & Bai, 2008), race or ethnicity (Adelman, 2002; Newman & Newman, 1999; Pan et al., 2008), and socio-economic status (SES) (Lotkowski, Robbins, & Noeth, 2004; Robbins et al., 2004), have all shown to have significant effects on academic success. Studies have shown that female college students were more socially and academically integrated, had higher goal commitments to finish college (Stage, 1989), and had higher GPA's (Deberard et al., 2004) than male college students. Mallinckrodt (1988) found that Black students reported different sources of social
support than white students for staying in college, and Stage (1989) found that Black students were more likely to persist with higher levels of social integration, but white students were more likely to persist with higher levels of academic integration. Also, the number of credit hours in which students enroll has been shown to be related to academic success, (Caison, 2005) as well as part-time and full-time status (McKenzie & Schweitzer, 2001). In addition to these academic considerations of credit hours and enrollment status, studies have demonstrated that it was important to control for pre-existing academic characteristics between students who enrolled in LCs compared to students who did not enroll in LCs (Pike & Saupe, 2002; Terenzini, Springer, Yeager, Pascarella, & Nora, 1996). High School GPA, ACT score, and SAT score have all been shown to be useful measures of previous academic achievement that are related to academic success in college. High school GPA emerges from the literature as the strongest single predictor of academic success in college (Lotwoski et al., 2004). High school GPA has even proven to be a good predictor of individual course grades (Kruck & Lending, 2003). The prediction power of high school GPA is strengthened when combined with ACT and SAT scores (Cowen & Fiori, 1991; Hoffman & Lowitzki, 2005; Murtaugh, Burns, & Schuster, 1999). Although high school GPA has been shown to be a good predictor for all students, neither ACT nor SAT are consistent in predicting college success for racial minority students. While there is evidence that high school GPA, ACT, and SAT are reliable regardless of race (Schwartz & Washington, 1999), there are other studies that raise concerns about their ability to accurately predict minority students’ college success (Fleming, 2002; Hoffman & Lowitzki, 2005). Because the research has shown that students with different demographic characteristics integrate differently into the social environment of the campus, this supports Tinto’s concern that more research is needed to understand how social integration affects academic success.
Social Interactions within LCs

Tinto’s theory has empirically shown that social integration and academic integration are linked. Students who reported feeling more socially integrated and supported have also shown greater academic success. Tinto’s early work (1975) had already identified a distinction between knowing that specific variables are related to academic success and knowing how specific variables are related to academic success. The social and academic outcomes of the effectiveness of LCs are extensively documented in the literature. What is missing from the literature is an investigation of how the social interactions of students translate into academic success. In an extensive review of 63 LC studies that were conducted over the 11 years from 1988 to 1999, Lindblad (2000) presents a summary of the academic and intellectual gains of LC students. The review was conducted from the data collected by The Evergreen State College’s Washington Center for Improving the Quality of Undergraduate Education, a center known for its deep involvement in the development of LCs for almost 30 years. After highlighting the benefits of LCs as evidenced by the greater gains for LC students in areas of academic success and intellectual development, Lindblad included among her list of research that was needed: “We need to know more about process-what is occurring inside a LC that brings about intended and unintended results.”

Tinto’s and Lindblad’s concerns are justified because most of the research on LC students' experiences has been conducted on social integration outcomes, rather than investigating the specific interactions that led to important components of social integration and academic success (Cutrona, Cole, Colangelo, Assouline, & Russell, 1994; Thompson, 2008). For example, the extensive meta-analysis by Robbins et al. (2004) synthesized the quantitative results of research that linked psychosocial variables, such as support and interaction, and
academic outcomes, but no comparable study has been conducted that examined how these variables translate into academic success. Often the variables in the research studies that measured social integration asked students to rate their perceived integration, rather than examining the specific interactive behaviors that supported students’ perceptions of feeling socially integrated (Mallinckrodt, 1988; Milem & Berger, 1997). Previous researchers have described the importance of distinguishing between perceptions and actual behaviors (Milem, 1997). The lack of the research investigating how social interactions within LCs influence academic success is surprising because of the large amount of research that has focused on either the social outcomes of LCs, the academic gains made by LC students, or both.

Qualitative research that specifically examines social interactions among students has been valuable in other studies for understanding how social interactions affect student experience and academic outcomes. Because consistent themes or types of social interaction are yet to be established, a method of qualitative analysis such as grounded theory that is described by Glaser (2001) is useful for exploring this type of data. Some recent and relevant examples of grounded theory research include the research by Wilcox et al. (2005) that examined retention in regard to social integration and the research by Thompson (2008) that examined research on how students communicate academic support to one another. These studies, however, did not relate to LCs.

Thompson’s research found that students’ interactions include action-facilitating and nurturant kinds of support between students that was beneficial to their college experience. Action-facilitating support included basic kinds of information about details of course assignments and other support such as sharing notes, working together on assignments, and editing papers. Nurturant support included motivational statements as well as opportunities to vent about college frustrations. As one might expect, most of the instances of support were
unplanned, happening through informal interactions between the students. These examples of
grounded theory have generated frameworks for understanding social interactions among
students. In general, this research shows that students have extensive interactions with other
students that pertain to their academic struggles and successes. However, no studies have
investigated how student interactions within LCs translate into academic success, such as focus
of the study that sought to examine the effects of social interactions in LCs on retention and
GPA.

Asking students how their social interactions influenced their academic success would
provide insight into the continued development of LCs that foster the most beneficial social
interactions. The research has investigated various types of learning experiences within social
contexts that would impact academic success. Exploring this literature will help establish a
starting point for investigating how social interactions within LCs influence academic success.

One important area of investigation pertains to the way that social interactions influence
the learning that is reflected in measures of academic success, such as critical thinking and the
integration of experiences. In research on how LCs impact students learning, students reported
that LCs challenged them to continually think and rethink course information. Also, hearing the
multiple perspectives from the other students was important to their learning (Tinto, 1997).
These types of social interactions are important to investigate because studies have shown that
some students do not value learning from other students and consider the professor to be the only
person with worthwhile knowledge in the classroom (Tinto, 1994). Lindblad’s extensive review
of 63 LC studies over 11 years concluded that the “greatest gain students report is in their ability
to see other points of view and to analyze and integrate ideas.”
Another area of student learning that is necessary to investigate, supported by Thompson’s grounded theory research, is the ways that students share information about course work and learn study habits from one another. Thompson’s study found that students felt more comfortable going to other students for help with course work, rather than the course instructor. Also, Tinto’s (1994) research on LCs found that students liked the structure time to do assignments. Even being around other diligent students has shown to positively influence students’ study behaviors (Rittschof & Griffin, 2001). Beyond investigating the students’ preferences for learning or the students’ behavioral changes in studying, it is important to find out whether students believe certain social interactions pertaining to studying or course work resulted in greater academic success. And, if the students do believe these interactions influenced their academic success, it is important to understand how these effects occurred. For example, although the research by Milem and Berger (1997) has shown that quality of effort and persistence increase with social involvement with peers and faculty, the specific ways that effort and persistence are influenced by social interactions have not been not fully explored. Students have reported that group structure is important to their college experience (Tinto, 1994). Students will even initiate their own study groups to gain the social and academic benefits of a social environment. Also, students have different groups of friends for different kinds of support (Wilcox et al., 2005). In group situations, students have reported that they enjoy being responsible to other students and helping other students with course work (Tinto, 1994).

In addition to deeper learning reported from students and the information shared about study habits and course work, the research has shown that the social environment has a major impact on students’ well being and motivation. The research by Wilcox et al. (2005) showed that students found emotional support from other students beneficial to their self confidence and their
academic confidence. LC students have reported that their LCs reduced feelings of anonymity (Tinto, 1994). This is supported by research that found that students felt greater support from students who knew them well. The effects from the social environment might be particularly important for shy students who have difficulty asking for emotional support or academic assistance (Thompson, 2008).

Also, because LCs rely on group interactions, it is important to understand how group dynamics might contribute to academic success. How well students adjust to social situations, like the groups environment of LCs, has shown to be a better predictor of attrition than academic adjustment (Gerdes & Mallinckrodt, 1994). Because college has aspects of both support and competition, the work by Festinger (1954) on social comparison is relevant to understanding how students might respond to group interactions. According to Festinger, people make evaluations about their own beliefs and abilities based on comparisons of the beliefs and abilities others. His theory stated that people are more likely to compare themselves to others who are similar to themselves, and they judge the desirability and attainability of the image that other people project about their beliefs and abilities. Festinger believed that mixing individuals of different abilities would lead to disengagement. Previous studies have shown that interacting with students of similar academic ability can positively influence the attitude toward the experience as well as academic success (Goethals, 2001). In a social situation like LCs, especially with students of similar age, situation, and academic major, it is possible that students will compare their own academic performance to the other students in the group and adjust their own behaviors and interests. Asking students to explain how interacting with other students influenced their academic success might reveal that students felt either encouraged to achieve at
a similar level as their peers, or disengage from coursework if they judged that the standards set by others are undesirable or unattainable.

In all, these learning-related variables have corresponding social interactions that have not been fully explored. Asking students to discuss their social interactions with other students and how these social interactions influence their retention and GPAs will be important knowledge for designing more effective LCs.

Summary

In response to research that shows that the social environment at universities are beneficial to the academic success of first-year students, universities are exploring ways to support students socially. This approach is supported by the work of Tinto, who theorized that the academic and social integration of students into an institution would be important to measures of academic success. Since the publication of the Tinto's original work in the 1970s, he has developed his theory to place a greater emphasis on the role of the classroom for influencing academic success. His earliest work listed a distinction between knowing that integration experiences are related to academic success and knowing how integration experiences are related to academic success. Although Tinto's work has focused largely on student retention, other researchers have built on Tinto's theory and established connects between social integration and other measures of academic success. This expanded review of literature demonstrated that the social integration of students has been related to greater rates of retention and higher GPAs, in addition to gains in intellectual and social development. Academic institutions have implemented a variety of programs to support students socially. One of the most successful has been the use of LCs.
Since the 1920s, universities have been using LC programs on campus as a way to simultaneously support the academic and social integration of students into the institution. First-year LCs have allowed these students, who have shown a greater need for academic and social support, to more quickly establish a network of peers with whom they can attend classes and study. The research on LCs has shown that LC students show higher rates of retention and college GPAs than their non-LC peers, even after controlling for pertinent demographic and academic variables related to academic success. However, much of the research on LCs has focused on the social and academic outcomes of LC students, without exploring how the social interactions among LC students translate into greater levels of academic success. The significant work by Tinto (1993) and the large review of LC studies by Lindblad (2000) have drawn attention to a gap in the existing literature that separates social integration from academic success. Although a relationship has been established between the two theoretically and empirically, there has been little research conducted that explores how social interactions in LCs become that academic success that is reported in the literature. Research on learning has identified several important areas that relate to social learning, such as improving study habits, the sharing of course information between students, developing critical thinking, and the influence of group dynamics and social comparison on students’ motivation and abilities. It is suspected that these variables related to social interactions will emerge as important variables to the effectiveness of LCs. Knowing specifically which social interactions that occur inside of LCs are beneficial to students and how they serve to support retention and GPA will help institutions and LC directors design LCs that maximize their benefits.
CHAPTER III: METHOD

First-year Learning Communities (LCs) at universities are designed to encourage academic success by facilitating the social integration of students on campus. This relationship between academic success and social integration has a strong foundation in the research literature (Tinto, 1993). Also, research has largely demonstrated that LCs are effective in supporting this relationship between academic success and social integration as evidenced by the higher levels of academic success of LC students compared to non-LC students after controlling for entering demographic and academic variables (Stassen, 2003). However, while the research has been successful in establishing the ability of LCs to support academic success, less is known about the specific social processes that occur inside of LCs to bring about this academic success. Studies of LCs show that these students report greater levels of perceived social integration than their non-LC counterparts. To date, most of the research has examined social and academic integration as an outcome, rather than the actual process of academically supportive interactions that occurs among students (Thompson, 2008). This study sought to answer the question, "How do social interactions influence the effects of LCs on academic success?" It was hypothesized that LC students would describe social interactions with other students that resulted in greater academic success. This study compared the academic records of LC students and non-LC students to examine whether there were differences in retention and GPA between the groups. This study also examined interview transcripts from LC students and non-LC students to determine how social interactions accounted for the effectiveness of LCs.

Before seeing the methods used in this study to answer the research question, the reader will benefit from knowing the general layout of the chapter. First, the chapter presented a critique of the methodologies used to examine the effectiveness of LCs in previous studies in
order to explain the rationale for the design chosen for this study. Then, the chapter described the design of this study in detail, including an examination and rationale for the specific variables that were used in the study. This study used a mixed methodology to examine how social interactions contributed to the effectiveness of LCs. The quantitative methods used to establish the effects of LCs on academic success were presented first. This was followed by the qualitative methods used to compare social interactions among LC students and the social interactions among non-LC students in order to understand how interactions contributed to the effectiveness of LCs. While the potential for LCs to support academic success is fairly well established, this study sought to fill the research gap that relates to understanding how LCs foster academic success.

A Critique of the Methodologies of Previous Studies

This study sought first to establish the effectiveness of LCs on first-year students' academic success. Universities and colleges have commonly used college GPA and retention of students to their sophomore years as measures of the academic success of first-year students (Robbins et al., 2004). Because LCs have been designed to support the student-development goals of universities, LC effectiveness is frequently studied using these two measures of academic success as well (Johnson, 2000; Stassen, 2003). GPA, although not without criticism, has been popular among colleges for measuring college success because almost all institutions of higher education have used this system and have at least a general understanding of what each grade represents. The retention of students to their sophomore years was used as an outcome measure of college success because it has demonstrated that students are successful in meeting the requirements to advance through college and also that they have maintained the interest and
drive to continue. For these reasons, GPA and sophomore retention were chosen as the outcomes measures to assess the effectiveness of the LCs in this study.

There are a multitude of studies that have assessed whether LCs were effective in supporting college GPA and retention. However, some of these studies suffered from a poor sample size (Johnson, 2000), poorly chosen comparison groups (Crissman, 2002; Johnson, 2000; Pike, 2002), or a failure to control for entering academic characteristics (Kelsey, 2004). Also, some studies have used the intention of students to enroll in their sophomore year as a measure of retention rather than actual retention rates (e.g., Keup, 2005; Milem & Berger, 1997). These studies offered some, but less reliable, empirical evidence that LCs contribute to academic success. However, the studies that avoided these design flaws and have controlled confounding variables related to academic success have provided strong evidence that LCs are effective in supporting both college GPA and retention (Lenning & Ebbers, 1999; Stassen, 2003). This study examined the effectiveness of the LCs involved in this study by avoiding the shortcoming of previous research and instead used a large sample size and appropriate comparison groups, and controlled for entering academic and demographic characteristics that have been shown to be related to academic success. A full account of the specific variables chosen to include in the quantitative analysis of LC effectiveness were presented in the design of the study. But first, a critique of the academic literature on the relationship between social integration and academic success was presented.

Although it was important to establish the effects of LCs on academic success to fully answer the research question, the main goal of this study was to examine how LCs affect academic success. LCs are designed to foster social integration to improve academic success, a relationship that is well established in the literature (Tinto, 1993). The research clearly
demonstrated that LC students have experienced a greater degree of integration into the academic and social spheres of universities, largely as a result of improved relationships with professors and students (Stassen, 2003; Tinto, 1994). Although the social benefits of LCs have been strongly established, as has the relationship between social integration and academic success (for a full review, see Robbins et al, 2003), there has been little research conducted on specifically how social integration translated into academic success (Thompson, 2008). The research on LCs in these studies frequently examined social integration as an outcome, usually quantitatively, rather than examining the actual social integration processes and how these interactions translate into academic success. Some studies examined LC outcomes qualitatively, but did not ask specific questions about this process or report results in terms of how LCs specifically affected GPA and retention (Blackhurst, Akey, & Bobilya, 2003). It has been well established that social interactions in LCs can improve academic success; what has been missing from the literature has been an understanding of how the social interactions inside LCs improve academic success.

