THE IMPACT OF A RESIDENTIAL LEARNING COMMUNITY MODEL ON
STUDENT ACHIEVEMENT IN A SUBURBAN CALIFORNIA COMMUNITY
COLLEGE

A Dissertation submitted in partial fulfillment of the requirements
For the Doctor of Education
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by
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DEDICATION

This dissertation is dedicated to my mother and father, who have constantly supported me throughout my life in my quest of life-long learning through education.

Thanks to my dissertation committee: Dr. Kathleen Rowlands, Dr. Brian Foley, and Dr. Dianne Van Hook, for their endless input, support, and encouragement. Additional thanks to my family: my wife Laurie, my daughters Jessica and Rachel, and my sons Derek and Michael, who put up with my lack of attention towards them for the last three years while I pursued this doctoral degree. Finally, thanks to Jason Burgdorfer and Guadalupe Garcia, whose comments and input during the final days of the editing process were critical to completion of this study.
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ABSTRACT

THE IMPACT OF A RESIDENTIAL LEARNING COMMUNITY MODEL ON STUDENT ACHIEVEMENT IN A SUBURBAN CALIFORNIA COMMUNITY COLLEGE

by

Vincent A. Devlahovich

Doctor of Education in Educational Leadership

A Photography and Geology learning community called the Canyons Residential Field Studies Model (CRFSM) was examined using mixed methods at a suburban community college during fall semester of 2012 to address whether its implementation can help enrolled students succeed in higher numbers in the current economic climate of budget cuts and enrollment caps. Two residential learning community class sections in co-enrolled Introduction to Photography and Introduction to Geology classes that each incorporated two 48 hour weekend field experiences and four face-to-face class meetings were compared to 2 traditional class sections for each of these two disciplines. The CRFSM class students constituted a learning community that took a large portion of responsibility for their own learning in the courses through cooperative assignments and
group work. Quantitative data was gathered using a pre- and post-intervention engagement survey instrument that incorporated 21 Likert-scaled quantitative questions and two open-ended qualitative questions to determine whether any differences were found between these classes and traditional stand-alone campus classes in final course grades, engagement, and retention. The findings indicate no effect of the CRFSM on final course grades or retention, but the findings indicated an increase in engagement for students in the CRFSM. Qualitative results from four open-ended survey questions were also examined to determine student perceptions of the intervention and reported in the study. A majority of the intervention students reported strongly positive experiences in the class. Additional research is necessary to examine this model further.
CHAPTER 1: STATEMENT OF THE PROBLEM

Introduction

The economic, social, and political future of the United States is inextricably linked to the Human Capital Economic Model that has driven the economy since 1973 when the United States began the transition from a manufacturing economy to an information- and knowledge-based economy (Mortenson, 2009). Human Capital is defined as the competences, knowledge and personality attributes embodied in the ability to perform labor so as to produce economic value (Becker, 1964). According to Becker, the economies of nations and states evolve through three stages. Since the United States was founded in the late 18th century, our nation has moved through the primary (commercial) stage and secondary (industrial) stage, and now we are entering into the tertiary (knowledge-based) stage in the 21st century. In Becker’s tertiary phase, economic activity is based on human capital: the productivity of educated human minds (Becker, 1990).

Human Capital theory links directly to higher education because prosperity for individuals, families, states, and countries in the information-age 21st century is directly driven by the productivity of college-educated workforce members and the industries that employ and support them. Individual income, and the living standards that income supports, are increasingly determined by the educational achievement of the workforce (Mortenson, 2011). Therefore, institutions of higher education must now begin to critically analyze how effectively they are producing these college-educated workforce members. If institutional efficiency can be improved in an economically sound manner
by increasing the number and rate of students who are successful, they can then produce the required human capital in sufficient numbers.

Many high school graduates in California, and throughout the United States, currently lack the skills and training to compete in the 21st century Human Capital Economy. In California, meeting these challenges will be especially difficult for several reasons. California’s demographics have changed dramatically over the past two decades. The population has become increasingly minority and low-income (U.S.Census Bureau, 2011). Post-secondary institutions are inundated with students ill-prepared for college-level work, and the state’s community colleges have been particularly affected.

With their open-access policy, community colleges provide an integral and often singular pathway into the middle class for many low-income, minority, and other special population students who often are the first in their families to attend college. California Community Colleges served 2,758,982 students statewide in 2009-2010 (Chancellor’s Office, 2010). However, these populations have never been well-served by higher educational institutions (Western Interstate Commission for Higher Education, 2011). While college attendance has grown over the past several decades, the attrition rate for these students is high, and attempts to reduce this rate have not been successful (Western Interstate Commission for Higher Education, 2011). The high attrition rate has been attributed to myriad factors, including underprepared students, lack of necessary institutional support for student success, and changing regional demographics.

This study examined whether the implementation of a residential learning community model into a community college setting can increase higher educational achievement by increasing student persistence and retention. Learning communities are
groups or cohorts of students who take two or more classes, linked by a common theme, together for the length of an academic term or longer. In this study, residential learning communities were defined as learning communities that met off-campus in a residential setting for a portion of an academic course. The residential learning community studied for this project featured two 48-hour weekend experiences during the academic term. This residential setting allowed for strong student-to-student bonding and team and relationship building, which have been shown to increase student engagement, leading to higher rates of student persistence and retention (Tinto, 2003). This study proposed that a large suburban community college, through sponsoring learning communities that helped to build peer and faculty relationships and deepen students’ understanding of course content, can increase student involvement, thereby supporting and enhancing student retention and success.

Problem Statement

According to the 2007 Accountability Reporting for Community Colleges report, the median income of California Community College students who completed their degrees or certificates increased from $17,000 per year to $49,500 per year when compared over a five year period before and after completion (p.18). California’s public-college enrollment declined by 165,000 during the 2009-2010 academic year, although the number of people trying to get into college grew (Keller, 2011). This is largely due to the California budget deficit occurring during that period, which, according to the California Community College Chancellor’s Office, resulted in turning away over 140,000 applicants in 2009-2010 due to course reductions (CCCCO, 2010) by capping student funding. This backlog of potential applicants could have negative repercussions
for years to come because the United States is in Becker’s tertiary phase of economic
development, which is the phase based on human capital and the productivity of educated
human minds. This, in turn, has made increasing the success and retention rates of
existing matriculated students of primary importance as a way to move them through the
system and on to transfer institutions to make way for new students. The problem
addressed in this study is the traditionally low rates of student success and retention at the
community colleges. One possible answer to this problem is implementing teaching
strategies and pedagogies across curricula that increase success for existing students.
This study proposed that the residential learning community model may be one strategy
that works to achieve this goal.

Purpose and Significance

The study’s purpose was to gather quantitative and qualitative data to examine
and analyze the impact of two different course delivery models — the traditional face-to-
face model and a residential learning community model — on student success as
measured by final course grades, a survey of student engagement that included pre and
post Likert-scale questions and qualitative open-ended prompts, and retention data.
Traditional face-to-face methods are those that rely on classroom instructional styles (i.e.,
lecturing and the Socratic method), rather than residential experiences and cooperative
learning activities, as the basis for teaching and learning. These data were then used to
examine the efficacy of the residential learning community. Residential learning
communities were chosen as a delivery strategy in this study because the differences
between this as an educational delivery model and traditional classroom instruction make
for strong points of comparison.
In order to prosper and compete in the Human Capital Economy of the 21st century and to overcome its budgetary problems, California needs a more highly educated workforce. The question, then, is how can California produce more highly educated citizens through the California Community College (CCC) system to help solve this problem in a difficult budget climate? One way this can be done is by increasing transfer and completion rates in the CCC system. As already stated, the state’s budget situation prohibits increasing enrollment to accomplish this goal and, in fact, mandates cutting classes and reducing enrollment at the CCCs. These conditions are likely to continue for an extended period, so an effective solution must involve improving success within the population of existing community college students. For example, the transfer and completion rate in the CCCs, at the time of this study, is about 40% (CCCCO, 2010), even while many community colleges retain more than twice this percentage. One reason for this discrepancy is that many students come to community college for training and take only a few courses; the completion rate is measured only if they finish a degree, obtain a certificate, or transfer. If this rate were to increase just ten percentage points to 50%, then at least 250,000 additional students each year would obtain either an associate degree, a certificate, or transfer to a four-year institution. The challenge is how to achieve this result in an economic climate of ever-increasing class cuts and funding slashes at community colleges.

Persistence is defined in higher education as a student’s continuing in school or college enrollment (Wiggam, 2004). Bransford (2000) states that learning and understanding can be facilitated in students by helping them learn how to transfer their learning and by helping them use what they learn. Finkel (2000) concludes, “Educational
research over the past twenty-five years has established beyond a doubt a simple fact: What is transmitted to students through lecturing is simply not retained for any significant length of time” (p. 3). Learning communities however, typically use active, cooperative learning activities to increase student engagement and have been found to be highly successful in this end (Zhao, 2004). Active learning is a term that refers to several models of instruction that focus the responsibility of learning on the learner instead of on the instructor (Bonwell, 1991). Active learning is simply defined as involving students directly and actively in the learning process itself. Adler (1982) states “All genuine learning is active, not passive. It is a process of discovery in which the student is the main agent, not the teacher” (p. 50). Therefore, a shift to more active and cooperative learning pedagogy in the learning community setting could be an effective and viable solution to help community college students succeed in greater numbers. While these more engaging methods can theoretically be applied in the traditional face-to-face classroom, this study focused on residential learning communities because the additional time that this experience enjoys provides an additional foundation for building powerful relationships among students and faculty, which may lead to an increase in student success. These relationships are important to develop because they have been shown to help students persist and succeed. When students and faculty share 48 hours together twice a semester in a residential learning community, strong personal relationships develop that are difficult, if not impossible, to develop in the classroom setting alone.

As stated earlier, this study examined the effects of two different course delivery environments (residential learning communities versus traditional classroom) on students’ achievement and engagement at a large suburban southern California
community college as measured by course grades, completion, and retention. The significance of the study is that, if the learning community method is shown to be more effective in decreasing attrition rates and increasing student engagement than traditional methods, this model can serve as a tool in for community colleges to help more students succeed, transfer, and graduate.

Three research questions guided this study:

Research Questions

1) To what extent does student achievement, as measured by grades, differ between students enrolled in a residential learning community and students enrolled in a traditional stand-alone classroom environment at the same California community college during the fall 2011 semester?

2) To what extent does student engagement differ between students enrolled in a residential learning community and students enrolled in a traditional stand-alone classroom environment at the same California community college during the fall 2011 semester?

3) To what extent does level of retention differ between students enrolled in a residential learning community class section and students enrolled in a traditional stand-alone classroom environment at the same California community college during the fall 2011 semester?

Hypotheses

The overarching hypothesis of this study is that residential learning communities are an effective solution to increasing student engagement, which, in turn, can lead to an increase in student success as measured by final course grades, engagement as measured
by online pre- and post-intervention surveys, and retention. These positive outcomes may serve as the foundation to implementing residential learning communities across the disciplines at the community college level. Three specific hypotheses guided this study:

1. Students in the residential learning community sections (intervention group) will exhibit a higher degree of success (as measured by their course grades) than their counterparts in traditional classroom sections (comparison group).

2. Students in the residential learning community sections (intervention group) will rate their experience higher in student engagement than their counterparts in traditional classroom sections (comparison group).

3. Students in the residential learning community sections (intervention group) will exhibit a higher degree of retention than their counterparts in traditional classroom sections (comparison group).

Theoretical Framework

Research by Tinto (1993) showed that “the more students are involved in the social and academic life of an institution, the more likely they are to learn and persist.”

In the traditional model, knowledge originates with the professor and is subsequently passed on to students by the primary instructional practice of lecturing and Socratic methods. These practices have dominated the higher educational pedagogical landscape for the last several hundred years and remain to this day in many classrooms (Lardner, 2008). The residential learning community model, in contrast, allows students to practice the theories and principles learned in the course content by applying them to real-life situations in the field. This is a key difference between the residential learning community model and a traditional classroom or online/hybrid delivery model. Although
a skilled instructor can make the practice of theories and principles happen in the classroom, it is not the same as out in the field. In the field, the situations and environment can change at any moment because nature is unpredictable and uncontrollable. In placing the students in an environment when they must adapt to these changes spontaneously, the field experience helps them think on their feet. This is experience that students can never get in the classroom, where the environment is predictable and controlled. This results in powerful long-term retention of subject content plus a unique collaborative and cooperative community experience.

Since most community colleges are commuter campuses and non-residential by design, students are often socially isolated and operate individually, failing to build important social relationships and connections that have been shown to help students succeed (Astin, 1987, 1993; Boyer, 1987; Pascarella & Terenzini, 1991; Tinto, 1975, 1987). Learning communities can help with all these problems by decreasing social isolation and creating collaborative communities, thereby increasing engagement and success rates and decreasing attrition and time to degree completion. Residential learning communities are perfect learning vehicles for a structured pedagogical plan to allow students to learn “actively” and take responsibility for their own learning while mitigating issues that commuter campuses face.

This study examined two courses taught by instructors who work closely together to coordinate their syllabi and their class assignments in order to facilitate a strong sense of community in which the students, working together, explore and discover the connections between these two disciplines in a socially conducive and supportive environment. These residential learning communities included two 48-hour residential
field studies experiences in a natural environment that strongly lent itself to community and relationship building. As an important part of participation in these learning communities, students interacted socially and academically with other students, instructors, and support staff. These interactions took place during the classroom sessions on campus, at the residential field studies sites, and through interdisciplinary group project sessions.

Residential learning communities allow students extended time together in the residential setting to collaborate, cooperate, and share knowledge. By requiring students to take courses and live together, residential learning communities construct a shared, coherent curricular experience that is not just an array of courses in disconnected departments. Students construct knowledge together, both socially and intellectually. The shared responsibility embedded in learning communities comes from the mutual dependence participants have on each other; the learning of the group participants does not advance without each member doing his or her part (Tinto V, 2003).

The Geology/Photography residential learning community in this study consisted of classes of about 30 students who co-enroll in both Introduction to Earth Science and Introduction to Photography. They attend four three-hour classes together on campus, as well as two 48-hour field trip weekends at the Canyons Field Studies Station in the San Bernardino Mountains near Big Bear, California. The initial on-campus class is designed to allow students to get to know one another and the instructors and as an opportunity for handling paperwork, logistical information, and for answering common questions about the upcoming field trips. The first field trip weekend comes next, with alternating Geology and Photography lectures as well as visits to sites in the area that exemplify
Earth Science features, topics, and provide opportunities for photography. During this trip, students develop peer relationships that lead them to self-select small groups of 4-5 students who will work together from this point in the course to their culminating final project. Outlines of project requirements as well as examples of past presentations are given to the students at this time. They share contact information with each other, develop a project timeline, and delegate member duties (individual research, chief editor, photo manager, etc.) over the duration of the project.