Researchers have already established that the perception of academic social integration is important to students (DeBerard et al., 2004; Tinto, 1997). Research has consistently shown that friendships and social interactions were listed by students as one of the many benefits of learning in social settings like LCs (Tinto, 1997) and that students of LCs reported feeling more socially integrated into college life and reported feeling more support from their peers (Tinto, Love, & Russo, 1997). These studies again, however, have focused on the perceptions of social integration as an outcome of LCs rather than the process of social integration that occurs within the LC and how social interactions translate into academic success. Studies have only reported that LC students perceived more social integration, usually as a quantitative analysis through
scales designed to measure perceptions of social integration, rather than investigating the process that led to feeling more socially integrated (Blackhurst et al., 2003; Robbins et al., 2004; Stefanou & Salisbury-Glennon, 2002). Understanding the process of social integration and its effects on academic success requires that we ask students directly about their academically supportive social interactions with other students and look for themes in the kinds of behaviors and interactions they felt affected their academic success.

Design of the Study

This study used a mixed methodology to examine how social interactions contributed to the ability of LCs to support academic success. Because the effectiveness of LCs needed to be established to answer this research question, the quantitative methods used to establish the effectiveness of LCs in this study were presented first. This was followed by the qualitative methods used to investigate the process of social interactions and how they contributed to the ability of LCs to impact academic success.

Quantitative Methods Used to Establish the Effectiveness of LCs in this Study

This study used a quantitative methodology on non-equivalent comparison groups (Gliner & Morgan, 2000) to examine the impact of LCs on two measures of academic success in first-year students: college GPA and sophomore retention. Two statistical analyses were conducted to answer this question. An ANCOVA was conducted to compare the GPA of LC students against non-LC students. Also, a logistic regression was conducted to determine if participating in a LC significantly affected sophomore retention. To isolate the effects of participating in a LC on these two measures of academic success, this study used control variables that the research literature identified as having a strong impact on college success. The demographic variables of Gender (Deberard et al., 2004), Ethnicity (Newman & Newman, 1999), and Socio-Economic
Status (SES) (Robbins et al., 2004), have all been shown to have significant effects on academic success and were included in this study as control variables. Gender and Ethnicity were used as self-reported at the time the students applied to the university, and SES was measured using Pell Grant Eligibility. Because Pell Grants were awarded based on SES, students who were eligible for Pell Grants were classified in a lower SES than students who were not eligible for Pell Grants. This study also controlled for course load. Because the LC program provided the course schedule for students, it was possible that LC students enrolled in a significantly different number of credit hours than non-LC students. Because the number of credit hours in which students enroll has been shown to be related to academic success, this will be used as a control variable as well (Caison, 2005). In addition to current academic considerations, studies have demonstrated that it is important to control for pre-existing differences in academic characteristics between students who enrolled in LCs compared to students who did not enroll in LCs (Pike & Saupe, 2002; Terenzini et al., 1996). High school GPA, ACT score, and SAT score have all been shown to be useful measures of previous academic achievement, so those academic records were used in the analysis.

Because some academic situations that were common to some students are outside the scope of this study, additional factors limited participation in the study. The academic differences between part-time and full-time students limited this study to students who were enrolled full-time (McKenzie & Schweitzer, 2001). Also, because some first-year students have started and stopped programs at other institutions that may have affected their academic experiences, this study was limited to students who were first-time students. Finally, because of the added difficulty of consenting students who were under the age of 18 and because the percentage of these students at the university used in the study was very low (< 1%), this study
only recruited students who were 18 years old or older at the time of their enrollment. To summarize the study criteria listed above, the effectiveness of LCs on first-year academic success was assessed by comparing the cumulative first-year GPAs and retention rates of first-time, full-time, adult LC students against non-LC students (of the same study restrictions) while controlling for the effects of Gender, Ethnicity, SES, Credit Hours Carried, and the entering academic characteristics of High School GPA, ACT score, and SAT score.

Setting

This study was conducted at a large metropolitan university in the Midwest. This setting was chosen because this university has a student population large enough and diverse enough to provide a sample of students that provided variation in gender, ethnicity, SES, and entering academic characteristics. This diversity boosted the generalizeability of the findings. In the Fall of the 2006-2007 academic year, this university had just over 27,000 undergraduate students. The 16 colleges within this university had different curricular structures, some that resembled the curricular design of LCs, and the colleges all had different academic student-profiles. In light of these considerations, the College of Arts and Sciences was chosen to use in this study because it had a large and diverse student population, had a curricular structure that did not emulate LCs, and had the most variety of academic programs.

The College of Arts and Sciences offered 28 undergraduate programs to a diverse population of students. In the Fall quarter of the 2006-2007 academic year, the College of Arts and Sciences had 5,373 undergraduate students. Of these, 1,614 were incoming freshmen. Table 1 provides a more complete breakdown of the demographics of the university, college, and the students who were recruited to participate in the study.
Table 1

*Total Students by University, College, and Sample (n=27,177)*

<table>
<thead>
<tr>
<th></th>
<th>University</th>
<th>College of Arts and Sciences</th>
<th>Sample^a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Undergraduate Students</td>
<td>27,177</td>
<td>5,373</td>
<td>946</td>
</tr>
<tr>
<td>Total Freshmen Students</td>
<td>10,148</td>
<td>1,677</td>
<td>946</td>
</tr>
<tr>
<td>Full-Time Students</td>
<td>18,909</td>
<td>4,686</td>
<td>946</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>12,389</td>
<td>2,387</td>
<td>384</td>
</tr>
<tr>
<td>Female</td>
<td>14,788</td>
<td>2,986</td>
<td>562</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>20,663</td>
<td>3,968</td>
<td>752</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>3,296</td>
<td>850</td>
<td>102</td>
</tr>
<tr>
<td>Hispanic</td>
<td>671</td>
<td>177</td>
<td>14</td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>401</td>
<td>76</td>
<td>30</td>
</tr>
<tr>
<td>American Indian</td>
<td>96</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>Non-Resident Alien</td>
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<td>8</td>
</tr>
<tr>
<td>Other/Unknown</td>
<td>1,745</td>
<td>247</td>
<td>37</td>
</tr>
<tr>
<td>Pell Grant Eligibility (SES)</td>
<td></td>
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</tr>
<tr>
<td>Yes</td>
<td>--^b</td>
<td>--^b</td>
<td>224</td>
</tr>
<tr>
<td>No</td>
<td>--^b</td>
<td>--^b</td>
<td>722</td>
</tr>
</tbody>
</table>

^aThe sample consisted of all first-time, full-time students enrolled in the College of Arts and Sciences who were 18 years old or older.

^bThis information was not available.
In addition to the diverse student population, this university also had a well-developed program for first-year students that included a voluntary LC program that was presented to all incoming students at the university’s freshman orientation. The LC program was comprised of over 100 different LCs that students could join according to their academic interests and majors. The curriculum of the LCs program included courses that fulfilled core requirements and was designed to help students build relationships with other students and professors, explore academic interests, and achieve academic goals.

Procedures and Participants.

The data for this quantitative analysis of LC effectiveness were obtained from the university's Office of Institutional Research. The pool of potential participants included all full-time, adult students enrolled as first-year students in the College of Arts and Sciences beginning in the Fall quarter of 2006. The data set obtained included Gender, Ethnicity, Pell Grant Eligibility, Credit Hours Carried, HS GPA, College GPA, ACT score, SAT score, whether the student was enrolled in the Fall quarter of 2007 (to measure retention) and whether the student was enrolled in a Learning Community. In the initial data set, 946 students met the criterion to be included as participants in the study. The details of the resulting sample are included in Tables 2 and 3.
Table 2

*Characteristics of the Recruited Sample (n = 946)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>LC Students</th>
<th>Non-LC Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Total</td>
<td>332</td>
<td>35.1</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>114</td>
<td>12.05</td>
</tr>
<tr>
<td>Female</td>
<td>218</td>
<td>23.04</td>
</tr>
<tr>
<td>Ethnicity</td>
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<td></td>
</tr>
<tr>
<td>American Indian or Alaskan Native</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>11</td>
<td>3.31</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>27</td>
<td>8.13</td>
</tr>
<tr>
<td>Hispanic</td>
<td>4</td>
<td>1.20</td>
</tr>
<tr>
<td>Nonresident Alien</td>
<td>2</td>
<td>.60</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>2.10</td>
</tr>
<tr>
<td>Unknown</td>
<td>6</td>
<td>1.81</td>
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<tr>
<td>White non-Hispanic</td>
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<td>82.83</td>
</tr>
<tr>
<td>Pell Grant Eligibility</td>
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<td></td>
</tr>
<tr>
<td>Yes</td>
<td>62</td>
<td>6.55</td>
</tr>
<tr>
<td>No</td>
<td>270</td>
<td>28.54</td>
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</table>
Cleaning the Data

Before the analysis was conducted the data were cleaned by examining the variables for missing data and outliers. One case had High School GPA measured on a 5.0 scale, so it was transformed to a 4.0 scale. Five cases from the data set did not have a College GPA and 16 cases did not have Ethnicity included. Because College GPA is a dependent variable in this study, it would not be useful to use imputation to replace these missing values as this would only deceptively strengthen the relationship with the independent variables. Also, attempting to predict a participant’s ethnicity could result in a misclassification. For these reasons and because these 21 cases with missing data (one case had two missing variables) accounted for only 2.22% of the sample, they were excluded from the analysis. SAT and ACT scores were highly correlated ($r = .86$) indicating overlap in the constructs they were measuring. Consequently, only ACT score was chosen to include in the analysis because it had less missing data than SAT score. Correlations between ACT score and High School GPA yielded a more modest relationship ($r = .409$), so both were used in the analysis to control for entering academic

Table 3

*Academic Measures of the Recruited Sample* ($n = 946$)

<table>
<thead>
<tr>
<th>Measure</th>
<th>LC Students</th>
<th>Non-LC Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>High School GPA</td>
<td>3.28</td>
<td>.47</td>
</tr>
<tr>
<td>ACT</td>
<td>23.03</td>
<td>3.04</td>
</tr>
<tr>
<td>SAT</td>
<td>1058.62</td>
<td>106.17</td>
</tr>
<tr>
<td>Credit Hours Carried</td>
<td>39.42</td>
<td>12.32</td>
</tr>
</tbody>
</table>
characteristics. The data for ACT score and High School GPA had 147 and 4 missing cases, respectively. SAT scores were converted into ACT scores using a conversion table (Dorans, Lyu, Pommerich, & Houston, 1997), and the missing ACT scores were replaced. The remaining missing ACT scores, for which there were no corresponding SAT scores, were imputed with the mean ACT score of the non-converted data. The four missing High School GPA scores were imputed using the mean of High School GPA. Finally, because the size of several ethnicity groups was too low for analysis, ethnicity groups were collapsed from the original eight ethnicity groups. Because White, Non-Hispanic (n=752), Black, Non-Hispanic (n=102), and Asian (n=30) ethnicity groups were large enough for analysis and because research has shown that these ethnic groups show distinct academic characteristics from each other (Horn & Ethington, 2002), these groups were retained for the analysis. The remaining groups of American Indian or Pacific Islander (n=3), Hispanic (n=14), Non-Resident Alien (n=8), and Other (n=20) were collapsed into Other (new n = 45). An examination of outliers by identifying values of Z > 4 or Z < -4 resulted in one case being excluded from the analysis. The criterion of four standard deviations from each variable's mean was used to identify outliers instead of the typical three standard deviations because of the large sample size (Stevens, 1992). Additionally, Mahalonobis distance was calculated to check for multivariate outliers. There were no multivariate outliers. The final sample resulted in 924 participants; the values for the resulting sample used in the study are presented in Tables 4 and 5.
Table 4

*Demographic Characteristics of the Study Sample (n = 924)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>LC Students</th>
<th>Non-LC Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>323</td>
<td>34.95</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>111</td>
<td>12.01</td>
</tr>
<tr>
<td>Female</td>
<td>212</td>
<td>22.94</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>11</td>
<td>1.19</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>26</td>
<td>2.81</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>1.40</td>
</tr>
<tr>
<td>White non-Hispanic</td>
<td>273</td>
<td>29.55</td>
</tr>
<tr>
<td><strong>Pell Grant Eligibility</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>58</td>
<td>6.28</td>
</tr>
<tr>
<td>No</td>
<td>265</td>
<td>28.68</td>
</tr>
</tbody>
</table>
Table 5

*Academic Measures of the Study Sample (n = 924)*

<table>
<thead>
<tr>
<th>Measure</th>
<th>LC Students (n=323)</th>
<th>Non-LC Students (n=601)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School GPA</td>
<td>M=3.28 (.47)</td>
<td>M=3.20 (.47)</td>
</tr>
<tr>
<td>ACT</td>
<td>M=23.11 (3.24)</td>
<td>M=22.77 (3.76)</td>
</tr>
<tr>
<td>Credit Hours Carried</td>
<td>M=39.68 (11.49)</td>
<td>M=39.40 (12.28)</td>
</tr>
</tbody>
</table>

*Equivalency Analysis and Assumptions*

Before the statistical analyses were conducted to answer the research question, the groups were tested to see if the groups were equal for the control variables of Gender, Ethnicity, SES, and entering academic characteristics. A variable would not need to be included in the statistical analyses if there were no statistical differences between LC and non-LC groups for that variable. This is because the effects of that variable on the dependent variable would be balanced via group distribution. Table 6 presents the results of the Equivalency Analyses. Because LC and non-LC groups were not equal for Gender, Pell Grant Eligibility, and High School GPA, these variables will be used as control variables in the analysis. Ethnicity and ACT score were equally distributed in these groups and were not needed to as control variables.
### Table 6

*Equivalency Analyses (n=924)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th></th>
<th></th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LC</td>
<td>%</td>
<td>non-LC</td>
<td>%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>111</td>
<td>34.37</td>
<td>264</td>
<td>43.93</td>
</tr>
<tr>
<td>Female</td>
<td>212</td>
<td>65.63</td>
<td>337</td>
<td>56.07</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>11</td>
<td>3.41</td>
<td>19</td>
<td>3.16</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>26</td>
<td>8.05</td>
<td>75</td>
<td>12.48</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>4.02</td>
<td>32</td>
<td>5.32</td>
</tr>
<tr>
<td>White</td>
<td>273</td>
<td>84.52</td>
<td>475</td>
<td>79.03</td>
</tr>
<tr>
<td>non-Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pell Grant Eligibility</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>265</td>
<td>82.04</td>
<td>439</td>
<td>73.04</td>
</tr>
<tr>
<td>No</td>
<td>58</td>
<td>17.96</td>
<td>162</td>
<td>26.96</td>
</tr>
<tr>
<td><strong>High School GPA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.28 (.47)</td>
<td>3.20 (.47)</td>
<td></td>
<td>$t=2.40^*$</td>
</tr>
<tr>
<td><strong>ACT score</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>23.11 (3.24)</td>
<td>22.77 (3.76)</td>
<td></td>
<td>$t=1.38$</td>
</tr>
<tr>
<td><strong>Credit Hours Carried</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>39.68 (11.49)</td>
<td>39.40 (12.28)</td>
<td></td>
<td>$t=.34$</td>
</tr>
</tbody>
</table>

* $p < .05$. ** $p < .01$. 
Because this study sought to understand how social interactions affect the academic success of LC students, it was necessary to establish if there were differences between LC and non-LC students on the two measures of academic success discussed in this study: College GPA and sophomore retention. Examining differences for college GPA required an ANCOVA analysis and examining sophomore retention differences required a logistic regression analysis. Statistical procedures were used to ascertain whether the assumptions were met for each analysis.

For the ANCOVA, the following assumptions were checked based on the assumptions listed by Mertler and Vannatta (2002):

1. The observations within each sample were randomly sampled and were independent of one another.
2. The distributions of scores on the dependent variable were normal in the population from which the data were sampled.
3. The distribution of scores on the dependent variable had equal variances.
4. A linear relationship existed between the dependent variable and the covariates.
5. The regression slopes for a covariate are homogeneous (i.e., the slope for the regression line was the same for each group.)
6. The covariate was reliable and was measured without error.

The first assumption was met through the design of the study. The second assumption was checked by examining the frequency distribution of College GPA and using the Kolmogorov-Smirnov test to confirm that the assumption was met. This assumption was not met, so the distribution of College GPA was transformed using the formula “Transformed College GPA= 1-[Log10 (5- College GPA)]” to produce a normal distribution. Results of the Kolmogorov-Smirnov test for College GPA and Transformed College GPA are presented in
Table 7. The frequency distributions for College GPA and Transformed College GPA are presented in Figures 1 and 2.

Table 7

Results of the Kolmogorov-Smirnov Test (n = 924)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Kolmogorov-Smirnov</th>
</tr>
</thead>
<tbody>
<tr>
<td>College GPA</td>
<td>.080</td>
</tr>
<tr>
<td></td>
<td>df = 924</td>
</tr>
<tr>
<td></td>
<td>Sig. = .00*</td>
</tr>
<tr>
<td>Transformed College GPA</td>
<td>.021</td>
</tr>
<tr>
<td></td>
<td>df = 924</td>
</tr>
<tr>
<td></td>
<td>Sig. = .20</td>
</tr>
</tbody>
</table>

*p < .05.
Figure 1. Histogram of College GPA.

Figure 2. Histogram of Transformed College GPA
Although Transformed College GPA was used in the calculations, the results were converted back to College GPA (using the 4.0 scale) when they were reported in the results chapter. Reporting the results as College GPA rather than Transformed College GPA aided readability.

The third assumption was checked using Levene’s Test for Equality of Variances and was met because the results were not statistically significant; results are reported in Table 8. The fourth assumption was checked by examining correlations between the Transformed College GPA, and the covariates; the correlation coefficients are present in Table 9. Although some of the correlations are lower than would be optimal for the analysis, they were retained in the analysis because they were important to the model for theoretical reasons.

Table 8

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances (n = 924)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( F )</td>
</tr>
<tr>
<td>.097</td>
</tr>
</tbody>
</table>

Table 9

<table>
<thead>
<tr>
<th>Correlations between College GPA and Covariates (n = 924)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformed College GPA</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Pell Grant Eligibility</td>
</tr>
<tr>
<td>High School GPA</td>
</tr>
</tbody>
</table>

**\( p < .01 \).**

The fifth assumption was checked by examining significant interactions between the independent variable and the covariates. This assumption was not met by either the relationship between High School GPA and LC condition or the relationship between Pell Grant Eligibility and LC condition; a violation of this assumption warrants that the results of this study be
interpreted with caution. This violation indicated that the relationships for these two covariates with college GPA were different depending on the LC condition. Table 10 presents the results of this analysis.

Table 10

*Test of the Interactions between the Independent Variable and the Covariates (n = 924)*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>SS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC</td>
<td>1</td>
<td>.588</td>
<td>.588</td>
<td>1.077</td>
</tr>
<tr>
<td>LC * High School GPA</td>
<td>2</td>
<td>149.027</td>
<td>74.513</td>
<td>136.325***</td>
</tr>
<tr>
<td>LC * Gender</td>
<td>2</td>
<td>1.244</td>
<td>.622</td>
<td>1.138</td>
</tr>
<tr>
<td>LC * Pell Grant Eligibility</td>
<td>2</td>
<td>7.558</td>
<td>3.779</td>
<td>6.913***</td>
</tr>
<tr>
<td>Error</td>
<td>916</td>
<td>500.672</td>
<td>.547</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>923</td>
<td>676.754</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. R Squared = .260 (Adjusted R Squared = .255)***p < .001
The sixth and final assumption for the ANCOVA was met through the design of the study. Next, the assumptions for the logistic regression to compare the retention rates for LC students and non-LC students were checked.

These assumptions for logistic regression were checked according to the assumptions listed by Mertler and Vannatta (2002):

1. There was a sufficient ratio of cases to predictor variables.
2. To ensure power, all cells in the analysis cell had a frequency greater than five, and all pairs of discrete variables were greater than one and no more than 20% have frequencies less than five.
3. Multicollinearity did not exist among predictor variables.
4. There were no outliers.

The first assumption was easily met due to the large sample size ($n = 924$). The second assumption was checked using the Hosmer-Lemeshow Goodness of Fit test; the results demonstrated the assumption was met and are displayed in Table 11.

Table 11

<table>
<thead>
<tr>
<th>Step</th>
<th>Chi-square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.35</td>
<td>8</td>
<td>.50</td>
</tr>
</tbody>
</table>

The third assumption was checked by examining correlations between the predictor variables. Table 12 shows that this assumption was met because the correlations are all low.
Table 12

Correlation Coefficients among Predictor Variables (n = 924)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC</td>
<td>1.00</td>
<td>-.09**</td>
<td>-.10**</td>
<td>.08*</td>
</tr>
<tr>
<td>Gender</td>
<td>1.00</td>
<td>-.01</td>
<td>-.13**</td>
<td></td>
</tr>
<tr>
<td>Pell Grant Eligibility</td>
<td>1.00</td>
<td></td>
<td>-.14**</td>
<td></td>
</tr>
<tr>
<td>High School GPA</td>
<td></td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05. **p < .01.

The fourth assumption was met because all outliers were deleted in the initial data cleaning. To sum up to this point, after cleaning the data and transforming College GPA to produce a normal distribution, the data set was appropriate to use to answer the quantitative research questions.

To summarize the quantitative methods, this study used an ANCOVA to compare the cumulative College GPAs of LC students against non-LC students while controlling for the effects of Gender, Pell Grant Eligibility, and High School GPA. Also, this study used a logistic regression analysis to compare the retention rates of LC versus non-LC students, while using Gender, Pell Grant Eligibility, and High School GPA as covariates.

Qualitative Methods Used to Examine How Social Interactions Influence the Effectiveness of LCs.

Design and Measures

In order to answer the research question "How do social interactions influence the effects of LCs on academic success," this study used semi-structured focus groups to ask LC students and non-LC students to discuss how their social interactions affected their academic success. The focus group questions first asked generally about how social interactions affected academic success to allow students to explore the question on their own. Then, the focus group questions asked about how social interactions related to study skills, motivation, surface learning, deep
learning, and group dynamics might have affected academic success. These were all areas identified in the research literature that have a significant impact on academic success. The researcher also asked specifically about the frequency and content of social interactions.

Questions during focus groups with LC students were primarily directed toward the students' social interactions with other LCs students, but follow up questions were asked to explore their interactions with students in general. Questions during focus groups with non-LC students were directed toward the students' social interactions with all students in general. The following interview questions were used:

1. How did the Learning Community (or interactions with other students) affect your study habits?
2. How did the Learning Community (or interactions with other students) affect your learning?
3. How did the Learning Community (or interactions with other students) motivate you to do well in your school work?
4. How does the social environment of the Learning Community (or, of the university) affect your college success?
5. In what ways did you motivate other students, either intentionally or unintentionally?
6. How would you structure Learning Communities (or college life) so that students can be motivated by each other?
7. Are there some students who seem to have a stronger affect on students? In what ways?
8. Only for Learning Community students: Research shows that students in Learning Communities often have higher GPAs than students not in Learning Communities. After being in a Learning Community, can you explain why the research might find this?
9. How has being in a Learning Community (or, in the social environment at the university) influenced your plans to finish your degree?
10. Only for Learning Community students: Research on Learning Communities show that students in Learning Communities are less likely to drop out of college. After being in a learning community, can you explain why the research might find this?
11. Do you have any other thoughts or comments about how interactions between students can affect their college success, such as their class grades, or their decision to stay in college?

*Participants and Procedures.*

This qualitative investigation of social interaction used students from the original sample that was used to assess the effectiveness of LCs (first-time, full time, adult students entering the College of Arts and Sciences for the 2006-2007 academic year). An academic director for the College of Arts and Sciences sent all students who met the study criteria the recruiting email that asked students to reply if they were interested in participating in 90-minute focus groups to discuss the nature of their social interactions (See Appendices B and C). The recruiting email listed eight possible times, occurring over the course of two weeks, when students could participate in a focus group. Potential participants were told they would receive pizza, soft drinks, and a five-dollar gift certificate to a local restaurant for their agreement to participate in the study. After 10 days, the original response from students was low enough (14 students replied) to warrant a repeat of the recruitment email. This resulted in an additional 10 student replies. Because 6 of the 24 students who responded to the recruiting email did not meet the study criteria, they were excluded from the study. This resulted in 12 focus groups with a total 18 participants: Eight were LC students and 10 were non-LC students.

After dates and times were confirmed with each participant, the focus groups were conducted. Because the response to the recruitment emails was lower than expected and because eight focus groups were originally planned, the number of participants in each group varied from one to three. Because there were 7 "focus groups" with only one student, these sessions were conducted as one-on-one interviews. The questions and style of these one-on-one interviews
remained the same as the larger focus groups. To simplify the readability of this study, all sessions will be referred to as interviews.

At the start of the interviews, students were reminded that the session would be tape-recorded but their identities in the study would remain confidential. After the participants were offered their participation incentives, the tape recorder was turned on and the participants were reminded about the purpose of the study and the general nature of the questions. The students were reminded verbally and with large written instructions on a marker board that was visible behind the researcher that their responses to the interview questions should always relate to how their social interactions affected their GPA and decision to enroll for their sophomore year. The tone of the interviews was casual enough to allow the topic to drift according to the interests of the participants. After one topic or question came to a natural conclusion, the researcher asked the next question on the interview guide.

Qualitative Data Analysis

This study used grounded theory to analyze the data because the process of social interactions and how they have influenced GPA and retention of LC students has not been specifically reported in the literature. The interview transcripts were analyzed by first reading through the transcripts several times to identify emerging themes related to the effects of social interactions on GPA and retention. Because the research investigated the social interactions among students, particular attention was paid to reported behaviors that students displayed around each other and the students' responses to those behaviors. The analysis also focused on the reported internal processes, such as thoughts and feelings, and how these processes contributed to these themes, as well. This method of identifying emerging themes in qualitative data is typical of a grounded theory approach (Bogden & Biklen, 1992). Because a previous
study that used grounded theory to examine the process of academic social integration in the
general college-student population (Thompson, 2008) was published after the data for this study
were collected, but before this study was completed, the identified themes were also cross
checked for general agreement with that study's analysis. In the results chapter, all responses
were presented separately for LC students and non-LC students to highlight differences in
academically supportive social interactions between these two groups.

Summary

First-year LCs are designed to facilitate the social integration of college students to
support their academic success. This relationship between social integration and academic
success has been well documented in the literature as well as the effectiveness of LCs to have a
positive impact on academic success. However, the research on LCs has focused largely on the
social and academic outcomes of LCs rather than looking at the social processes that occur
among students to understand how LCs are able bring about this academic success. This study
first examined the effectiveness of LCs on two common measures of academic success, college
GPA and sophomore retention, by comparing the groups' academic outcomes statistically after
controlling for demographic and academic variables that are known to be related to academic
success. Then, this study sought to understand how social interactions contributed to the
effectiveness of LCs by asking both LC and non-LC students how social interactions with other
students affected those two measures of academic success.
CHAPTER IV: RESULTS

This study sought to better understand how social interactions explain the effects of first-year Learning Communities (LCs) on academic success. LCs are hypothesized to increase student learning and academic success because they support students’ social integration into the academic life of campus (Tinto, 1998). In accordance with this, LCs are designed by academic institutions to simultaneously meet the social and academic needs of students by creating cohorts of students who socialize and study together. Numerous studies on LCs have confirmed what their theoretical underpinnings were aimed to accomplish: LC students typically have higher college GPAs and retention rates, even after controlling for demographic and entering academic characteristics, and typically experience greater social integration than their non-LC peers (Stassen, 2003). However, while the social and academic outcomes of LCs are well established in the research literature, less is known about specifically how social integration translates into academic benefits for students (Thompson, 2008). Understanding how the social integration within LCs supports the academic success of students will support the improvement of LCs to maximize their benefits.

In order to understand how social integration within LCs influences academic success of first-year students, LC and non-LC students were first compared on two measures of academic success, GPA and retention, to determine the overall effectiveness of LCs. Then, LC and non-LC students were interviewed and asked to explain how social interactions influenced their GPAs and retention. Interview transcripts were compared against each other to explore how the differences in social interactions of the students in each group explained the impact of LCs on GPA and retention. Because of the strong empirical evidence of the outcomes of learning communities in previous research, it was hypothesized that LC students would have higher GPAs
and sophomore retention rates than their non-LC peers. Also, it was hypothesized that the comparison of data from LC and non-LC interviews would reveal that LC students’ social interactions were more supportive of GPA and retention than non-LC students.

The results of this study were divided into two sections: GPA and retention. First, the quantitative results of the statistical analysis comparing the college GPAs of LC students and non-LC GPAs were reported followed by the qualitative results from the interviews that asked students to explain how social interactions influenced their college GPAs. In reporting these qualitative results, the themes that emerged from the analysis of the interview transcripts were presented followed by the summary of LC and non-LC student responses within each theme. Second, the results of the retention analysis were presented using the same presentation structure described above for the results of the GPA analysis.

**LCs and GPA**

In order to examine how social interactions in LCs impact the GPAs of first-year students, an ANCOVA was conducted to compare the GPAs of LC students against non-LC students and interview transcripts were analyzed to compare their descriptions of social interactions for these two groups of students.

*Quantitative Comparison of LC and Non-LC Students’ GPAs*

Prior to running the ANCOVA to compare the college GPAs of LC and non-LC students, student data were obtained for 946 first-time, full-time students based on variables that the research literature has shown to affect first-year students’ GPAs. LC enrollment (LC students versus non-LC students) was used as the independent variable, college GPA was used as the dependent variable, and Gender, Ethnicity, Socio-Economic Status (measured by Pell Grant Eligibility), entering academic characteristics (measured by High School GPA, ACT, and SAT
scores), and the number of credit hours carried during college were used as covariates in the analysis. After screening the dataset for missing data, univariate outliers, and multivariate outliers, the final sample contained 924 students. Results of a group equivalency analysis revealed that Gender, Pell Grant Eligibility, and High School GPA were different for LC and non-LC students, so these variables were retained as covariates in the analysis. Ethnicity, ACT scores, and the number of credit hours carried in college are equal for LC students and non-LC students, so these variables were not used in the ANCOVA. An examination of assumptions for conducting an ANCOVA required the transformation of college GPA to a normal distribution using the formula “Transformed College GPA= 1-[Log10 (5-College GPA)].” Also, the assumption of homogeneity of regression slopes was not met by either the relationship between High School GPA and LC condition or the relationship between Pell Grant Eligibility and LC condition; a violation of this assumption warrants that the results be interpreted with caution because it indicated that the relationships for these two covariates with college GPA were different depending on the LC condition. To summarize, the analysis used LC condition (LC students versus non LC students) as the independent variable, and gender, Pell Grant Eligibility and High School GPA as covariates. Table 13 presents the mean college GPA for the LC groups as well as the mean college GPA for the dichotomous covariates. The mean values for High School GPA, the other covariate, are LC High GPA = 3.28 (.47) and non-LC High School GPA = 3.20 (.48). These are also presented in Table 6 in Chapter III. Table 14 presents the correlation values between all the variables in the model.
Table 13

*Mean College GPA for LC Condition and Dichotomous Covariates (n = 924)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>College GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
</tr>
<tr>
<td><strong>LC Group</strong></td>
<td></td>
</tr>
<tr>
<td>Non-LC Students</td>
<td>2.84</td>
</tr>
<tr>
<td>LC Students</td>
<td>2.93</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>2.94</td>
</tr>
<tr>
<td>Female</td>
<td>2.77</td>
</tr>
<tr>
<td>Male</td>
<td></td>
</tr>
<tr>
<td><strong>Pell Grant Eligibility</strong></td>
<td>2.95</td>
</tr>
<tr>
<td>No</td>
<td>2.62</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Transformed College GPA is used in the ANCOVA calculations to achieve a normal distribution, but is calculated back to original college GPA in this table to maintain readability.
Table 14

*Correlations Among all Variables in the Model (n = 924)*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC</td>
<td>1.00</td>
<td>.06</td>
<td>-.09**</td>
<td>-.10**</td>
<td>.08*</td>
</tr>
<tr>
<td>College GPA</td>
<td>1.00</td>
<td>-.11**</td>
<td>-.18**</td>
<td>.52**</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
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<td>&lt;.01</td>
<td>-.13**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pell Grant Eligibility</td>
<td>1.00</td>
<td>-.14**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School GPA</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05. **p < .01.*
The ACOVA failed to find significant differences between the college GPAs of non-LC students \((M=2.84, SD=.85)\) and LC students \((M=2.93, SD = .86)\), \(F (1,919)=.000, p>.988, \text{partial } \eta^2<.01\) after controlling for the effects of gender, Pell Grant Eligibility, and High School GPA. Table 15 presents the summary of the ANCOVA results.