When the students return from this first weekend, they attend another on-campus class in which they extensively debrief their first residential weekend, meet with their project groups, and obtain additional content information from their instructors. They are given additional logistical information at this time to prepare them for the second field weekend, including expected weather and required equipment. Time is also allotted during this session for the groups to meet with the instructors to provide guidance on the final culminating group project.

Next comes the second residential field weekend, two weeks later, in which students continue their gathering of photographs of geological features while building tighter and stronger social and personal bonds with their peers and the faculty members. Evening activities that encourage these social bonding experiences include bonfire storytelling and educational films with post-viewing discussions led by the instructors. The class meets the third time during the following week, for more faculty coaching and monitoring of progress on group projects. The final class meeting is solely devoted to the groups’ presenting their projects to the class and includes refreshments to continue the students’ social bonding experience.
To summarize, there are three pedagogical advantages to this residential learning community Geology/Photography class: 1) active learning, defined as activities used in education to focus the responsibility of learning on the student, while promoting higher level thinking (Bonwell, 1991); 2) the residential learning community model, which promotes the assumption of student responsibility with its cumulating group project; 3) extended time for students during the 48-hour field weekends to bond with each other, and with the faculty and staff, as well as supporting collaboration, cooperation, and mutual dependence on their group partners.

Cooperative Learning in Residential Learning Communities

Cooperative learning communities are generally found to be effective in increasing learning, retention, cooperation, motivation, interpersonal communication, and achievement in higher educational settings (Cooper, 1989). However, gaps in the research do exist (Tinto, 2003). One gap is that research on learning communities in higher education is sparse at best, particularly in the community college setting, and especially within the residential learning community model in that setting. This study adds to the growing body of knowledge on this topic and helps move the community colleges towards a best practice of delivering this residential learning community model. Since community colleges rarely offer residential opportunities to their students, this study may serve as a model for other community colleges desiring to try this model as a pilot.

Overview of Methodology

Mixed methods were used in this study to determine the effectiveness of a residential learning community model at a large suburban southern California community
college. The purpose of this study was to examine whether students who enroll in residential learning community sections in Earth Science and Photography general education classes show significant differences in success, retention and student engagement rates when compared to students who took the same classes in traditional face-to-face, on-campus sections (comparison group). These residential learning community sections (intervention group) are defined as those requiring students to participate for a minimum of two 48-hour periods of residence at the Canyons Field Studies Station in the San Bernardino Mountains as part of the class section. In this study, this delivery format is defined as the Canyons Residential Field Studies Model (CRFSM). The students self-select for these classes and this study analyzes demographic and other variables available from the school’s database to examine whether any significant initial differences exist between students in each of these groups.

Intervention and comparison groups were established based upon students’ choice of the section (field studies vs. traditional face-to-face) in order to provide an SPSS linear regression analysis for non-collinearity using ANOVA to examine both groups.

Success in this study was measured by the percentage of students completing the course with grades of A, B, or C. Retention was measured by the percentage of students completing the course, regardless of the grade received. These data were collected in cooperation with the Department of Institutional Research at the study college. The Student Engagement Survey was created by the author on Google Docs by utilizing the benchmarks identified by the National Survey of Student Engagement (NSSE) and delivered to the students online. This data was then exported to Microsoft Excel and
finally to SPSS for correlation analysis. The results of these analyses are reported in Chapter 4 of this dissertation.

Limitations and Delimitations

Several limitations are present in this study. One is that, due to students’ self-selecting for either the intervention and comparison classes, a true random sampling of this college’s population is impossible. Self-selection is a limitation because students may select the CRFSM classes (treatment) because they like camping with their friends, thereby introducing bias into the study. Another limitation is the demographic data set supplied by the college’s Department of Institutional Research, which is a secondary source and consists of data that are self-reported by students. Self-reporting can introduce bias because students may not report their demographics truthfully and accurately. Finally, another limitation is that the treatment and comparison classes are not all the same in type and delivery methods. For example, some of the comparison classes are online, some are hybrid, and some are face-to-face. This is an additional source of bias that limits the validity of this study’s results.

An important delimitation of this study is that the student population at this geographic location may or may not be extrapolated usefully to any other community college location or population, since every community college is a unique environment.

Organization of the Dissertation

This dissertation is organized in five chapters. Chapter 1 presents an introduction to the study, the statement of the problem, the research questions and the hypotheses which guide this study. Chapter 2 presents a review of the salient literature, Chapter 3
defines the research methodology, Chapter 4 presents the results of the study, and Chapter 5 features discussion and conclusions.
CHAPTER 2: REVIEW OF THE LITERATURE

Introduction

In this 21st century globalized economy where manufacturing can occur in any country on Earth, students and educators alike must be aware that they are living in an information-dominant society where knowledge is a raw material to be converted to products, processes, or services. Higher education’s role now includes providing access to the economy for a broader proportion of the population as well as preparing citizens for a democracy in a new, high-tech, global world (Slaughter, 2009, p. 2). A nation’s innovation, investment, and production are no longer confined within its borders but, instead, can—and increasingly do—occur in any country. For the United States to remain a leader in this knowledge-driven society, higher education institutions need to develop the leadership skills and creativity of all students, in particular the over 12 million community college students who are not currently well-addressed in the academic community (Colleges, 2011).

In California, the most populated of the United States, funding for the California Community Colleges (CCC) has been an issue since the fiscal crisis began in 2008, mandating significant class offering reductions and resulting in thousands of students being turned away or underserved by the statewide system. Unfortunately, this trend is not likely to change in the foreseeable future, mandating alternative solutions to supply the necessary training to supply the required human capital to the industries that need it. One way this can be done is by reducing attrition rates at community colleges. As enrollments continue to decline, student retention will become increasingly critical to the survival of the state’s public institutions of higher education. This research study
examined residential learning communities as a teaching model to determine how effective this model is at supporting increased student success in a community college setting.

Retention and Persistence

Since retention and persistence rates are major factors in student success, it makes sense, when designing and implementing teaching and learning models, to examine strategies that have been shown to increase these rates. Many researchers point to the fact that involvement and social engagement by students at both the classroom and institution levels can increase retention and persistence rates (Tinto, 1994; Cooper, 1989, 2003; Johnson, 1991; Millis, 1998, 2002, 2005). One method useful in increasing social engagement is the development of a residential learning community. The community model has been shown to provide more coherent learning experiences, allow for learning to occur at a deeper level, provide connections between theory and field experiences, and increase faculty and student satisfaction, resulting in an increase of retention and persistence rates (Lichtenstein, 2005). This case study of a residential learning community at one California Community College proposes that such residential learning communities can increase student engagement and lead to higher rates of student success as measured by grades, retention, and persistence.

Social and Intellectual Development Theories

The Canyons Residential Field Studies Model (CRFSM) used in this study is grounded in several theories of social and intellectual development in conjunction with the learning community concept and associated cooperative learning pedagogies. In this section, the grounding theories that are foundational to this model are described.
Constructivism

Jean Piaget, best known for his theory establishing stages of cognitive development in the child, believed students do not receive knowledge passively but, rather, discover and construct knowledge for themselves through activities (Piaget, 1929). He believed children do not passively receive knowledge from their environment, but make it for themselves through a process of assimilation and accommodation, creating a schema, or mental framework, for how they interpret what they are learning from the environment (Auger, 2007). In other words, learning is not something the teacher places within a learner, but is a process which develops spontaneously in, and by, the learner. The teacher’s role in this model involves designing and structuring powerful learning experiences. With the prerequisite that the learner be at the proper developmental stage for this active process to occur, a central component of this theory is the participatory role of the learner in the construction and reconstruction of knowledge. To summarize, knowledge is not passively received through the senses or by outside communication.

Piaget’s work connects strongly to Ernst von Glaserfeld’s radical constructivism theory, which proposes a similar knowledge construction hypothesis. Ernst von Glaserfeld believed that the only reality that humans can know is that represented by human thought. This theory stands in contrast to objectivism, which holds that humans can know external reality, which is the reality that exists beyond one’s mind. In science teaching, radical constructivism supports the pedagogy of allowing students to break into small groups and talk about their personal experiences (schema) along with the content area concepts. It is this dialogue that fosters reflection, and this reflection that fosters understanding. It is this understanding that leads to knowledge construction. Many
researchers have examined substantial numbers of students in the science area who were exposed to a variety of different pedagogies, and all concluded that group and cooperative interactions supported student academic success and learning more than standard lectures (Bloom, 1984; Hake, 1998; Springer et al., 1999).

**Social Constructivism**

Lev Vygotsky (1962), who is best known for his Social Development Theory, purports that speech, as part of social interaction, plays a seminal role in the development of cognitive awareness and mental concepts (Vygotsky, 1962). The development of this theory was preceded by his work with language and social development in children that was later extended to include older learners. Vygotsky believed that words play an integral part in both the development of thought and the growth of consciousness as a whole; thought, to him, is not merely expressed in words, but finds its reality and form through speech. In his theory, a clear understanding of the interrelations between thought and language is necessary for the understanding of a child’s intellectual development. Language, to him, is connected strongly to thought, because language and words are essential in forming thoughts and expressing them to others. Vygotsky states, “Every function in the child’s cultural development appears twice: first on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological)” (Vygotsky, 1978, p. 57). Additionally, Vygotsky proposed that the potential for cognitive development depends on the “zone of proximal development” (ZPD), and development of this zone depends on full social interaction. The level of skills that can be developed with this social interaction exceeds any level of skill that can be obtained by the student alone. Traditional classroom lecture learning
that does not take the ZPD into account, then, is limited. A residential learning community, on the other hand, that focuses on the social aspects of learning is better positioned to tap into the ZPD and its constructivist learning approaches than a traditional lecture classroom, leading to more powerful learning for the students.

*Multiple Intelligences*

Professor Howard Gardner, from the Harvard University School of Education, developed an influential theory of multiple intelligences in 1983. He proposed that the traditional notion of intelligence based on I.Q. scores was far too limited and, instead, identified seven types of intelligences to account for a broader range of human potential in children and adults (Gardner, 1983). More recently, he added an eighth intelligence: naturalist intelligence (Gardner, 1999). To develop naturalist intelligence, Bruce Campbell of the Johns Hopkins University School of Education cites a menu of instructional strategies listed below (Campbell, 2011). Naturalist intelligence is relevant to this study because human interaction with nature has often been, and is still, neglected in education in general and particularly in higher education. However, it is important in today’s world for educated individuals to understand the synergy and energy that can exist between humans and nature. The only way to cultivate and benefit from this relationship between nature and humans is to nurture this eighth intelligence, especially in the discipline of geology, where everything happens outdoors in the natural setting. Venturing into nature provides multiple venues for exploration in terms of natural intelligence, as illustrated in Figure 1.
Collecting objects from the natural world
Labeling and mounting specimens from nature
Organizing collections
Observing nature
Doing experiments in nature
Noticing changes in the environment
Sorting articles from nature
Categorizing objects
Classifying information
Keeping notebooks
Learning names of natural phenomena
Learning characteristics of the natural world
Using magnifiers or microscopes to study nature
Using binoculars or telescopes to study nature
Drawing or photographing natural objects
Nature hikes or field trips in nature
Gardening
Caring for pets
Wildlife protection projects
Setting up winter feeding stations for wild animals or birds
Comparing natural observations with others
Visiting zoos and botanical gardens
Visiting museums of natural history
Drying flowers
Studying books about nature
Learning about the work of famous naturalists

Figure 1: Exploration Methods Available in Natural Environments (Gardner, 1999)

Since this naturalist intelligence is commonly under-developed in the traditional educational setting, developing this intelligence through residential field studies that incorporate these strategies can be a powerful multi-modal and experiential way of presenting content (Meyer, 1998). The benefits of this incorporation can lead the student to an interactive learning style that includes synthesis and higher order thinking skills.
John Dewey and Progressive Pedagogy

John Dewey, a well-known American educational reformer and writer, espoused public education and progressive pedagogies including inquiry learning and inquiry-based science. He represented the progressive populist philosophies of schooling during the first half of the 20th century in America. Dewey (1906) notes that “education is a regulation of the process of coming to share in the social consciousness; and that the adjustment of individual activity on the basis of this social consciousness is the only sure method of social reconstruction” (p. 80). In this quotation, Dewey advocates that the classroom should be a commons for students to share individual experiences and suggests that this process builds critical social consciousness and citizenship. Dewey argues that, in order for education to be effective, the content must be presented in such a way that allows the student to relate the information to prior experiences, which then deepens the connection with this new knowledge. In order to achieve this connection, he advocated an educational structure that strikes a balance between delivering knowledge and taking the interests and experiences of the student into account. He notes that “The child and the curriculum are simply two limits which define a single process. Just as two points define a straight line, so the present standpoint of the child and the facts and truths of studies define instruction” (Dewey, 1906, p. X). This view holds that the student’s interests and experiences and the curriculum combine to define instruction; addressing all of these is critical to learning. Through this reasoning, Dewey became of the strongest and most famous proponents of hands-on learning, also known as experiential learning, which is integral to field-based learning communities. Dewey was one of the first theorists to see the importance of the classroom as a place to share experiences that relate
to the academic content. This matches Dewey’s view that education is not just the delivery of content by the instructor, but the social interactions that happen because of the content’s instigating a sharing of experiences in that setting. Experiential learning provides the inherent setting for this to occur. In experiential learning, the classroom is the experience itself, not a physical room with walls and a whiteboard.

Developmental Rites of Passage

The transition from high school to college involves a distinctive “rite of passage” that is similar to the rites of passage from childhood to adult status in tribal societies (Van Gennep, 1960). Van Gennep believes that these rites of passage are evident in a wide variety of situations, including those involving the movement of a person from one group to another, as in the transition from high school to college. This movement from one group to another is a predictable process, he posits, and involves three distinctive steps. The first step, separation, involves the separation of the individual from past associations. It is characterized by a marked decline in interactions with members of the group from which the person has come. The second step is transition and is a period in which the person begins to interact in new ways with members of the new group into which he or she is entering. It is in this phase that the person learns the new knowledge and skills required for their specific role in the new group. The third phase, incorporation, involves taking on the responsibility of interactions with the new group and establishing competent membership in the group as a participant. For an individual, these movements usually involve moving from a safe and known community to a strange, unknown (and, therefore, often threatening) community. These movements often generate feelings of weakness and isolation, which can, in turn, affect student success and cause students to
give up and drop out. Understanding the rites of passage students experience as they move from high school to college can help us understand their early departure.