Table 15

*Analysis of Covariance of College GPA as a Function of LC group. With Gender, Pell Grant Eligibility, and High School GPA as Covariates*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>SS</th>
<th>F</th>
<th>Partial (\eta^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC</td>
<td>1</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Gender</td>
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<td>.04</td>
<td>.04</td>
<td>2.18</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Pell Grant Eligibility</td>
<td>1</td>
<td>.25</td>
<td>.25</td>
<td>14.72***</td>
<td>.02</td>
</tr>
<tr>
<td>High School GPA</td>
<td>1</td>
<td>5.39</td>
<td>5.39</td>
<td>313.24***</td>
<td>.25</td>
</tr>
<tr>
<td>Error</td>
<td>919</td>
<td>15.82</td>
<td>.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>923</td>
<td>22.18</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***\(p < .001\).
Qualitative Analysis of the Impact of Social Interactions on GPA

In order to understand how the social interactions of students contributed to the effectiveness of LCs, LC students and non-LC students were interviewed and asked to discuss how social interactions influenced their GPAs. Recruitment emails were sent to Arts and Sciences students at a large Midwestern university who were first-year students in the 2006-2007 academic year. Later, eight LC students and 10 non-LC students were interviewed either individually or in a small group and asked questions from an interview guide about the nature of their social interactions. Because little research has been conducted to specifically understand how social interactions influenced the GPAs of college students in LCs, the interview transcripts were analyzed using a grounded theory approach to identify new themes in the data, rather than looking for previously established themes (Bogden & Biklen, 1992). Analysis of the data revealed that students believed their GPAs were affected by social interactions in eight thematic ways: Influence on Class Attendance, Sharing Course Information, Improving Study Skills, Deep Learning, Helping Other Students, Social Pressure to Succeed, Verbal Encouragement, and Structured Interactions. LC and non-LC student responses were grouped according to these eight themes and compared against each other to understand how social interactions could account for the effectiveness of LCs.

Because research literature on LCs has shown that LC students have higher GPAs than non-LC students after controlling for demographic and academic variables and because the effectiveness of LCs is attributed to social variables, it was hypothesized that LC students would report that social interactions influenced their GPAs more than non-LC students. However, results from the comparison of the eight social interaction themes supported the non-significant
results of the quantitative analysis. Just as there were no significant differences between the GPAs of LC and non-LC students, there were no substantial differences between the reported influence of social interactions on the students’ GPAs. Except for minor differences in the experience of Structured Interactions for non-LC students, both groups of students reported similar effects from social interactions on their GPAs. The summary, including pertinent examples, of LC and non-LC student responses for each theme that was generated from the student interviews is presented below.

Influence on Class Attendance

LC students. Six of the eight LC students reported that social interactions had positively influenced their grades because it encouraged them to attended class, both through increased interest in the classes as a result of the social interactions in those classes, as well as through a sense of accountability to their peers. Students reported that knowing students in their classes made classes more fun, which, in turn, made them more likely to attend classes. Kim said, "It's more fun to go to classes when you know people in classes. Like you want to actually go to class." Students recounted class activities and discussions that became more interesting through interactions with other students, especially students they knew from their LC. Students both encouraged each other to attend as well as harassed them for missing too frequently. When Rhonda was asked how her first year of college would have been different without her LC, she responded:

I probably wouldn’t have went to class as much. I know at the beginning of the year there is a lot of distractions and a lot of people don’t go to class. They sit outside [one of the university's buildings]. Where learning communities, like, I’m the one who everyone looks to for help and I’m always the one who is like, "Why weren’t you in class?" Well,
if I’m not in class that’s going to be bad. I think it motivated me to go to class and I think if I wouldn’t have been in there, [the other LC students] probably wouldn’t have went as much.

These students also believed that their grades could just as easily be negatively affected by social interactions that pulled them away from attending class. Friends, both inside and outside of the LC, could sometimes convince them that hanging out around campus was more fun than attending class. In these instances, students relayed the importance of their own dedication to school to resist these distractions. Three of the eight LC students admitted that they had been swayed to skip class by their friends at some point during their first year of college. Two of the LC students did not believe that social interactions influenced their class attendance.

Non-LC students. Overall, reports from non-LC students indicated that social interactions affected class attendance more negatively for non-LC students than LC students, but the effects on grades were minimal. Six of the 10 students felt that their social interactions had negatively affected class attendance, but only two of these students felt that their grades had been negatively affected as a result. All of the students believed that class attendance was important for grades and could recall instances when social interactions conflicted with academic priorities. Usually this occurred while they were hanging out with their friends and were encouraged to skip class so they could continue hanging out. Stories like this one from Melanie were common during the interviews:

Well, I mean, the big thing is the motivation to go to class. Like, a lot of my friends love to play cards, so, if we’re in the middle of a game who really wants to get up to go to class? You’ve got your friends saying, "One more hand. Don’t worry, skip the class." I’m
more likely to skip it than actually say, "All right guys I’m done [playing cards]." They still need a fourth player [laughs].

Sometimes, skipping class was something these non-LC students observed in their friends; this made them more likely to skip classes themselves. Watching her older friends skip classes made Angelina wonder why she was going to class:

My roommates, who I wasn’t really friends with before, they are nice girls, but they’re all seniors and they like hardly ever go to class. They are not bad students but they’ll just be like, "Oh yeah, I’m not going today." After a while I feel like, “Why am I going?”

The difference in course schedules of their closest friends was often cited as reasons that social interactions could discourage attending class. And, because many of the non-LC students did not have extensive social interactions with other students in their classes, there was less opportunity for these students to encourage their class attendance. The other four non-LC students did not feel that social interactions had an impact on their class attendance.

Sharing Course Information

LC students. Six of the eight LC students reported that their grades were helped directly by information about assignments they received through interactions while discussing coursework. As students formed social relationships with other students, they reported becoming increasingly comfortable with asking these other students for information about when assignments were due, how to complete assignments, how to use web resources to complete assignments, and answers to assignments that gave them excessive amounts of trouble. The students would also ask other students to proofread or edit their papers. Students indicated that they often preferred asking other students for help rather than course instructors because
instructors were often intimidating or had limited office hours. Tim's response contained many of these aspects as he explained how information through social interactions affected his grades:

Yeah, sometimes if there’s a mistake and you don’t know why it's wrong, there might be someone else in the group that does. It’s always nicer to hear that from a friend than it is from an instructor. You say, “Hey man, you have to include this factor in your equation, or it doesn’t work.”

Also, LC students' responses to questions about finding help with coursework revealed their awareness of the importance of social interactions to succeed academically. Students reported intentionally seeking out friendships with students who excelled in their classes; two of the LC students reported choosing seats next to students specifically because certain students looked like they would be helpful for their coursework. Based on the help she received from other LC students, Kim stated:

I try to find one or two people in the class that either I know from outside, but if I don’t, I try to make friends with one or two people in the class just so I have someone to talk to about assignments.

Non-LC. Like the LC students, the non-LC students also reported that they learned valuable information from other students that helped their course grades. Eight of the 10 non-LC students reported that they had directly asked other students for class notes, answers to difficult homework questions, advice on which teachers and classes were easy, and directions on how to use some of the learning technologies such as Blackboard. In addition to directly asking for assistance, these non-LC students would sometimes learn other useful information through regular conversation or unsolicited assistance. These students reported learning about useful web resources, and campus resources such as the Writing Center and the Tutoring Center. Unlike the
LC students, none of the non-LC students discussed choosing friends based on the help they could offer for coursework. Three students did not indicate learning any helpful information for their courses through social interactions with other students because their closest friends were not in their classes.

**Study Skills**

*LC students.* In addition to direct information about assignments, most of the LC students also reported that social interactions helped them learn desirable study skills, which they believed influenced their grades, from other students. Improving study skills was seen as useful by the students for learning information faster, more efficiently, or more clearly. Five of the eight students reported learning at least one new study skill from interactions with other students such as flash cards, mnemonic devices, analogies for conceptual clarity, repetition, and note-taking tips from other students. When learning new skills, students would experiment with these skills and decide if they wanted to adopt it permanently. For example, the use of flash cards was mentioned frequently during the interviews; two of the students felt that it helped them, but the other three students felt that it made the process of studying more tedious or was not as effective as study skills they were already using. To learn new study skills, students either directly asked other students for help with study skills, or simply observed beneficial skills in students who were excelling in classes and picked up new skills that way.

Additionally, four of the eight LC students reported that they learned to study more efficiently as they learned to manage their time. These students either asked for help directly, or observed these time management skills in other students who were successful, and adjusted their own behavior. Morisha described one student who had a big effect on how she approached time management:
I wouldn't say I modeled myself after her, but I definitely, I guess, study habits is what I definitely got from her. How to manage your time. She was very good with time management, with academics. She didn't work, so she didn't know how to balance work and academics, but when it just came to school work and stuff she was really good at that. So we would, all of us, would ask her like, "How did you find time to do that?" and she was, "Oh, you know, I just did this and did that." So we, I, personally, learned how to manage my academic time and just do the easy stuff at the end and do the hard stuff at the beginning of the week so that you aren't burnt out at the end of the week. I've slipped a few times. But, for the most part, um, I always remember things that she said. Like, doing harder things at the beginning of the week. I always remember that when facing a week that's like "Oh my, gosh, all this stuff is going on," and I just think about her saying "Well, just prioritize.” So I will sit down at the beginning of the week, either Saturday night or Sunday and I just go through my planner and I write down, which is something that she did all the time, and I'll write down what I'm going to do on Monday, what I'm going to do Tuesday, Wednesday, Thursday, Friday, blah, blah, blah. And then, go from there. So I still try to do that. I learned that from her.

Non-LC students. Eight of the non-LC students described learning a new study skill through social interactions. As a result of talking with friends, both Shawna and Eileen said they learned how to study better by taking notes. Shawna described how she modified her studying after learning her friend’s technique:

I’m a fast reader and I can understand some of the stuff right after I read it. I usually don’t have to take notes but then I learned from my friend Gretchen that she’ll read and take notes at the same time and she’d remember it a lot more. So I did learn that from her.
Shawna and Eileen also started using flashcards after learning to use them from friends. Another student, Samantha, said she tried using flashcards after studying with a friend, but found that using flashcards did not help her.

Most of the study skills discussed by the non-LC students related to time management. All eight of the non-LC students who said they had learned a new study skill from social interactions said they learned better time management skills from talking with or studying with their friends. Because many of their friends had different classes and work schedules, the students said it was difficult to balance class time, study time, and social time. This was attributed to procrastination by most of the students. New time management skills took the form of either setting aside specific times each week to do coursework or prioritizing their time so that they had to complete their school work before they would hang out with friends. Only one of the students, Steve, said that social interactions did not affect his study skills. When he was asked if his study skills have changed as a result of social interactions, he said, “They haven’t. I always just studied my own way. I look at it for an hour or two.”

Deep Learning

*LC students.* During the interviews, LC students were asked to discuss how social interactions might have affected their grades through deep learning. Students were asked to distinguish between surface learning, which the research literature describes as the memorization and recall of information, and deep learning, which the research literature describes as exploring the meaning within information (Chapman, 2005). The influence of deep learning on grades emerged as a very strong and consistent theme in the LC student interviews. All LC students reported that discussing the course material with other students was extremely beneficial for strengthening their engagement in learning, and ultimately their grades. In addition to increasing
their participation in class activities, students recounted how these discussions with other students helped them realize how course material related to the real world and could be understood from different perspectives. Additionally, students said that discussing the material with other students helped them develop important critical thinking skills as they learned how to communicate and justify their own ideas about the course material. Morisha described how social interactions in her LC affected her grades:

Deeper learning, [the LC] definitely affected [my grades]. It definitely made me more open to different things, it made me more aware, allowed me to [long pause] just sit back and think about things before I wrote an answer down on the test. I'd actually read a question, see what they were actually talking about, see how those different conversations and stuff that we had in our LC, see how they can plan into what we've already learned in class. Versus me memorizing things, the LC didn't do that. I felt like I had people who I could help and could help me, so I stayed focused on it because I had a small little support group. My LC was different than other ones, I'm convinced, because sometimes we didn't study, we talked about issues of the time and then other times we did actually pull out the books and say "Hey, we've got an exam we need to study for this, let's all get together and study this thing." But, most of the time we just talked about issues in the news and things that were on our chest, and it was good because it let you relieve a lot of stress that was kind of clouding up your academics, and whatever.

Rhonda compared her level of learning in her Communication classes, which she was taking at the time of the interview, against the classes she took in her freshman year while she participated in a LC:
Like, in the Communications classes, they are big like lecture classes. And, without the learning community for us to be able to go back and talk about stuff it was really boring. Like, I noticed that after my learning community classes, my classes in Communications are really boring and I have a hard time focusing because I don’t have the community to be able to go back and talk about what we talked about in class that day and study for the test. So I find that I’m more memorizing information now whereas in my learning community I felt like I was actually learning the stuff. I had fun learning it and I wanted to learn about it. It’s just now, I don’t know, learning community just makes it more interesting.

Because deeper learning reinforced their interest and exposure to the material, the LC students believed that it ultimately affected their GPAs because it helped them retain and process information better than studying the information on their own. Although all of the students believed that social interactions positively influenced their GPAs due to the benefits of deep learning, four of the students also said that there were times when they felt that they needed to study the material on their own and found social interactions a distraction. This could depend on their moods, their relationships with the other students, or the type of material they were studying. Three of these four students specifically mentioned math as something they needed time to study on their own.

_Non-LC students._ As with the LC students, non-LC students were also asked to discuss how social interactions might have influenced their grades through deep learning. Non-LC students described the deep learning effects of social interaction on GPA the same as LC students. Like the LC students, the non-LC students indicated that deep learning helped their GPA by facilitating greater interest, focus, understanding, and recall of the material. All non-LC
students reported more interest in deep learning compared to surface learning, even in situations where copying the answers from a classmate or friend would have been easier. Steve described how he learned from other students:

I wouldn’t call [the way we studied] copying but if someone had an answer we’d get together and I would write it down but I wouldn’t want to copy it because I wouldn’t have any idea what was going on or anything. So I would copy the answer down and we would talk about it and he would explain it to me if there was one I didn’t know or if there was one that he didn’t know.

Six of the 10 students felt that social interactions positively affected their GPAs by helping them learn the material more deeply. Sometimes, like the experience described by Melanie, studying with other students fostered an interest in the subject that translated into higher GPAs:

That’s how I’m getting through chemistry because Chris actually likes it. I’m like, “How can you like this class? It’s boring and I hate it.” His interest, and it’s actually kind of neat when he shows me how to do it. Then I kind of learn it because, when I go to learn it, I think about what he thinks is neat about it.

Three of the students reported that talking to students who had a strong interest in the material was specifically helpful because these students were able to provide examples that were applicable to real world situations. The students with less interest in the material reported that they often had difficulty thinking of real world applications on their own.

Non-LC students also reported that social interactions helped them see the information from different perspectives that engaged them more deeply with the material and helped them produce better coursework. Eileen described her experience this way:
I think it does because you can’t say you agree with something if you don’t know the other arguments about it or against it. Like, I can’t say I’m for this if you don’t understand why other people are against something else. So when you talk with people and you get a deeper feeling about why you believe what you believe or, like, why this makes sense. Yeah, you have to justify it.

Jayla added to Eileen’s description by stating, “I think [studying with other students] works because it can bring up questions and answers that, like, may help you in the class that you weren’t aware of.” And, Samantha kept this thought going by saying:

Well, this is kind of retarded, but [I learned] how to really look at a question, cause a lot of [my college teachers] bring up questions that I would think I've already answered when I give them an answer. So, it’s like, I've learned to look at questions more thoroughly, I guess. When I look at a question, I only focus on specific parts. One of my friends is really good at it and she catches me. She helps me catch myself. She's one of my favorite people to study with. She picks up on those little things. So, it makes me look at the question in its complete entirety and specific pinpoints.

Several of the non-LC students, like the LC students, indicated that there were some times when they needed to study on their own.

**Helping Other Students**

*LC students.* All LC students reported that helping other students with their coursework helped their own GPAs. Most of the students indicated that helping other students boosted their academic confidence because it allowed them to demonstrate their mastery of the material and put them in a position of leadership. In the LC, students would be sought out for their expertise or offer help to students. The LC students relayed a sense of pride in being able to help other
students learn and were quick to offer help. Morisha described how she approached students to help them:

You could tell that they were struggling in school and in classes, and you'd be like, "Hey, let's talk about it. What's the issue? Let's see what you're lacking." And then it was like, “Thanks.” And you'd see an improvement.

And, as David described, they could be very persistent when they helped other students: "I remember very vividly like an hour and fifteen minutes trying to explain the concept to Kim on the phone. Then after like the ninth time I think she got it." By helping other students learn, these students realized they were reviewing the material and solidifying their own level of understanding by communicating complex ideas in simpler terms. David explained this as he recounted his over-the-phone study session with Kim. "You're kind of helping other people and studying at the same time. If you go over something nine times with somebody you’re bound to remember it. It’s like, ‘how do you not get this?’ Yeah, it helps." Joel described similar effects on his learning: "So I would kind of help them out more than they’d actually help me, but, which was fine because I got to go over the material again." Three students recalled specific incidents where they remember information during a test because it was something they had taught to another student.

Non-LC students. Similar to the LC students, many of the non-LC students believed that helping other students affected their GPAs. All of the non-LC students were able to recall situations when they helped other students learn and six of the 10 students believed that helping other students positively affected their grades. In addition to reported benefits to their academic confidence, these students believed that explaining information to other students helped their grades because it required that they recall, mentally organize, or apply the information they
were studying. When Samantha was asked to explain why she believed that helping other
students positively influenced her grades, she replied, “Cause when they ask me, I reiterate. I'm
remembering what I've already learned and that's the way memory works, I think. So you keep
saying it and it's more concrete in your mind.”

Social Pressure to Succeed

*LC students.* Students described how social interactions influenced their academic
performance through social pressures, such as the pressure to succeed and maintain respect from
their peers. The LC students reported that as feelings of community strengthened among the
members in the group, so did the pressure to succeed in college. These pressures ranged from
concerns about underperforming in comparison to the rest of the group to the desire to excel to a
position of academic leadership. When asked why social interactions affected his performance so
much, David replied, "In the interest of not getting made fun of.” David explained that poor
performance in class could open students up to teasing from their friends. He said, "I don’t know
if it’s so much as motivational as it is, what the hell are you doing, kind of talk.” The students
described that this effect often came from the desire to live up to expectations that students felt
their peers had of them. Rhonda said:

> I think when you’re friends with someone and you guys have the same class it’s better,
kind of. You trust that person more. If you have projects you are less likely to not do your
part because that’s your friend. You don’t want to let your friend down versus someone
you don’t know.

When she was asked to describe how this affected her academic performance, Rhonda responded
that the importance of being held in high regard by her friends helped her focus on her studies.
You are like a leader, maybe not by choice necessarily, but just because you stand out. So it forced you to constantly be aware of what you’re doing, how your grades are doing, and how you are being perceived by your classmates. You know that they look up to you and you know they look to you for help.

While some students felt pushed toward leadership positions, some students, like Lana, also described the need just to stay on par with the group:

I think it was motivation for you to learn because you wanted to be on line with the rest of the kids in the learning community. You wanted to show them that you had an input and you had an opinion on some things. So you studied up and brushed up in order to show them and help them out.

Joel described how the influence of social pressures worked in his LC, "I’m just going to say that the more disciplined and responsible your friends are the more responsible you are going to be. The old saying, ‘You are who your friends are.’ Or, something like that. It’s true." Students felt that studying alone or having fewer relationships in college would likely have caused them to study less or engage less in the material.

Competition was reported often by the LC students. Several of the students recounted how the students would gather in their LC meeting time after a big test or when papers were returned and compare grades. While these sessions served as a way to check answers, find solutions to mistakes, and served as a way to gauge their performance in comparison to the rest of the group, this kind of open sharing of grades also fueled competitiveness. This was usually reported as friendly competition that resulted in higher levels of motivation. Students described competitive scenarios like the one between Heather and her LC friend:
Actually my friend and I had a lot of conflict between grades because we were both competing for the same goal of being in our program so, we had quite a few disagreements and she would want to know what I got and I would want to know what she got and then it ended up that whoever got less got mad. I mean, also knowing that made me want to try harder if I didn’t do as well as she did or if I did do as well then that gave me some confidence.

*Non-LC students.* The influence of the social pressure to succeed on GPA was described in the same way by the non-LC students as the LC students. Eight of the non-LC students described pressure to score on the same level academically as other students and, frequently, competition to out-score them. These feelings of pressure usually resulted from social interactions where students had a chance to compare grades with their peers. Elsa described these social interactions by saying, “It’s mostly around test time when everybody is asking, 'What did you get on it? Did you get this question or did you have a problem with this question?’” Because “good grades” brought praise from other students and “bad grades” brought teasing or an expression of disappointment, students perceived this as an expectation to perform well. Jerome even considered bad performance a threat to his social interactions:

> I think I already said this, but, like the people I hang out with are, like, grades are very important. [The people I hang out with] are part of the reason why I try to maintain my GPA because, I mean, they are trying, too. I think if I don’t get good grades, my status in that group, I might just start not fitting in. It’s because, I’m that one that’s failing or something. I want to keep on holding onto the relationships because grades are an important part of it.
Of the eight non-LC students who said they felt pressure through social interactions to earn good grades, three of them expressed this pressure as a concern about falling behind their classmates and five expressed this pressure as a motivation to perform as well as or better than their friends. While describing her concerns about falling behind, Eileen said, “You always want to be at the top. If everyone else is up there then you obviously want to be up there, too. I feel like I should study more and work harder just so I can be just like them.” The competition to outperform students was a strong motivator for students. Students, like Makeesha, reported setting specific goals to outperform other students: “I’m like, okay, she got a 95 so I want a 98. I am a bit competitive when it comes to grades. It does motivate me to want to do better or push to do better."

Only one of the students, Steve, reported that he did not feel pressure to earn good grades as a result of social interactions. In his words:

Personally I guess I really never felt better when I got better grades or worse. I always just thought [that] I want to get a degree so if someone gets a better grade on a test than me it doesn’t matter.

Only the non-LC students discussed how the pressure to succeed could negatively affect grades. If students felt embarrassed about their grades or their lack of knowledge, they would avoid asking for help. This caused them to remain confused about the coursework. Two of the students, including Shawna, experienced these negative effects of the social pressure to perform:

My performance was affected because I wouldn’t want to tell my friends about how I was doing badly because they were all talking about how great they were doing and I’m like “Oh, I’m doing okay.” So then I wouldn’t want to really ask them for help sometimes.

Verbal Encouragement
LC students. While social pressure and competition were reported as important motivators by most of the LC students interviewed, the majority of interactions were reported as supportive and encouraging. Students reported that words of encouragement during stressful times were especially helpful in keeping them on track with their studies. Many times during their freshman year, students reported that they felt overwhelmed with their studies, or doubted that they would be able to perform well in some of their classes. So, students would sometimes directly ask for verbal support from peers as they related their frustrations with college academic work. Also, peers would offer words of encouragement if they sensed that other students were struggling. When initially asked to discuss competitiveness in her LC, Morisha emphasized the supportive nature of her LC:

I only say that [there was not competition in my LC] because both my friends inside the LC and out, we both had our struggles, we all knew that, we all knew who struggled in what, and it wasn't any kind of competition at all. It was, "I see that you're failing, let me help you out. You see that I'm failing, help me out." It wasn't [pause] no competition at all [laughs]. None at all.

Encouragement often came during times when students doubted their academic abilities and other students attempted to support their academic confidence. Morisha described an instance when her friends encouraged her during a particularly difficult time during her freshman year:

A couple of the girls who I was really close to, they would, I would just get into a rut sometimes and be like "I'm just not going to write the paper.” But, they're like "Morisha, come on, you can do this." And, they'll be like, "You write really good papers," and I'm like "No I don't, I never get good grades on them." And then after talking to them and
them saying, "You really write good papers" and I realized that I actually do write good papers. Our English teacher was just strict on ridiculous things.

Methods of encouragement were not always aimed at helping the ailing student feel good. Sometimes verbal encouragement was stern:

I'm not going to lie. My grades kind of slipped, but my network of friends that are actually in college they definitely, like, snapped me back into reality. They're like, "You definitely need to get it together." [laughing] They pulled me back in there.

Non-LC students. Similar to the LC students, non-LC students felt that verbal encouragement from other students was very helpful in supporting their grades. All of the non-LC students reported instances of encouragement, either solicited or unsolicited. Encouragement usually occurred when students were having difficulty focusing on their grades or frustrated with their poor academic performance. Students found the encouragement from other students to stay focused on their grades very helpful, especially if this was accompanied by direct assistance with coursework.

Students said that social interactions that reminded them that, “One bad test doesn’t make you fail,” or “You’ll do better next time,” were very helpful for getting them to refocus on their grades. Melanie described the doubt, which she related to a friend, about her ability to master chemistry and the encouragement she received:

“I don’t understand and I’m stupid.” He was like, “No. I know you understand this. Just simplify it, break it down.” and then he would give me confidence. He didn’t bash me and tell me I’m stupid. He would be like, “No, I know you can do this.” That definitely helped me a lot.
Elsa told this story of the students in her LC coming together to help a nervous classmate who was about to be graded on a presentation:

> Like just the other day one of my friends was asking us if anyone knew any sign language. It was really funny. She was nervous about it. They have to do speeches and we all just encouraged her about it and said she would do well. “Just keep going.” It’s definitely nice to have [that encouragement from everybody].

**Structured Interactions**

*LC design.* When LC students were asked to discuss how social interactions influenced their GPAs, an important theme that emerged from the interviews was the design of the LCs. LC students felt that having an established time at which to study, having a peer leader, as well as certain activities within the LC created social interactions that influenced their GPAs. The students believed that if they had not been part of the LC or if their LCs had been less structured, they would not have been as academically successful. LC students were able to compare their sophomore learning experiences, which did not include LCs, with their first-year learning experiences in the LC. Most reported that not having the structured social interactions of the LC, which had provided study time, a peer leader, and learning activities, made their sophomore classes more challenging.

Social interactions outside of the LC were often different from the social interactions that were part of the LC. As discussed in the section on study skills, finding the time and discipline to study was often a challenge for students. However, the students reported that having a designated study time with their friends that was built into their schedules as well as the social pressures to attend these study sessions positively affected grades. For these students, being a part of a LC meant that at least one hour a week, which was the amount of time established by the LC
program as a LC meeting time, would be set aside for meeting with other students. These established LC meeting times also guaranteed that LC students were studying with students who had similar interests as them, which helped them relate to each other academically. Morisha felt that interacting with her LC friends could be different than interacting with her non-LC friends: [Studying with non-LC students] wouldn't have been as enlightening, because [the LC students] were kind of, like, comfortable with each other, so we could say things and no one judged each other, you know, it wasn't like that. Versus some of my other friends, some of the things we would talk about and discuss, it would be kind of like talking to a wall [laughs] with them. Versus within the LC, since we had that comfort in all being together, just about every day for 10 weeks, for 3 quarters, it was like, "OK, I know these people, I can talk to them." We knew what to say to each other about which things.

Because this weekly hour was designated as study time, students generally came prepared to work and the LC hour would be very productive. Tim described successful LC study sessions that occurred in his LC:

Especially in lab if there’s a mathematical thing they don’t get, they can't [emphasis added] copy off of each other because everyone has a different set of numbers because they do their own experiments. But they do work together and say, "How do we convert this number to that, how do we find the number of moles of this?" and they do work together and say, "Well, you can multiply by these factors," and eventually it's pretty cool when one of them gets it because they all get it and they put their numbers together.

That’s how it works.

This contrasted with study sessions that occurred outside of the LC time. Students indicated these study sessions seemed more difficult to keep on an academic track. While some of these
student-organized study sessions were very productive, students had plenty of stories that indicated that these study sessions were less successful than more organized study sessions that occurred during the LC hour. Kim recalled study sessions that accomplished very little:

We had a hard time in our study groups whenever we tried to get together. There was this one time when a bunch of us went to [the university library] to study for something. What was it? It was probably philosophy and like I remember nothing being accomplished like at all. We were like, “We might as well leave because we’re not really doing anything.” 

Lana recalled similar frustrations with trying to study with her peers outside of the LC time:

The thing is some people have different expectations when they come into study groups because some people will come in over prepared and will have a lot of things to say. Some people will come in expecting to mooch a bit and you don’t want them to mooch so you’re like, “Honestly you should have brought your own things so we can have that greater experience when we’re trying to study here.” It’s kind of annoying so you’re not going to be like, “Oh here is all my answers guys. Copy them down.” That’s annoying. Some people don’t come with anything.

Reports from students indicated that study times were more successful during the designated time, especially when an effective peer leader was involved because it changed the nature of the social interactions. Because the peer leader was recognized as the one who would keep the LC meetings on track, most of the students felt that the LC meetings were academically productive. In some cases, however, the students felt that the peer leader failed to provide leadership strong enough to facilitate an effective LC meeting time. Morisha expressed her disappointment that her peer leader failed to offer this kind of support for study sessions when she said, "I think we were supposed to [have study sessions], but she was different, she didn't do it that way."
While having an established leader could help the meeting times be more productive, it often depended on the activities that the peer had planned. LC students differed in their reported effectiveness of their peer leaders. Four of the LC students felt that their peer leader successfully helped their LC bond through ice-breakers, learning activities, and study sessions and that these activities served to facilitate social interactions that ultimately helped their GPAs. These students reported that having a junior or senior peer leader in the LC who they trusted and who could help them navigate the academic challenges of college was very helpful for their academic success. Rhonda described an effective strategy used by her peer leader to support the academic success of the LC students:

In our learning community there were people who got good grades, did their work all the time and there were kids that didn’t. Our [peer] leader would put us together so that we could kind of motivate them to do better. A lot of those kids ended up getting good grades too.

Three LC students felt that their peer leaders were not helpful in providing this type of LC experience. In these poorly-led LCs, students reported less structure, lower LC attendance, and greater apathy for the LC experience. These students indicated that their peer leader failed to encourage social interactions that would facilitate better learning. The students in these LCs reported that arguments occurred within their LCs. According to one student, the LC students would "cuss [the peer leader] out at certain times, and she would just be like 'ok, whatever' and she would just kind of brush it off." One student recounted that her peer leader was not able to address racial tension that was weakening the effectiveness of their LC:

When we came together for our little get togethers every now and then, [some students in the LC] were just [pause], you could tell they related to some people better than they
related to others. I mean, because, I don't know [pause], even the African Americans would be like, "You know, I don't really know how to deal with Caucasians.” It's just like, they're people, talk to them. If they have a problem with you then that's a different issue, but just come to them like they're people.

Another student reported that his peer leader was "the biggest slacker ever.” As his LC was falling apart, he found himself stepping up to lead study activities. This resulted in students coming to him for assistance.

When the LC students were asked to present ideas about how the design of LCs could support grades, many of the students' responses focused on the importance of peer leaders who could lead the LCs effectively. Students felt that effective peer leaders were fun, academically engaging, knowledgeable about succeeding in college, and could design LC learning activities that brought the group together in ways that supported their academic success.

*Non-LC students.* Although the social interactions of non-LC students did not contain much of the formal structure of the LC social interactions, similar themes of the effects of structured social interactions on grades emerged from the non-LC interviews. During the interviews, non-LC students discussed a need for a learning environment that encouraged both social interactions and academic support, although students’ responses were not always explicit about the relationship between the two. The interest in social interaction and the demands of college academic life prompted many of the non-LC students to create study groups that were similar to LCs. For many of the non-LC students, the creation of study groups was a solution that allowed them to simultaneously meet their needs of social interactions and academic support.

While eight of the 10 non-LC students felt that social interactions with other students were important to their college experience, most of these students felt that initiating friendships
during their first year in college was difficult or intimidating, especially for the three students who considered themselves shy. All of the students preferred courses that encouraged interaction among the students because it allowed them to make friends and learn at the same time. Courses that required group projects or group discussions helped initiate social interactions. Without these kinds of built-in interactions, many of the students said they were more reluctant to initiate interactions with the other students.

Students also reported that having a schedule or routine of studying was supportive of their grades. Six of the students said they struggled to find time to study, especially to find time to study with friends. Although the students felt that group work or study groups would be beneficial, they all agreed that, in addition to their own reluctance to form social relationships, their courses were not always conducive to establishing interactions with other students. Four of the students had specific complaints about professors who were boring or "did not know how to teach." Students felt that poor instructors like these created more of a need to study with other students. Two of the students had instructors who held after-class study sessions that they felt were very helpful. Students also tried campus resources like the tutoring centers. In response to academic pressures, eight of the students formed or participated in some type of student-made study group. Melanie described the study group she formed with her classmates:

I know like, for me, after the first quarter me and my friends talked about how we could improve. We were trying to help each other out and we decided to have a study night and all of us get together so it would be, “Okay, we’re studying but we can still talk kind of.” We would still be focused and kind of help keep each other on track.