Cross (1999) notes that learning communities may play vital roles in the lives of part-time students because these students have fewer opportunities than full-time students to collaborate and communicate with their peers about academic matters. Residential learning communities can achieve this result by affording students quality time in the program to build and support strong social connections with both peers and faculty. These connections often greatly outlast the class and the college experience and have an impact on the student’s core values and personal perspective on the world. At a community college, most students typically drive to campus, go to their classes, and drive home. As a result, the college never becomes a part of the student’s life, or a part of his/her world. This could be why so many students are unsuccessful. Humans in general—and students in particular—need to belong to a group in order to feel safe and unthreatened. When students feel a part of a community, they can focus on their studies and the corresponding academic content. Social connections are, therefore, integral to building these relationships.

Transition to College and Persistence

According to Van Gennep, when college students begin their college careers, the first stage of separation requires that they disassociate themselves, in varying degrees, from membership in the communities of their past, especially those associated with the family, the local high school, and the local area of residence (1960, p. 21). These communities differ from college both in demographic composition and in values, norms, and behaviors that characterize their life. Because of this, the adoption of behaviors and
norms appropriate to college life requires some degree of transformation and possible rejection of the norms of past communities. To illustrate, London studied first-generation college students and noted a shared sense of “breaking away” that many students experience in making the transition to college (London, 1989). This can be more common in urban non-residential community colleges because these campuses have a higher proportion of students from disadvantaged backgrounds and from families whose members have not previously attended college. Therefore, this population is less likely to have adopted the behaviors that make for college success (London, 1989). “Breaking away” becomes more challenging at a community college when the student is a commuter and, therefore, does not fully separate him/herself from the old group to join the new.

Virtually all students experience some difficulty making the transition from high school to college. For some, the stress and sense of isolation can pose serious problems (Cutrona, 1982; Hurtado, 1997). Since the majority of community colleges are non-residential commuter campuses, feelings of isolation are common in this setting because these students are more likely than their four-year campus counterparts to be working while in college, attending school part-time instead of full-time, and living at home with their parents (Webb, 1990). They are likely to experience a wide variety of competing external forces on their time and, therefore, are often unable to spend significant amounts of time on campus interacting socially with other students and faculty despite an institution’s best efforts to provide social experiences through student groups and flexible faculty office hours. Though many students are able to cope with these problems of transition, many of them voluntarily withdraw from college in their first academic year,
sometimes because of their inability to weave themselves into the academic and social communities of the campus (Tinto, 1993). Experiences in classes that build social connections can help students feel less alone and more socially connected, helping their transition to college be less stressful and, therefore, making them more likely to succeed (Astin, 1984).

Retention

One standard definition of college student retention was established by the federal government for annual reporting by all colleges in the United States. Program retention is defined as a tracking of the full-time student in a degree program over time. In the case of a community college, retention is defined as three years (for the optimal two year program) to determine whether the student has completed his or her chosen program. The problem with measuring retention in this way is that the two-year/community colleges have a large (often greater than 50%) part-time population, and these students are not included in this definition. As a result, retention, one of the variables examined in this study, is defined for the purposes of the study as the number of students enrolled in each course after the course census date and the number of students who complete the course and receive a grade of A, B, C, or D at the term’s end. Finally, student retention, in cases where students do not enroll for two consecutive regular terms, is defined as the number of students who achieved their academic and/or personal goals, and, therefore, would not be expected to re-enroll (Center for the Study of College Student Retention, 2012). This includes students who earned a degree or certificate, transferred to another institution, or attended only for personal advancement or for specialized training.
Five conditions are known to promote student persistence defined as enrolling in new classes in consecutive regular terms (Tinto, 2003). These five conditions are high expectations; academic, social, and institutional support; frequent and early feedback; involvement into the institutional culture; and last and, most importantly for this study, class settings that foster learning by promoting involvement (Tinto, 1994). Tinto proposes that, when instructors place high expectations on their students, students are more likely to push themselves to work harder in their classes. Frequent and early feedback from instructors also helps students persist and move forward toward their goals. Promoting involvement in the classroom which fosters learning can be achieved by incorporating active learning techniques that have been described previously in this chapter.

Learning Communities

A learning community is any one of a variety of curricular structures that link together several existing courses—or actually restructure the curricular material entirely—so that students have opportunities for deeper understanding and integration of the material they are learning, and more interaction with one another and their teachers as fellow participants in the learning enterprise (Gabelnick, 1990, p. 19).

Post-secondary learning communities are not new. In the United States, they date back to the work of Alexander Meiklejohn and the Experimental College at the University of Wisconsin, which he helped establish in 1927 (Meiklejohn, 1932). The current movement, led by Evergreen State College in Olympia, Washington, is different because it involves a greater range of institutions (public and private, two and four-year), and also because it is adapted to the learning needs of a broader range of students.
(Washington Center, 2010). Their learning community design consisted of a cohort of students and faculty reading and discussing classic Greek literature the first year and then comparing that literature to contemporary American literature during the second year.

Smith (2001) states that, at about the same time that Evergreen College was established, other institutions, like SUNY Stonybrook and LaGuardia Community College in New York State, developed their own versions of learning communities. Today, LaGuardia’s Learning Communities include ESL courses paired with introductory courses in the major, First-Year Experience Academies, virtual leaning communities, and developmental math and English courses. That LaGuardia Community College chose to incorporate learning communities at such an early point is highly significant to this study because community colleges are the chosen path to higher education for the vast majority of the population of the United States and serve as “a significant entry point into college” (Smith, 2001, p. 4). Community colleges are excellent places to implement learning communities as a pedagogical model because students at community colleges can benefit greatly from the social networking inherent in them.

Vincent Tinto is one of the current leaders in research on learning communities. Under the auspices of the National Center for Teaching, Learning, and Assessment, he studied the learning communities programs at the University of Washington, LaGuardia Community College in New York City and Seattle Central Community College in Seattle, Washington. In the Coordinated Studies Program (CSP) at Seattle Central Community College, he conducted a longitudinal study on the effects of learning communities on the academic and social experiences of beginning college students. In this program, a classic learning community, students enrolled together in courses tied by
a common theme. He found that beginning students in these learning communities were more involved in course activities with other students, both inside and outside the classroom, than students who did not participate in the learning communities. Students had a more positive view of all aspects of their college experience, such as campus climate, other students, and the faculty. Also, learning community students had higher persistence rates (84% as compared to 80.9%) than peers. For purposes of his study, persistence was defined as fall students persisting to the following spring semester. Almost 67% of the students in the study persisted to the next fall semester compared to 52% of their non-CSP peers (Tinto, 1997).

Tinto’s qualitative data revealed that students who participated in the learning communities had the opportunity to develop a peer network that helped them persist in their college education. Additionally, these students were exposed to a broad range of diversity in their classmates’ backgrounds, cultures, and traditions, which they stated was helpful in understanding different points of view (1997). Tinto’s research in this and other studies led him to develop a number of insights into the impacts of learning communities on student learning and persistence. These insights are summarized as follows:

1. Students in learning communities tended to form their own self-supporting groups, which extended beyond the classroom. They spent more time together out of the classroom than did students in traditional unrelated stand-alone classes, and they did so in ways that students saw as supportive.