Study groups that students formed varied in meeting frequency, group number, format, and effectiveness. The meeting frequency ranged from three times a week to a couple of times
each quarter; often, the study groups were scheduled at the last minute. For a couple of students, there was a regular student-organized study session following a particular course. Some of the students reported organizing study sessions at their homes, dorms, or the library. The sizes of the study groups were between two and six people. The format of the study sessions was usually loosely structured so that students could read on their own, discuss, or ask questions according to the needs of each student. Occasionally, a student would assume the role of group leader and bring a study guide to use or establish specific goals of the study group. Students said the majority of study group sessions positively influenced their grades. At times however, the study group would erode into "goofing-off" or go too off-topic to be useful. Eileen described these unproductive sessions:

Sometimes, we have our days, like, where we’ll study for like five minutes and then we’ll start talking for five minutes. Then we’ll go back to studying for five minutes, then we’ll talk for five minutes. I think it just depends on if we are all in the same mood. If we all feel like studying then we’ll study. Otherwise we’ll pretend to study, basically.

Jamai added, "Sometimes I just have to go to the library and study by myself."

In the eight social interaction themes in the responses of LC and non-LC students, neither group showed that social interactions had a greater influence on their GPAs than the other group. Within each of the themes, there was little variation between the experiences of LC student and non-LC students, with the exception that LC students had Structured Interactions that were provided by the design of the LC and non-LC students experienced Structured Interactions through both their courses and student-created study groups.

LCs and Retention
In order to examine the impact of LCs on the retention of first-year students, logistic regression was conducted to determine if sophomore retention could be predicted from enrollment in a LC. Then, interview transcripts from LC and non-LC students were analyzed to further explore how social interactions among students could account for the effects of LCs on retention.

Quantitative Analysis of LC and Non-LC Students’ Retention

The logistic regression used the same data set and variables as the ANCOVA. These data met all assumptions and were appropriate for logistic regression. Sophomore retention was entered as the dependent variable and LC condition (LC student or non LC student), Gender, Pell Grant Eligibility and High School GPA were entered as predictor variables. Table 16 presents the means and frequencies of the variables used in the model.
Table 16

*Frequencies or Mean Values for Predictor Variables as a Function of 2007 Retention (n = 924)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Enrolled Fall 2007</th>
<th></th>
<th></th>
<th>$X^2(1)$ or $t(923)$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No ($n = 209$)</td>
<td>Yes ($n = 715$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC Enrollment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-LC students</td>
<td>133</td>
<td>468</td>
<td></td>
<td>.24</td>
</tr>
<tr>
<td>LC Students</td>
<td>76</td>
<td>247</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female ($X = 0$)</td>
<td>124</td>
<td>425</td>
<td></td>
<td>.00</td>
</tr>
<tr>
<td>Male ($X = 1$)</td>
<td>85</td>
<td>290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pell Grant Eligibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No ($X = 0$)</td>
<td>144</td>
<td>560</td>
<td></td>
<td>7.92***</td>
</tr>
<tr>
<td>Yes ($X = 1$)</td>
<td>65</td>
<td>155</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School GPA</td>
<td>3.06 (.48)</td>
<td>3.28 (.46)</td>
<td></td>
<td>5.95***</td>
</tr>
</tbody>
</table>

*Note.* The values listed for High School GPA are means; all other values are frequencies. A $t$ test is used for High School GPA; Chi-square tests are used for all others.

***$p < .001$.***
Results of the logistic regression indicated that this model with four predictor variables was questionable due to the large model fit indices (-2 Log Likelihood=948.070; Goodness-of-Fit=9.403) but was statistically reliable in predicting first-year student retention ($\chi^2=39.93$, $p<.001$). The model correctly predicted retention for 77.2% of these first-year students. However, Nagelkerke’s $R^2 = .064$, a measure of effect size, indicating that only 6.4% of the variance in retention can be explained by the model. Considering the amount of research that has found that LC enrollment affected retention, this was a low effect size. The regression coefficients are presented in Table 17. Although the overall model was statistically reliable for predicting retention, neither Gender nor LC enrollment (LC students versus Non-LC students), the primary variable of interest in this study, contributed significantly to the model. High School GPA and Pell grant eligibility both contributed significantly to the model.

### Table 17

*Summary of Logistic Regression Predicting Retention (n = 924)*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>Odds ratio</th>
<th>Wald statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC</td>
<td>-.19</td>
<td>.17</td>
<td>.829</td>
<td>1.21</td>
</tr>
<tr>
<td>High School GPA</td>
<td>.97</td>
<td>.18</td>
<td>2.639</td>
<td>30.48***</td>
</tr>
<tr>
<td>Gender</td>
<td>.10</td>
<td>.17</td>
<td>1.101</td>
<td>.34</td>
</tr>
<tr>
<td>Pell Grant Eligibility</td>
<td>-.34</td>
<td>.18</td>
<td>.686</td>
<td>4.34*</td>
</tr>
</tbody>
</table>

*p < .05. *** p < .001.

*Qualitative Analysis of the Impact of Social Interactions on Retention*

In order to understand how the social interactions of students contributed to the effectiveness of LCs, LC students and non-LC students were interviewed and asked to discuss...
how social interactions influenced their college retention. The same students for the GPA research question were asked about retention and the same method of analysis was used. Analysis of the data for themes in retention revealed that students believed their retention was affected by social interactions in three ways: A Sense of Community, Verbal Encouragement, and Structured Interactions. LC and non-LC student responses were grouped according to these three themes and compared against each other to understand how social interactions accounted for the effectiveness of LCs.

The research literature on LCs has demonstrated that LC students have consistently higher rates of retention than non-LC students after controlling for demographic and academic variables. Because the increased retention rates of LCs are attributed to social variables, it was hypothesized that LC students would report that social interactions influenced their retention significantly more than non-LC students. However, results from the comparison of the three social interaction themes support the non-significant results of the logistic regression conducted to determine if participation in a LC was predictive of sophomore retention. LC students did not describe the effects of social interaction on their sophomore retention any differently than non-LC students. Just as in the GPA analysis, there were minor difference in the Structured Interactions, but not enough to conclude that the social interactions of LC students were distinct from non-LC students. Before a comparison of the themes is presented, a general overview of the students' attitudes toward leaving college was provided.

**LC students.** Overall, five of the eight LC students who were interviewed felt that social interactions positively influenced their intentions to remain in college. Four of these students said they had considered leaving college at sometime that first year. These students listed doubt about their abilities, uncertainty about their interests, and lack of time as reasons that caused them to
consider dropping out. Although leaving college was a possibility, it was not something that the
students considered in great depth. Morisha’s description of a time when she thought about
dropping out was typical of the LC students who had considered leaving college:

I think everyone thinks about dropping out. I thought about dropping out, especially in
my anatomy class. I felt like that was, like, telling me I couldn't be a doctor, which is
what I eventually want to do. I was like "No, everyone has a bad quarter, everyone has a
bad class." It went through my mind, but it was kind of not an option to drop out of
school because I want to be a doctor.

The students who said that they had never thought about dropping out all said that expectations
of family and fulfilling life goals were the primary reasons for persisting through college.

Non-LC students. Of the 10 non-LC students who were interviewed, four of the students
felt that social interactions had positively influenced their intentions to remain in college and five
reported that they had considered leaving college during their first year. Their responses were
similar to the non-LC students' responses. They reported that doubts about college occurred
during particularly stressful times and that they were probably not entirely serious about leaving
college. Melanie’s description of her thoughts about leaving college was similar to the
descriptions of the non-LC students who had thoughts about leaving college:

I know last year I thought, “[College is] not like high school.” Everything was easy [in
high school] and your GPA was good. I came in thinking that; not that [college] was
easy, but I didn’t think it would be that hard. There were definitely a few times that I
said, “I’m quitting college. I’m done with this. I don’t care.”
Melanie, like the rest of the students in the interviews, persisted to enroll her sophomore year. One of these students, Elsa, did leave college for the winter quarter for personal reasons she did not want to discuss, and returned in the spring quarter.

Three students did not think social interactions had a positive or negative effect on their decision. All of these students believed that they would remain in college regardless of social interactions and reported that commitment to their personal goals and expectations from their families were the significant influences on their decision to remain in college. Also, one student believed that social interactions often had a negative influence on her intention to remain in college even though she has continued to enroll each quarter. The student who dropped out during the winter quarter, Melanie, said that social interactions were helpful for supporting her grades, but she did not talk about leaving college with her friends and did not feel that social interactions had an impact on her decision to leave college.

A Sense of Community

LC students. When LC students were asked to describe how social interactions influenced their decision to stay in college, a major theme that emerged was the influence of a sense of community. Most of the LC students reported establishing a network of friendships within their LC that was supportive of their retention. Although only four of the students reported that they had actually considered dropping out, all students indicated that the sense of community positively influenced their interest in remaining in college, even if the influence was just "a little." As a result of experiencing a sense of community, students reported feeling comforted and supported, especially in relation to the size of the campus and the number of students at the university. These friendships continued to develop throughout the year and were usually reported as "deeper" or more consistent than friendships that were not related to their LC. LC students
also reported that they sat with the other LC students in their classes more often than non-LC students.

A sense of community was considered particularly supportive of their interest to remain in college because they could relate to students who were experiencing the same kinds of situations and stressors that they were experiencing. Although some of the shared experiences discussed were positive, it seemed particularly important to students to share their negative experiences. Six of the eight students interviewed mentioned that it was helpful to have a group of friends to whom they could "complain with," "whine about school," or "bitch about college." While discussing how he maintains his focus to stay in college, David described how the sense of community in his LC was helpful to him:

It’s nice to have people to complain with. When you are not having a good day and your teacher is pissing you off then it’s nice to be able to come complain about somebody with a bunch of people that understands exactly what you’re going through. I might have had a lot more anger issues like exploding or putting a hole in the wall or something [laughs].

This sense of community helped students feel responsibility to the group, as well as to watch out for students who might be disengaging from their group or from college. Four of the eight students discussed instances where their LC checked on LC students who were withdrawing from the LC or who had stopped attending classes. Kim discussed a student who was having problems with alcohol during the LC and struggled with staying college, especially during her sophomore year when there was no LC.

We talk on the phone now. She's in AA so that’s good. She didn’t go back to school and she’s working for her Dad. She was going to come back to school. She was in AA before she came to college. She also was on Adderall. I know that. That was because of her
ADHD. She had a lot of issues going on and I didn’t know about it until after I got to know her. I think that part of her problem was, even though she was in the learning community, I don’t think she really took advantage of the academic aspect of it. When she came back this year and didn’t really have the networking, well I don’t think she liked being in college so much. I think that’s why she moved home because she was like there was no one to help her.

Joel described this situation in his LC:

There were two kids that just disappeared. The one kid I hadn’t heard from and we tried to Facebook him or whatever and no one has ever gotten a response back. It was kind of weird. He might have [just dropped out], or maybe he just transferred. Then another girl just dropped off the face of the earth. Then someone found her and she was just in another college now and had a different set of things going on.

Students considered the number of friends, the frequency of contact, having fun together, and solving school problems together as factors that contributed to a sense of community.

Non-LC students. Non-LC students placed the same importance on a sense of community to their commitment to college. Six of the 10 non-LC students reported that belonging to a group of students that was tightly connected strengthened their commitment to those students, and thus strengthened their motivation to stay in college. Students used words and phrases like “bonded,” “fun,” “comfortable,” “family,” “close,” “supportive,” “on the same track,” and “look out for each other” to describe these retention-strengthening social interactions that contributed to a sense of community. Four of these students reported that this sense of community deeply engaged them in the college experience because they felt responsible for and connected to the
students in their social group. Elsa described how a sense of community affected her decision to remain in college:

> It’s like my friends and the people that I’ve met here have definitely had a large impact on [my decision to stay in college]. I want to see where they end up and we’ll all be going to different [graduate schools] after they graduate. The more I hear the more involved I get. I want to help them out.

Three of these students reported that belonging to a group of tightly bonded students strengthened their overall confidence as a student that, in turn, supported their decision to stay in college. Jerome spoke extensively about his close group of friends who clearly had a major impact on his confidence and commitment to stay in college.

> Whenever I see my friends, man, I just get so energized and I get so pumped. Like if one of my friends were to walk into this [interview] I’d be like, “Hey, what’s up man!” I’d just blow up [laughs]. Yes it makes me confident in myself and it makes me more confident in schoolwork because if I know my friends, like, most of my friends do well, if I know they are doing well then I can do it too.

Although he believed that he would likely have persisted in college regardless of social interactions, he believed that his college experience would have been “lonely,” and “boring.” Elsa said, “I think it would be really boring. Oh my gosh. I don’t think I could get through for very long.”

Non-LC students did not report that social interactions that were surface or casual affected their decision to stay in college. For the students who indicated that a sense of community did not influence their decision to stay in college, staying in college was more related to personal discipline or support they received from their families.
Verbal Encouragement

Although community was described as an overall feeling of support that came from belonging to a LC, students also discussed more specific kinds of supportive interactions. Verbal encouragement emerged as a theme of social interactions that influenced student’s retention. Five of the eight students recalled specific instances of verbal encouragement from other students that supported their interest to stay in college, and all of the students reported giving this kind of verbal encouragement to another student, usually an LC student, during some point in their first year. Although some of students reported seeking out or asking for encouragement, most of the instances of verbal encouragement were unsolicited and resulted from a conversation when the students were "stressed out.” During these times, students were more likely to consider dropping out of college, although most of the students reported that dropping out of college was not a realistic option for them. Two of the students discussed specific friends that would give them verbal encouragement regularly. One of these students, Morisha, talked with a non-LC friend of hers who had successfully completed the program that she was enrolled in. Her friend would say to her, "It’s hard. You're going to feel like you can't make it, just stick with it. If there's something that you want to do, don't let it bother you." Also, two other students reported having friends who came to them repeatedly for verbal encouragement to stay in college. Tim retells a situation where he helped another student stay in college by encouraging her to "stick with it." He also went as far as to talk to the other LC students to rally them to support her:

I had one girl in my LC who was really struggling, she wasn’t passing chemistry for the first part of the first quarter. She wanted to do something else and leave entirely. But, I
encouraged her to stick with it. And, I talked to some of the other students, too. I’m like “OK, she needs help. Can you, outside of class, can you make sure, she’s living in the dorm there nearby. You know, support her if she needs it.” She’s doing ok now.

Non-LC. Non-LC students also felt that verbal encouragement influenced their decisions to remain in college. Four of the 10 non-LC students reported that verbal encouragement during social interactions affected their college retention. Specific conversations or comments by other students stood out to them as important to their college retention. Like the LC students, these instances usually occurred during times of stress when they would either ask for encouragement or the encouragement was offered by the other students, unsolicited. The phrases “pep talks” and “supportive talks” were used frequently while the students described how students verbally encouraged each other. Makeesha said her friends usually encouraged each other by reminding them about their college goals: “Yeah, we are very supportive of each other and we give a lot of pep talks….There is a lot of pep talks like, ‘Don’t quit. You really want this.’” Statements of verbal encouragement also focused on the reasons they originally enrolled in college, the money they will make, making friends and family proud, and remembering that the frustration is temporary. Jayla had been dissuaded by her friends from dropping out of college to join the military because of the dangers in Iraq.

The other five students either did not believe that verbal encouragement had affected their college retention or did not remembering hearing any words of verbal encouragement related to college retention. These students indicated that either they had not talked with their friends about staying in college, they never thought about dropping out of college, they received enough support from their parents, or that verbal encouragement from friends was not sufficient
to influence their decision to stay in college. Although Mekeesha received supportive statements from her parents, she did not want support from her friends. She said:

> It’s different to hear support from your friend and support from your parents. I don’t really let people be there for me. Like my parents raised me to be independent but not too independent. So if I’m having [trouble with school] I won’t let my friend help me, but if they’re having [trouble with school] I won’t let them not let me support them. I’ll be there for them, but I really don’t want that.

Elsa, the non-LC student who dropped out for a quarter, said that students would not have been able to keep her from dropping out, so she did not ask for encouragement to stay. She felt that intervention from friends would have stressed her out further. Her friends did encourage her to return after she dealt with her personal issues, however. Overall, verbal encouragement was reported less for non-LC students than LC students, but the context and styles of verbal encouragement were similar for students in both groups.

**Structured Interactions**

*LC students.* As with GPA, LC students felt that the structured interactions provided by the LCs influenced their decisions about leaving college. When the students were asked to describe how LC social interactions influenced their decisions to stay in college, students discussed three ways that the structured interactions within the LCs were influential: the role of the peer leader, LC activities that involved their course instructors and LC activities that engaged them in campus life.

Students indicated that because they were able to interact with their peer leader in the same way they would interact with a friend, the peer leader was able to relate important information about how to successfully progress through college and avoid potential setbacks.
such as poor scheduling or procrastinating. Peer leaders were also useful for pointing students to resources on campus that related to degree completion. Students also found that getting to know an older student who was close to graduating was motivating because they had access to someone who "had been through it." Except for the three students who reported that their peer leaders were not effective in providing the kinds of social interactions that supported academic success, the students felt that their peer leaders were able to create a social environment that was supportive of their college degree completion. In particular, they felt that LC activities that involved their course instructors and encouraged involved in campus life were helpful.

All of the students described at least one course where interaction with the instructor was limited in ways that negatively affected their learning. Students felt that getting to know their instructors increased their interest in college learning. Four of the LC students’ peer leaders invited instructors in to discuss the course material more informally. Because these courses were taught in large lecture hall classes, the students felt that the chance to discuss the material with the professor in an informal social setting was beneficial to their interest in college. When Tim was asked to discuss how LC social interactions affected his college retention, he said,

I think [the LC] did [help me stay in college], because right away I have a social network and the professors that you get to meet too, because our peer leaders brought our professors into our LC meeting time. So I got to meet them and got more one-on-one contact which you never get in a lecture hall classes.

The difference in attitude toward the involvement of professors was exemplified by one of the students who was not able to get to know her instructors more informally: "I think [meeting my instructors in the LC] would be an ideal situation but I don’t think enough of [the instructors] really care to really get that involved."
Also, as part of the LC experience, many of the students met together to attend campus events such as sport competitions, public speakers, political rallies, performances, or volunteer opportunities. The students all felt that participation in campus activities could be very influential on a student's decision to leave college. Overall, students reported that participating in activities on campus that helped them meet and interact with other students made staying in college more appealing. Heather, one of the students who reported she occasionally thought about dropping out, described it this way:

Something that I would say about staying in college would be to get involved on campus, which the learning community does help with that, or at least mine did. You know, going to a football game or a play. Just kind of a diverse experience on campus, you know, getting involved in different things. I think that helps with staying in college. If I had come here away from home and hated it and didn’t do anything on campus you know I would have probably just ended up going back home.

Non-LC students. Although non-LC students did not have the same kinds of structured social interactions as the LC students, many of the non-LC students discussed how the structured social interactions that were provided through classes and campus activities affected their decision to remain in college. Specifically, students believed that courses that provided learning experiences that encouraged social interaction, such as group projects, and campus events that helped them meet other students, positively affected their decision to stay in college. Steve said that having the same students in his classes each quarter, either accidentally or through collaborative planning, was very helpful for motivating him to stay in college. He believed that a curriculum that encouraged students in the same program to enroll in the same classes would help more students in this way.
Most common during the interviews was an expressed interest in having more of these types of structured social interactions. Non-LC students recognized that bonding with other students was beneficial to their motivation to stay in college, but said that it could be very difficult to socialize in ways that were supportive of their academic success. They expressed an interest for teachers to create learning environments that encouraged supportive social interactions. Also, students wished that campus events that encouraged social interaction were either more frequent or were better announced to the students. Although students felt that the study groups that they created supported their intentions to stay in college, they expressed an interest in having greater access to established programs or resources that they could turn to for support. Three of the students suggested that being paired with an upperclassman during their first year would have been very supportive of their intentions to remain in college.

Summary

This study sought to understand how social interactions influence the effects of LCs on academic success. Research on LCs has consistently shown that LC students outperform non-LC students on two measures of academic success: GPA and retention. Although LCs are designed to support social interaction among college students in order to improve learning and academic success, and although research has shown that LC students report greater social outcomes as a result of their participation in a LC, little research has been conducted to explore specifically how social interactions account for the ability of LCs to impact academic success. To explore the answer to this question, statistical analyses were conducted to quantitatively assess the impact of LCs on GPA and retention. An ANCOVA was conducted to compare the GPAs of LC and non-LC students and a logistic regression was conducted to determine if participation in a LC was
predictive of sophomore retention. Also, LC and non-LC students were interviewed and asked how their social interactions influenced their GPAs and retention.

Results of the ANCOVA failed to find statistically significant differences between the GPAs of LC and non-LC students, and results of the logistic regression indicated that participation in a LC did not significantly predict sophomore retention. The analysis of student interviews revealed that, although the students in both groups believed that social interactions influenced their GPAs and retention, LC and non-LC student interactions were not different enough to have led to group differences in GPA or retention. Although LC students' reports of the benefits of structured social interactions were somewhat different due to the specific design and activities that were a part of participating in a LC, non-LC students reported similarly structured interactions that were a part of classroom activities and student-created study groups. A discussion of the results and implications for future studies are presented in Chapter V.
CHAPTER V: DISCUSSION

The purpose of this study was to investigate how social interactions influence the academic success of first-year Learning Community (LC) students. The design of LCs support academic success by providing a social environment that supports learning (Smith et al., 2004). This study, and the research on LCs in general, is largely supported by the research by Tinto (1993) who theorized that academic success is related to the social and academic integration of students into the university. In more simple terms, as students interact with the social and academic realms of the academic institution, they are more likely to experience academic success. These theoretical claims are particularly relevant for first-year students because research has shown that first-year students have a greater need for academic and social support due to the increased demands of college compared to high school (Giddan, 1988). Although Tinto's work focused largely on retention as a measure of academic success, other researchers have shown that social integration is related to GPA (McKenzie & Schweitzer, 2001; Robbins et al., 2004), which is the other measure of academic success in this study. Empirical studies have since demonstrated that LC students show higher rates of social integration (Baker & Pomerantz, 2000) and academic success (Lindblad, 2000) than non-LC students. Although the empirical research established a link between the higher rates of social integration and higher levels of academic success of LC students, little research has been conducted to understand how social integration in LCs translates into the academic success of LC students. This research seeks first to determine the effectiveness of the LCs in this study and then to better understand how the social interactions within LCs support the academic success of students.
To answer this question, academic records of 946 students were used to statistically compare the GPAs and retention rates of LC students and non-LC students. Then, interview transcripts from both groups were analyzed to compare how students report that social interactions influence these measures of academic success. It is hypothesized that this study will confirm the majority of research that shows that LC students have academic gains over non-LC student, and that LC students would describe social interactions that were more supportive of their academic success than the descriptions from non-LC students.

The results of the statistical analyses did not support the findings of previous research on the effectiveness of LCs. In this study, there are no statistically significant differences between LC students and non-LC students for GPA or retention. This is surprising because of the large body of research that has supported the effectiveness of LCs. The analysis of the qualitative data of the interview transcripts, however, reveals some interesting responses from students about social interactions that help explain these findings. The results of this study are surprising not only because there are no statistically significant differences in the academic success of LC students and non-LC students, but also because students from both groups describe the effects of social interactions on their academic success in nearly identical ways. Both groups report experiencing the same themes of social interaction that could positively or negatively influence their academic success. Students in both groups generally believe that social interactions positively influence their academic success. Perhaps the most interesting outcome of this research is the finding that non-LC students develop styles of group interaction that emulate LCs.

Social Interaction Themes for GPA

The similarities in the descriptions of the effects of social interactions between the two groups might explain why there are no statistically significant differences in the GPAs between
the groups. There are 8 themes that emerge from this analysis on the effects on GPA: Influence on Class Attendance, Sharing Course Information, Study Skills, Deep Learning, Helping Other Students, Social Pressure to Succeed, Verbal Encouragement, and Structured Interactions.

**Influence On Class Attendance**

This is the only theme with strong differences between the two groups. Both groups of students believe that social interactions can have both positive and negative influences on class attendance. LC students describe the influence of social interactions as more supportive of attending class than non-LC students. LC students report being teased about missing class or being encouraged to attend class. Non-LC students are more likely to report that social interactions pull them toward skipping class. However, although LC students describe more positive influences from social interactions to attend class, non-LC students describe the negative influence from social interactions to attend class as minimal. It is possible that the social pressure to skip class is influential only to a certain point. Once students feel their grades are slipping, they may push to regain their academic standing in the class.

**Sharing Course Information**

Here, both groups of students describe the effects of Sharing Course Information in very similar ways. Students in both groups ask other students for assistance with information about assignments or learn about resources from other students. Even without the structure of LCs to facilitate these kinds of interactions, non-LC students connect with other students to share important details of the assignment. This likely arises from the necessity of completing the assigned work. Because previous research has shown that students feel more comfortable asking other students for help than asking the course instructor (Giddan, 1988), it makes sense that students would turn to other students when they need information about assignments. If students
see instructors as ineffective or unhelpful, as some of the students report in this study, the students in their LC or a student sitting next to them in class is the best source for information.

*Study Skills*

The descriptions of the effects of learning study skills from other students is remarkably similar for both groups. Students even discuss learning some of the identical study skills in both groups: flash cards, methods of taking notes, and time management. Also, students describe the same methods of experimenting with new study skills. Students in both groups either observe other students’ skills or are taught study skills directly from other students and then experiment with them before adopting them permanently. Many of the students in both groups discuss learning new time management skills from other students. It is interesting that a much higher percentage of non-LC students (80%) report learning new time management skills than LC students (50%). This could possibly be related to the built-in time management structure of the LCs. Because LC students are provided a time to study each week, there is less pressure to learn how to manage time on their own. If academic success is a “sink or swim” experience for students, then non-LC students, who struggle with more time management issues, might simply adapt to their open study schedules by learning how to manage their schedules. These findings are also important for understanding how social interactions influence academic success because students report being able to identify successful students and are open to learning study strategies that help them. Students in both groups describe that other students taught them more helpful strategies than they were previously using.

*Deep Learning*

The exploration of this theme shows the rich social learning environment of students. Many of the students in both groups recount instances when social interactions, usually in some
kind of group study session, pull them more deeply into the material or help them see the information from a different perspective. These experiences translate into higher grades as they are able to understand or explain material better. Because research has shown that deep learning is a commonly reported outcome of LCs (Avens & Zelley, 1992), it is not surprising, perhaps, that non-LC students are experiencing the same effects from the LC-like study groups they are forming. Non-LC students report gathering with students to go over course information. But, as Steve describes, the emphasis is on understanding the material for his group of friends, not just copying the answer because they know they will need to understand the answer for the class. A couple of students in each group report that interest in course material carries over from studying with a romantic partner, even if they are not in the same courses. An assumption would be that non-LC students have less frequent contact with other students or do not discuss the information as deeply with other students. Non-LC students did not describe this situation in their interview responses. Non-LC students describe types of deep-learning interactions that they believe influence their academic success that are very similar to the descriptions from the LC students.

_Helping Other Students_

Students in both groups describe the benefits of helping other students. By helping other students, students are able to mentally review information and thus retain the information better. This is an interesting theme because the effects of helping other students was dynamic with carry-over effects to confidence. It would likely be very difficult to trace how helping other students becomes confidence and how confidence also influences grades. However, students in both groups believe that, in addition to the mental rehearsal of the information, the effects of confidence were influential as well. Many of the students also display a sense of pride in being considered the most knowledgeable in a particular topic or being able to help another student.
The students convey this pride in their descriptions, as well as through body language and intonation. It is also interesting to note that many of the students identify areas where they have strengths, such as math, writing, or critical thinking. Sharing these skills likely solidifies their efficacy beliefs about these skills. These findings suggest that encouraging students to work collaboratively, perhaps even allowing them to showcase their unique skills, is very supportive of students’ academic success.

*Social Pressure to Succeed*

Again, in this theme, we see that students in both groups report similar kinds of social interactions. The influence of competition on grades is very evident in both groups. While one might expect to see more competition in LC groups because of proximity and the social bonding of the students, non-LC students report competing for grades just as much. The friends sitting next to non-LC students are a source of quick comparison when assignments and tests are returned. While it is not unique that social competition exists among students, it is perhaps somewhat surprising to hear about the sense of responsibility that students feel toward other students and to hear about the academic expectations that students believe other students have of them. As often as students discuss competition in the interviews, students discuss these more positive types of interactions as well. Students feel a sense of leadership when they are excelling in classes and report that maintaining their academic image to other students is very important to them.

It is interesting to note that only the non-LC students discuss negative effects of social pressure. Two of the non-LC students discuss hiding from other students their need for help on coursework. This could be a situation unique to these two non-LC students, but could also reflect the tendency for LC students to work more cooperatively overall than competitively. Also,
because LC students are self selecting, this might be a result of more group-minded students enrolling in LCs and more individualistic students not enrolling in LCs.

**Verbal Encouragement**

Students in both groups describe similar kinds of interactions for this theme. Usually while a student is struggling with coursework, another student with whom they are working offers some kind of support to get them through it. While it could be inferred from the literature that LC students have more social interactions with other students, and thus more opportunities to receive verbal encouragement in a time of need, students do not describe this in the interviews. Students in both groups receive the kinds of verbal encouragement that get them through difficult academic times. These findings reinforce the importance of social support that first-year students desire in college. It does not, however, seem to be related to involvement in a LC. Even non-LC students are quickly forming groups of students who can offer words of encouragement when it is needed.

**Structured Interactions**

This was a very interesting theme to emerge from the analysis because it might have been assumed that structured social interactions would only emerge as a benefit to LC students. Students in both groups discuss the importance of social interactions that had some type of structure to them, be it from the LC, an instructor, the peer leader, an organized campus activity, or a student who emerges as a leader in a study group and guides the group through a study session. Simply put, having a structure during social interactions makes the sessions more efficient and less likely to erode into an unproductive session. Most of the LC students report that the study time for the LC helps them with their course work. However, the non-LC students report learning time management skills from other students. This could partially explain why
there is no overall difference in GPA between the groups. Also, the greater emphasis on the benefits of learning time management skills might have arisen from organizing these study groups, which requires coordination of schedules and a study group agenda. Also, without an official peer leader, non-LC student study-groups need to identify efficient methods of studying in groups.

The students mostly report the benefit of having a peer leader who could set up a general plan for studying during the LC time. However, many of the non-LC students describe the formation of study groups with other students on their own. The non-LC students report greater difficulty in making friends than the LC students, but here again, this might be a “sink or swim” situation.

Also, LC students describe benefits from having peer leaders who bring course instructors into the meeting times to meet with them informally. Several of the non-LC students, however, describe the poor instruction methods of their teachers. Perhaps these non-LC study groups are also able to compensate for poor instruction through the formation of these study groups.

Social Interaction Themes for Retention

Again, neither the results of the statistical analysis of retention or the qualitative analysis of the influence of social interactions on retention found differences between the two groups. There are 3 themes that emerge from this analysis on the effects on retention: A Sense of Community, Verbal Encouragement, and Structured Interactions.

A Sense of Community

This theme reiterates the theoretical and empirical support of the design of LCs. As students feel more integrated into the university, they are more likely to stay. Although all the
themes from the analysis describe ways that students integrate into the university, it seems more likely that LC students would report experiencing a sense of community that is supportive of their academic success. This is not the case. Non-LC students describe the ways that a sense of community influence their retention in the same ways and to the same extent as LC students. Non-LC students, like LC students, describe very close relationships with other students both inside and outside of their classes. Also, the students within the LCs are not always as tightly bonded as one might expect. The bonding of the LC seems to be directly related to the leadership ability of the peer leader. It did seem that LC students who describe an effective peer leader are the same students who describe an effective LC experience. Peer leaders, like key figures in non-LC groups, seem to have the power to unite the LC community. Non-LC students did not always describe having a sense of community with students in their classes, but students describe this sense of community with students outside their courses in comparable ways to the descriptions of the LC students. Whether having any sense of community is as influential on retention as having a strong sense of community isn’t clear from the interviews. Although research on LCs indicate that these students experience a stronger sense of community, a stronger sense of community may not ultimately have a greater influence on retention if a basic level of community is enough to change someone’s mind about leaving college.