2. Learning community students became more actively involved in classroom learning, even after class. They spent more time learning together both inside and
outside the class. In this way, learning communities enabled students to bridge the divide between academic classes and students’ social conduct that frequently characterizes student life. They tended to learn and make friends at the same time, and, as students spent more time together learning, the students learned more.

3. Participation in the learning community seemed to enhance the quality of student learning. By learning together, everyone’s understanding and knowledge was, in the eyes of the participants, enriched. At the same time, students in the learning community programs perceived themselves as having made significantly greater intellectual gains over the course of the semester than did similar students in comparison classes.

4. As students learned more and saw themselves as more engaged both academically and socially, they persisted at a substantially higher rate than did comparable students in the traditional curriculum. At Seattle Community College, for example, learning community students continued at a rate approximately twenty-five percentage points higher than that of students in the traditional curriculum.

5. Student participants’ stories highlighted important messages about the value of collaborative learning settings in fostering what could be called “the norms of educational citizenship,” norms which promote the notion that individual educational welfare is tied inexorably to the educational welfare and interests of other members of the educational community. Students in these programs reported an increased sense of responsibility to participate in the learning
experience, and an awareness of their responsibility for both their learning and the learning of others (2003, pp. 5-6).

Tinto also states that learning communities vary in content, but all of them have three things in common. The first of these common characteristics is *shared knowledge* (2003, p. 2). Learning communities require students to take courses together and organize those courses around a theme. In doing so, they attempt to build a shared, coherent curricular experience that is not just a collection of individual, stand-alone courses. As a result, learning communities promote higher levels of cognition and complexity, which cannot be developed simply through participation in disconnected courses. The second characteristic is *shared knowing* (Tinto, 2003, p. 2). Learning communities enroll the same students in two or more classes as a cohort that supports them in getting to know each other quickly and intimately as a social experience integral to their academic and institutional experience along with core course content and experiences in common as well. Requiring students to construct knowledge together in a social and intellectual setting, learning communities promote higher levels of cognitive development than do other traditional pedagogies. In addition, they promote an appreciation of the ways one’s own knowledge is enhanced when others are part of the conversational learning experience. The third is *shared responsibility* (Tinto, 2003, p. 2). Because learning communities ask students to take responsibility for their own learning as well as that of others in their cooperative groups’ learning experience, they become mutually dependent on one another: learning does not happen without all members doing their part (Tinto, 2003, p. 6). Vincent Tinto has been a recognized expert in designing, implementing, and assessing learning communities. He has written myriad books and
journal articles on the subject and learning communities are his area of expertise. His collective work is therefore an excellent model to emulate in designing the residential learning communities of the CRFSM and is why this study utilized Tinto’s recommendations among others.

As a curricular structure, learning communities can be applied to any content or any group of students (Tinto, 2003). However, most often, they are designed for the needs of beginning college students. The linked courses could be comprised of a Freshman Seminar, a developmental basic skills course, a career exploration course, or a study skills course. Typically, two or three courses are linked in this way.

Gablenick (1990) and her collaborators, in their book Learning Communities: Creating Connections among Students, Faculty, and Disciplines, state that many learning communities do more than co-register students around a topic. They change the manner in which students experience the curriculum and the way they are taught. Faculty reorganize their syllabi and their classrooms to promote shared, collaborative learning experiences among students across the linked classrooms. This form of classroom organization requires students to work together in collaborative groups and to become active, indeed responsible, for the learning of both group and classroom peers (in Tinto, 2003, p.2).

As with any teaching and learning model, learning communities have limitations on their effectiveness. Some students are loners and do not like working with others. Similarly, some faculty members prefer not to collaborate with other faculty and staff and are more comfortable working alone. Some students are not social by choice or nature and, therefore, have no interest in the learning community and the group work embedded
therein. Additionally, social conflicts frequently occur in the learning community setting, and tension and emotion often run high. The students must deal with these problems and sometimes resolutions to these issues are difficult to secure. This leaves some students frustrated and annoyed with other group members and faculty. Finally, the learning community relies on coordinating many people and resources, which can be problematic logistically. This need to coordinate can create problems for the instructors, administrators, and students that would not necessarily occur in face-to-face on-campus classes.

Nonetheless, there is ample evidence to support the contention that learning communities typically enhance students’ learning and persistence and enrich faculty members’ professional lives (Cross, 1998). It is, then, not surprising that many institutions of higher learning in the United States have recently initiated learning communities, or that numerous non-profit foundations like the Lumina Foundation, Achieving the Dream, Inc., and the Center for Community College Student Engagement have initiated their support of programs that enhance the development of learning communities. One avenue for developing these learning communities is the adoption of the residential model.

Residential Learning Communities

When the learning community model is enhanced with a residential learning component, combining shared living with shared learning, the outcomes can be heightened and expedited because the student groups can develop into strong social networks more quickly and efficiently. Problems can arise if certain students resist participating in this group exercise, which may require instructor intervention to alleviate.
However, in the larger view, learning communities are especially powerful and effective when tied to the residential setting. The extensive time together that the students enjoy on the field weekends results in expedited student bonding and faculty interaction, which leads to strong social bonds among participants. Students often reported that long-term friendships develop from classes they have taken together. These friendships support students’ integrating into the institutional culture and fabric, which makes them feel safe and secure. These positive feelings support high levels of student success.

Pedagogies and Strategies in the Canyons Residential Field Studies Model

Cooperative learning is a common method of teaching used in learning communities which involves structuring classes around small groups that work together in such a way that each group member’s success is dependent on the group’s success and vice versa. There are different types of groups for different purposes, but all differentiate cooperative learning from competitive individualistic learning (Teed, 2011). Three types of groups are commonly:

1. **Informal Cooperative Learning Groups** are *ad-hoc* groups usually organized on the fly as an aid to direct teaching. Informal groups are often useful in breaking up a lecture into shorter segments mixed with group activities. This method reduces lecture time but increases the students’ retention of material as well as their comfort and cooperation in working together (Johnson, 2006, p. 3).

2. **Formal Cooperative Learning Groups** form the basis for most uses of cooperative learning in the college classroom. Groups are assembled for a minimum of one class period and may stay together for numerous weeks to work on projects.
These groups build cooperative behaviors of working together while building social relationships (Johnson, 2006, p. 2).

3. Cooperative Base Groups are long-term groups and last for at least a year. They are made up of students with broadly diverse backgrounds and viewpoints. They provide a context in which students support each in academics as well as other aspects of their lives and provide the permanent support and caring that students need “to make academic progress and develop cognitively and socially” (Johnson, 1998, p. 10). The CRFSM uses formal cooperative learning groups, the most common type of group and the type most reported in the literature.

Each of the groups presented above balance five key elements to differentiate Cooperative Learning from simply using student groups to learn. According to D.W. Johnson (2006):

1. Positive Interdependence means that the group members realize their individual grades are dependent on the performance of the rest of the group, not just on their individual efforts.

2. Individual Accountability means that students learn together but perform alone. This assures that no one can rely on the work of the others and everyone does his or her fair share of the work.