Verbal Encouragement

Just like GPA, students in both groups report that verbal encouragement is supportive of retention. During frustrating academic moments, students express leaving college as an option. Helpful peers come in with encouragement, both solicited and not. The consistent theme that is emerging is that non-LC students are having the same kinds of academically supportive social interactions as LC-students. Both groups report that when school becomes frustrating or difficult,
verbal encouragement from peers is available and helpful. These findings add to the general conclusion that LC students do not have different types of social interactions than non-LC students. It is possible that the initial lack of a peer group for non-LC students combined with the pressures of the first-year forces non-LC students to seek these kinds of verbal encouragement by forming friendships. It is also possible that a social connection is established more easily when a student finds a verbally supportive peer. Either way, the students’ descriptions of verbal encouragement does not support that LC students receive more or stronger verbal encouragement than non-LC students.

*Structured Interactions*

As with GPA, students report that many of the structured interactions are beneficial to their decisions to enroll in college for their sophomore years. Although LC students and non-LC students report somewhat different kinds of structured interactions than the LC program provides, which includes built-in interactions, the interactions are parallel in many respects. For example, although non-LC students do not have a peer leader who could provide the kinds of study sessions that LC students experience, in previous themes non-LC students discuss study group interactions that were similar to the LC sessions. This is particularly true because both LC and non-LC students report that without some kind of structure to the study group, they often erode into unproductive socializing. While LC students have a peer leader to provide structured study time and learning activities, non-LC students form their own study groups that often contain basic organization, and a student facilitator sometimes emerges. This point is particularly important to this analysis because the academic gains of LCs are theoretically and empirically linked to the social group. If, however, non-LC students are able to organize their own study
groups that are structurally similar to LCs, then non-LC students would experience the same social benefits as LCs.

Overall, the suggestion of this theme is that students receive academic benefits when social interactions are provided to them through the university in some way. Especially for the students who describe themselves as shy, meeting other students can be difficult. If either the peer leader, the LC study time, a classroom activity, or any other student provides a chance to interact with another student, it is generally a welcomed experience that students believe positively influences their retention. Non-LC discuss the importance of classroom social interactions more than LC students. This could be related to the fact that LC students are receiving more social interaction in their LC study time than their class time and considered the LC study time to be of more importance. If a minimum level of interaction is required before students feel the retention-supporting effects, then perhaps students in both groups are experiencing these effects, just from different places. The LC students experience these interactions in the LC study time and the non-LC students experience them in the classroom or in their own student-organized study groups. Another way that non-LC students might be receiving social benefits similar to LC students is through enrolling in classes with their friends. While this feature is built into the LC structure, two of non-LC students specifically discuss enrolling in classes with their friends. Also, because many first-year students are taking the same introductory courses for their majors, they are likely to encounter many of the same students. If there are classroom activities that support social interaction or if students take the initiative to interact with other students, then non-LC students are having experiences that are very similar to a LC.
The fact that non-LC students are describing how social interactions influence their GPAs and retention in very similar ways to LC students is perhaps the most important finding of this study, because it provides a possible explanation for the lack of differences in the statistical comparison of the groups’ academic records. The design of LCs provides social experiences that support academic success. However, non-LC students are describing the same kinds of social interactions and the same ways that these social interactions translate into academic success.

Another way to look at the data is to examine the adaptive strategies of the students. Although LC students might experience some benefits from the LCs, such as the peer leader, structured LC activities, and a built-in study hour, the non-LC students show remarkable strategies to find these benefits on their own from other sources or just do without them completely. The student-formed study groups of the non-LC students are very similar to the LC study times. In fact, even LC students report forming study groups that were outside of the LC. This reinforces the interpretation that students are able to organize socially and academically beneficial groups on their own. Even without a peer leader, non-LC students are able to make their study groups work. If the groups are not functional, both LC and non-LC students adapt by studying on their own. In fact, several students in both groups reported that they preferred to study on their own in some academic situations.

Four of the non-LC students describe social interactions with students who were beyond their first year in college. This number is not much different than the number of LC students who feel that their peer leader is effective in providing a strong influence on their academic success. In fact, Jerome, a non-LC student, describes the strongest bond with older students. Jerome reports having an incredibly tight group of students, mostly students older than him. Jerome speaks extensively about the impact these students have on him, especially for pushing him to
pursue academic excellence. Jerome is also the student who describes extensively mentoring another student who is having difficulty. Whether this type of mentoring relationship is something that he passed on as a result of his experience is not clear from the interview transcripts. But it does highlight the fact that non-LC students are forming bonds with older students and are also finding students who serve a similar function as peer leaders.

However, several of the LC students describe their peer leader as ineffective. It was clear from the interviews that the academic benefits of social interactions are particularly beneficial when interactions offer some type of academic guidance. Although students in both groups describe the benefits of social interactions that involve simply complaining about college or hanging out, too much of these types of interactions, especially when it was time to be serious about course work, could be very frustrating for the students. If LC students feel trapped in a LC that is unproductive, this could add to the feelings of frustration.

Limitations

It is important to point out the aspects of the study that limit the reliability, validity and generalizability of the findings. First, the results of this study are from only one college and one university. Also, this study also did not control for other experiences or intervention programs that the students participated in. The results of this study demonstrate the students are very resourceful in finding the kinds of support they need. While students may not have found benefits from social interactions with students, they might have found benefits from other experiences or programs such as formal support groups, parents, or freshmen seminars. Although the recruitment emails were sent to a large groups of students (about 1,000), the response rate was very low (2.4%). Students who respond to recruiting emails might be the kinds of students who are more likely to engage in campus activities anyway, and thus report social interactions
that are richer or more extensive than students who do not respond to this type of recruiting email. The same is true for membership in a LC. Although many of the demographic variables that influence academic success are controlled, self-selection for a LC is not. It is possible that students who are less adaptive or less resilient to academic demands are also the types of students who join LCs. Perhaps if these students are left without the structured benefits of LCs, then their academic success suffers.

The original design of the study uses focus groups for the interviews. However, because of the low number of students, some of the interviews contain multiple students and some have only one student. These different types of interview formats can influence how students respond. Although the interviews were relaxed and informal and seemed to foster comfortable interactions between the researcher and the students, it is possible that students emphasize or play down the effects of social interactions on academic success to comply with perceived expectations of the researcher. Also, the results of the interview analysis rely on students’ self-reports about their experiences during the previous academic year. It is likely that many of their memories are lost or are less accurate.

The interpretation of the results of the interview analysis comes from the same person who designed and conducted the interviews and wrote up this study. This can lead to subjective interpretations. The researcher was also involved with the design and evaluation of LCs prior to the beginning of this study. With the problems of subjectivity in mind, however, it should be noted that the researcher is supportive of LCs, so the results of the study actually contradict what he would have expected. Also, the responses of the students drift between describing how social interactions influence their learning and how social interactions influence their academic success. This study was designed to assess the influence of social interactions on academic
success. Although academic success is a measure of learning, they are not identical. The researcher needed to remind the participants frequently to discuss the influence of social interactions on GPA and retention, not learning in general.

Also, the results of this study are from students who are still enrolled in college and do not include data from students who dropped out. Learning how social interactions influenced the GPAs and retention of the students who left college could bring a very important voice to the analysis. Also, the analysis only focuses on retention in general, and does not distinguish between the three types of attrition discussed in Tinto’s original 1975 model: students in good academic standing who leave voluntarily, students who leave because they are failing, and students who leave but later return. Social interactions may impact these groups of students differently.

Also important to note, is that the assumption of homogeneity of regression slopes for ANCOVA is violated because there are interaction effects between High School GPA and Gender for different values of LC participation. This violation warrants that the results of this statistical analysis be interpreted with caution because it indicates that the relationships for these two covariates with college GPA are different depending on LC participation.

Future Directions and Recommendations

Because this line of research on how social interactions influence the effectiveness of LCs is relatively unexplored, there are numerous directions for future research. First, a more thorough understanding of how social interactions influence academic success generally is needed before further investigation is conducted on social interactions that are specific to LCs. Because the findings of the study contradict the hypothesis, it indicates that more research needs to be conducted on the social environment of the university. Perhaps, due to extensive
involvement with LCs and more student-centered forms of learning, the overall learning environment of universities, or at least this university in particular, has shifted so that the social integration of students in general now emulates the experience of LC students. Future studies should examine the instructional methods that college instructors are using that encourage social interactions and their impact on academic success.

The influence of leaders in academic situations is apparent from the results of this study. Peer leaders for the LC students and student organizers in the student-formed study groups of both LC students and non-LC students were described as beneficial to academic success. Future studies should examine the effectiveness of these key academic influences. If LCs continue to use peer leaders, it would be beneficial to investigate the effectiveness of peer leader training programs. Understanding how students emerge as academic leaders and how these leaders could most effectively support the academic success of students would be helpful to improving the academic and social environments on campus.

Another line of useful research pertains to the awareness that students have about this social learning process. Are students aware of the influence they exert on other students and the influence that students exert on them? Perhaps if this awareness were developed in students, they would be able to navigate the social environment to have the most beneficial impact on their college experience.

Future research would also benefit from utilizing the research methods in Thompson’s (2008) investigation of how freshman students communicate academic support. Students in his study made daily entries in journals to document social interactions that they considered supportive. If research on LCs uses these methods, it could provide a more accurate portrayal of the student LC experience.
This study did not find significantly different GPAs or rates of retention between LC and non-LC students. Because the examination of homogeneity of regression slopes indicated that both Gender and High School GPA have different relationships with college GPA depending on LC enrollment, future studies might want to examine the interactions between the LC enrollment and demographic variables or pre-existing academic characteristics.

Implications

The results of this study contradict the hypotheses. Because the design of LCs foster social experiences that support the academic success of students, and because the empirical research has found that LCs students experience increased social integration and higher levels of academic success, it was hypothesized that the LC students would outperform the non-LC students in this study and would report social interactions that help explain these academic gains. However, the results show no differences between the groups in either GPA or retention. Also, the groups describe the influence of social interactions on their academic success in remarkably similar ways. It is difficult to draw conclusions about the influence of social interactions on the effectiveness of LCs using these results. Because the enrollment in a LC is not more effective on academic success than not being enrolled in a LC, it is difficult to link social interactions to LC effectiveness. Perhaps the most important finding of this study relates to students’ descriptions of the social interactions overall, not necessarily within the context of LCs. Almost all of the students in both groups could describe how social interactions influence their academic success. As our education system moves toward a more student-centered paradigm, investigating what kinds of social interactions impact academic success and how these social interactions impact success will be an important line of research to encourage student-centered learning within this system.
REFERENCES


Harris, B. A. 2001. The power of creating a spiritual learning community. *Adult Learning, 12*, 22-23.


Appendix A

Informed Consent for LC students
Title of Study:
Learning Communities: The impact of student interaction on student success.

Introduction:
I am inviting you to participate in a study that is part of my dissertation research. I am asking you to join a focus group with 5 to 8 other students. I will be recruiting 6 such focus groups for a total of 30 – 48 students. In the focus group, I will ask you to answer questions about how your interactions with other students have affected your academic success. Please read the following explanation carefully and ask questions about anything you do not understand.

Purpose:
The purpose of this research is to understand how college students’ social interactions affect their academic success.

Duration:
The focus group interview will last no longer than 90 minutes.

Procedures:
You were contacted by email to participate in this focus group with a few other college students to answer questions about how your interactions with other students affect your academic success. The focus group will be videotaped.

During the focus group, you will receive pizza and soft drinks. A $5 Subway gift certificate will be given to you for your time and travel. If you decide to leave the interview at any time, you are still allowed to have the food and the gift certificate. Participating or not participating will not affect your grades or standing at this university in anyway. Any information about you and responses you provide to the interview questions will remain confidential.

To participate in this part of the research, you must currently be 18 years or older.

Risks/Discomforts:
I do not expect you to be exposed to any risk or discomfort from participating in this study. None of the interview questions ask for sensitive personal information and you may choose not to answer any questions.

Although it is unlikely, if you feel that you need to talk to someone as a direct or indirect result of participating in this research, you can contact the Counseling Center here at UC at:

316 Dyer Hall Cincinnati ML#0034
University of Cincinnati
OH 45221-0034
Telephone: (513) 556 - 0648

Benefits:
Participating in this study will give you a chance to hear from other students about how their interactions with other college students affected their academic achievement, which could give you insight into
academic success. Also, your participation may help colleges develop better ways to help college students succeed.

**Alternatives:**
There are no other activities planned if you do not want to be interviewed.

**Confidentiality:**
Your email information will only be used for this study and will not be given out to anyone. It will be deleted from my records once the study is over.

The video and transcript files from the interview will be kept on my computer which is password protected. Only I will have access to your data. Neither the transcript nor the information published in my dissertation will contain your name or other individually identifying information. Research data will be stored in a password protected electronic format until the end of this study and then will be destroyed by deleting.

**Offer to Answer Questions:**
If you have any questions about study-related activities, you may call me at 513-290-3039 or Dr. Lanthan Camblin, my faculty advisor, at 513-556-3331. The University of Cincinnati Institutional Review Board – Social and Behavioral Sciences reviews all non-medical research projects that involve human participants to be sure the rights and welfare of participants are protected. If you have questions about your rights as a participant, you may contact the Chairperson of the University of Cincinnati Institutional Review Board – Social and Behavioral Sciences at 513-558-5784. If you have a concern about the study you may also call the UC Research Compliance Hotline at 800-889-1547.

**Voluntary Participation:**
You do NOT have to participate in this research study. You may choose not to participate or you may quit participating AT ANY TIME.

**Agreement:**
I have read this consent document. I am 18 years old or older and I voluntarily agree to participate in this research study. I will receive a copy of this signed and dated consent document for my reference.

____________________  __________________
Participant Signature       Date

____________________  __________________
Signature and Title of Person Obtaining Consent       Date
Appendix B

Recruiting Email for LC Students
Recruiting Email for Learning Community Students

Subject line: Tell us how to improve UC!

Hey former Learning Community student:

My name is Rob Kallmeyer, and I’m a doctoral student in Educational Studies here on campus. I’m asking you to participate in a 90 minute interview with other students for my dissertation research. During the interview, you will receive pizza and soft drinks. A $5 Subway gift certificate will be given to you for your time and travel.

Research shows that social interactions on campus can have an impact on students’ college success. How did your friends affect your progress at UC? How did YOU affect them? Tell us!

Group 1: Tuesday, April 8 11:00 – 12:30  480 Langsam Library
Group 2: Friday, April 11, 2:00 – 3:30    480 Langsam Library
Group 3: Monday, April 14, 1:00 – 2:30  480 Langsam Library
Group 4: Tuesday, April 15, 3:30-5:00   480 Langsam Library
Group 5: Wednesday, April 16, 11:00 – 12:30  480 Langsam Library

HERE’S THE BASICS:

1. **REPLY:** to this email and indicate which focus groups you can attend. You’ll receive a confirmation email within a few days. You must be 18 years old or older.

2. **COME:** to Langsam Library in the designated room at the time you chose and you will be interviewed in a focus group about how your interactions with other students affected your academic achievement. The 90 minute focus group is videotaped, but ALL information will remain confidential.

3. **EAT:** as much pizza and soft drinks as you’d like, and receive a $5 gift certificate to Subway.
Appendix C

Recruiting Email for Non-LC Students
Recruiting Email for non-Learning Community Students

Subject line: Tell us how to improve UC!

Hey McMicken College of Arts and Sciences students:

My name is Rob Kallmeyer, and I’m a doctoral student in Educational Studies here on campus. I’m asking you to participate in a 90 minute group interview for my dissertation research. During the group interview, you will receive pizza and soft drinks. A $5 Subway gift certificate will be given to you for your time and travel.

Research shows that social interactions on campus can have an impact on students’ college success. How did your friends affect your progress at UC? How did YOU affect them?

Group 7: Monday, April 14, 11:00 – 12:30  480 Langsam
Group 8: Friday, April 18, 1:00 – 2:30  480 Langsam
Group 9: Tuesday, April 22, 11:00 – 12:15  480 Langsam
Group 10: Tuesday, April 22, 2:00 – 3:15  480 Langsam
Group 11: Wednesday, April 23 3:00 – 4:30  480 Langsam

HERE’S THE BASICS:

1. **REPLY**: to this email and indicate which group interview you can attend. You’ll receive a confirmation email within a few days. You must be 18 years old or older.

2. **COME**: to 480 Langsam Library at the time you chose and you will be interviewed in a group interview about how your interactions with other students affected your academic achievement. The 90 minute group interview is videotaped, but ALL information will remain confidential.

3. **EAT**: as much pizza and soft drinks as you’d like, and receive a $5 gift certificate to Subway.