3. Face-to-Face (Promotive) Interaction means that cognitive activities and interpersonal dynamics can only occur when the students promote each other’s learning. It is through face-to-face interaction that students become personally committed to each other as well as to the group’s mutual goals.
4. Interpersonal and Small Group Social Skills are built by the instructor teaching cooperative skill components within cooperative lessons.

5. Group Processing means that, after each task, the students are given time to analyze how the groups are functioning and how well social skills are being employed. It involves both teamwork and individual work with a focus on improving performance on future projects (p.10).

In the CRFSM, the group project assures that Positive Interdependence and Promotive Interaction are cultivated because the student’s group project is weighted significantly into the final course grade and all group members receive the same grade for the project. The individual tests that the students take during the course on the textbook content assure Individual Accountability is built by participants. Interpersonal and Small Group Social Skills are built by the students’ living in their communal living quarters together and by cooking, planning, traveling, and other activities that they share as part of the field studies experiences. Finally, the debriefing sessions after each or the field experiences assure that Group Processing is functional.

The value of cooperative learning methods such as those described above is well documented. Research has shown that students who work in cooperative groups do better on assessments, especially those assessments requiring reasoning and critical thinking skill sets (Johnson, 1989). Slavin (1991) reviewed 67 studies of classes implementing cooperative learning and found that 61% of the students in these classes achieved significantly higher scores than those in traditional classes. He also noted that the difference between the more and less effective cooperative-learning classes was that the more effective classes stressed group goals and individual accountability more than the
less effective classes (Slavin, 1991, p. 89). One reason for this improved academic achievement in cooperative learning classes is that students in these classes are more active participants in the learning process (Lord, 2001, pp. 31-32). Compared to students who learn independently, students who are engaged in cooperative learning like the subject they are taking more, and their college experience better, than do their independent colleagues (Johnson, 1998; Springer, 1999; Lord, 2001). An additional benefit observed is that cooperative learning students are more likely to make friends in class and trust other students than students who are learning individually (Johnson, 1998). Student self-esteem, an especially important value for female and minority students, is also shown to increase in cooperative-learning students as compared to students who learn individually (Rendon, 1994). In a study of the retention rates of African American students majoring in mathematics and science at the University of California, Berkeley, Treisman (1985) found that the conventional explanation for minority student failure — lack of student motivation, lack of academic preparation, lack of family support, and low average socio-economic status — did not explain the phenomena he observed. Instead, he found that the sharp separation that most black students maintained between their school lives and their social lives was the major barrier to their success. He found this barrier could be addressed by building a community in their studies that would merge their academic and social lives (Treisman, 1985, pp. 12-14). The breaking of this barrier can be aided by cooperative learning activities and building support networks among the student, faculty, and staff.

In summary, it appears that cooperative learning has many benefits that relate to student success, while at the same time nurturing teamwork, a trait that all 21st century
jobs require. In Johnson, et al. (1998), the authors note that the most successful
individuals in business, research, and school are the least competitive, a trait that is
supported by cooperative learning and teamwork. The CRFSM works to support not only
cooperative learning strategies, but also social empathy and educational citizenship, both
necessary ingredients for 21st century success in the workplace.

Conclusion

Researchers have only recently begun to scrape the surface of the complex
processes of interaction among people within institutions that give rise to these
differences in retention rates. With continued focus on this critical issue, we can make
steady progress toward understanding and ultimately remediating this problem. What has
become clear in the research on student involvement, learning, and leaving college is that
the more students are involved in the social and intellectual life of the college, and the
more frequently they make contact with other students and faculty outside of class, the
more likely they are to learn (Wilson, 1975; Terenzini, 1987; Ory, 1986; Astin, 1991).

It is critical to examine retention in the current fiscal crisis when California and
most states are fighting for public education funding in a climate of budget, staffing, class
section, and program budget cuts. Institutions need to maximize retention. One way this
may be done is by initiating programs like residential learning communities that
incorporate techniques like cooperative learning, problem-based learning, and learning
communities.
CHAPTER 3: RESEARCH METHODOLOGY

As stated in Chapter 1, the problem this study addressed is how, in this economic climate of budget cuts, funding caps, and delayed applicants, we in the higher educational community can do more to help higher numbers of students already enrolled in community college become more successful and achieve their academic goals more efficiently. By examining and implementing teaching strategies and pedagogies that increase student success, this study proposed that the residential learning community model may provide one strategy to achieve this goal. This study is supported by the research examined in Chapter 2, including that regarding residential learning communities in particular, that combine shared active learning techniques and shared living, resulting in the formation and establishment of strong social networks which support cooperation, teambuilding, and student success. The hypothesis of this study was that residential learning communities are an effective solution to increasing student engagement, which, in turn, can lead to an increase in student success as measured by course grades, retention, and course completion rates and that implementation of the residential learning community model at a community college will lead to this outcome.

This study’s purpose was to gather data to quantify and compare the impact of two different course delivery models—the traditional face-to-face model and the Canyons Residential Field Studies Model (CRFSM), on student success as measured by a survey of student engagement, course grades, and retention data.

This research study was grounded by the following general hypothesis: residential learning communities are an effective solution to increasing student engagement in the
community college, thereby leading to higher rates of student success as measured by student engagement, course grades and retention rates.

Research Questions

Three research questions guided this investigation:

1) To what extent does student achievement, as measured by grades, differ between students enrolled in a residential learning community and students enrolled in a traditional stand-alone classroom environment at the same California community college during the fall 2011 semester?

2) To what extent does student engagement differ between students enrolled in a residential learning community and students enrolled in a traditional stand-alone classroom environment at the same California community college during the fall 2011 semester?

3) To what extent does level of retention differ between students enrolled in a residential learning community and students enrolled in a traditional stand-alone classroom environment at the same California community college during the fall 2011 semester?

Research Design

Since the students self-select for the intervention class sections, this study employed a quasi-experimental design. This study examined student success and engagement of traditional (comparison) and field studies (intervention) classes by using both quantitative and qualitative research methods.
Setting, Population, and Sample

In the span of 40 years, College of the Canyons has evolved from a small community college serving several hundred students into one of the nation’s fastest-growing, large community colleges (those with 10,000-plus students). Change and significant progress have occurred throughout the Santa Clarita Valley over the years, and College of the Canyons has been propelled forward by a combination of the community’s growth and a vision to transform it into one of the best community colleges in the country (Office, 2011). Projections indicate enrollment will continue to rise. Nearly 25,000 students enrolled for classes in the Fall 2011 semester, surpassing enrollment projections well ahead of schedule. This sort of growth has demanded flexibility and innovation. It also has created demands for new academic, occupational and athletic programs, training partnerships with business and industry — and the facilities to house them. Additionally, College of the Canyons has a long history of offering diverse and innovative educational opportunities for its students, of which the Canyons Field Studies Program is an example. In fact, only a few of California’s 112 community colleges offer field studies at a designated research site, and these programs are not interdisciplinary in design or function as is the COC Canyons Field Studies Program.

The course sections offered through the Canyons Residential Field Studies Model (CRFSM) are highly similar to those offered outside the program with the exception of the field studies component. Four sections were involved in this study: two intervention group co-enrolled sections of Geology 109 and Photography 150, both hybrid in delivery and two comparison group sections: one section of Geology 109 online in delivery and
one section of Photography 150, face-to-face in delivery. Hybrid courses meet face-to-face for a portion of the required class time and online for the remainder. In this case, the co-enrolled intervention classes meet four times on campus face-to-face for a total of 6 hours for each class and two weekend field experiences for a total of 12 hours for each class. Therefore, the course hours total 18 hours of meeting time face-to-face on campus and at the field station, and 32 hours meeting time online, for each of the two courses.

None of the courses requires any prerequisite courses and their enrollment closely follows the demographics for the larger campus. This is important for substantiating the validity of the study. Students who enrolled into Geology 109 and Photography 150 classes at the College of the Canyons during the fall semester of 2011 were used in this study. This group was diverse demographically and the distribution is described in table 1.

Table 1: Intervention and Comparison Group Characteristics

<table>
<thead>
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<th>Intervention Group (n=19)</th>
<th>Comparison Group (n=29)</th>
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<tbody>
<tr>
<td>Ethnicity</td>
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<td>7.7%</td>
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<tr>
<td>Central American</td>
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<td>3.2%</td>
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<tr>
<td>Filipino</td>
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<td>3.2%</td>
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<td>Mexican Chicano</td>
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<td>12.9%</td>
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<td>44%</td>
<td>51.6%</td>
</tr>
</tbody>
</table>
There were some significant differences between the intervention and the comparison groups, probably due to the fact that the students who enrolled in these sections self-selected during the enrollment period for either the traditional on-campus class (comparison group) or the residential field studies class (intervention group). In the published schedule, the field studies option is described as follows:

| **(THIS SECTION IS A) HYBRID FIELD STUDIES CLASS.** On campus meetings (1 hour 20 minute time block specifies) on Mondays, (four dates specified). Mandatory, on location field study will take place at Camp Tahquitz, south of Big Bear on (two weekends, Friday through Sunday specified). The field study will replace 12 hours of on-campus time. Please visit www.canyons.edu/fieldstudies for information regarding student responsibilities and requirements. This is a Learning Community section with two or more classes clustered around a common theme. This class is paired with PHOTO-150 (section specified). Students are required to enroll in this section as well. Students are responsible for their own food and transportation. |

Figure 2: CRFSM Class Description

These courses offered students the option of sections that included residential field study experiences at the College of the Canyons (COC) field studies station in the San Bernardino Mountains or sections held at one of two campuses in the Santa Clarita Valley. As described in Chapter 2, very little research exists on the impact of residential learning communities on student success. This study added to this limited, but growing, body of knowledge by comparing students who elect to take the residential field studies sections of the above mentioned courses (the intervention group) with students who elect to take the traditional, classroom sections of the same courses (the comparison group) in order to see if any significant differences exist in three traditional measures of student success: (1) grade earned, (2) student engagement, and (3) retention percentage (dependent variables).
With cooperation from COC’s Institutional Research Department, the following independent variables were analyzed before students were placed into the two study groups: gender, age, ethnicity, high school GPA, and date of high school graduation or GED. These were analyzed by a SPSS linear regression analysis for non-collinearity using ANOVA.

The sample of students from the general student body at College of the Canyons (COC) self-selected and enrolled into Geology 109: Introduction to Earth Science classes and Photography 150: Introduction to Cameras and Composition classes and completed the voluntary pre- and post-survey instrument described in this study during the fall semester of 2011. The student identification numbers for these students were sent to COC’s Institutional Research Department, and the department’s staff returned the demographics on most of these students. Some students could not be matched probably due to some students’ misreporting their student identification numbers in the pre- and post-surveys or because data was missing from the Institutional Research Department on some of them for other unknown reasons. The intervention and comparison group were then defined as follows. The intervention group consisted of 19 students who self-selected to co-enroll in the field studies learning community classes described in this study: one Photography 150 section and one Geology 109 section delivered in a hybrid residential field studies (CRFSM) format. The comparison group consisted of 29 students who enrolled in one of the following two class sections: one Photography 150 section delivered in a traditional face-to-face format (14 students) and one Geology 109 section delivered in an online format (15 students). This selection process was used to
allow quantifiable comparison of the intervention group with the comparison group during analysis.

Analysis was performed on these demographic variables to determine whether there were any significant differences among four variables: gender, ethnicity, age, and date of high school graduation or GED. Any significant differences were controlled for when correlation analyses were performed.

Data Acquisition

Demographic data for the evaluation of the program were collected from reports and records provided by the Admissions and Records and the Institutional Research Departments at College of the Canyons. These data produced quantitative results that were securely stored in the College of the Canyons Institutional Research Office and supplied to the study as requested. The Student Engagement Survey was created by the author on Google Documents by utilizing the benchmarks identified by the National Survey of Student Engagement (NSSE) and delivered to the students online. This data was then exported to Microsoft Excel and finally to SPSS for correlation analysis.

Student Achievement Data Analysis

Student achievement was measured by final course grades. The final grade for each student was recoded and analyzed using ANOVA with A = 5, B = 4, C = 3, D = 2, F/W = 1 to determine whether there was a difference in the intervention group’s final grades versus the comparison group’s final grades. The results of this analysis are reported in Chapter 4.
Engagement Data Analysis

Student engagement was measured using the Google Documents Survey included in Appendix A. Student engagement is a widely researched topic in higher education literature. Most of this research focused on behavioral indicators and the environmental conditions that supported student engagement. Although this is a popular area of research, little has been done to examine how residential learning communities enrich the environment to support student success. Because this was the purpose of this research project, a 4–point Likert-scaled survey was used to gather data. The 4-point Likert scale was modeled after the one used by the widely accepted National Survey on Student Engagement, whose validity and reliability are well-documented (NSEE, 2012). Both the intervention group students and comparison group students were invited to complete the surveys.

A total of 21 items (Appendix A) assessed student experience in a class by measuring how often they had done each engagement activity. The questions were chosen by surveying the last several revisions of the National Survey of Student Engagement. The instrument scaling the responses was categorized into four options: Very Often, Often, Sometimes, and Never. Never was coded as 1 and Very Often was coded as 4. Sample items in the survey were “Prepared more than one draft of a class assignment or paper before turning it in?” and “Worked on an assignment that required integrating ideas or information from several sources?” The items on the engagement survey (Appendix A) used in this study represent empirically confirmed “good practices” in undergraduate education (Kuh, 2001; Carini, 2006; NSSE, 2012). They reflect behaviors by students and their instructors that are associated with the desired outcomes.
of college. The engagement survey does not assess student learning directly, but captures data identifying how engaged the students are in their learning. The NSSE surveyed over 500,000 students in 2011 in over 500 colleges and universities. The NSSE uses five Benchmarks of Educational Practice to craft its questions and also presents and publishes its research findings throughout the year.

Cronbach's alpha was used to measure internal consistency; that is, how closely related a set of items is as a group (UCLA, 2012). It is a good way to test the reliability of a survey such as the one used in this study. A "high" value of alpha is often used as evidence that the items measure an underlying (or latent) construct. However, a high alpha does not imply that the measure is unidimensional. Technically speaking, Cronbach's alpha is not a statistical test, but, instead, it is a coefficient of reliability (or consistency). In this study, the Cronbach’s alpha was .80 for the Engagement Survey. This indicates a high degree of reliability for this instrument.

Level of Retention Data Analysis

Retention was measured by students’ completing the course regardless of their grade. Retention was coded as 1 and dropping out as 0. For the comparison group classes, this meant the student took the final exam. For the invention group classes, this meant that the student attended the final class meeting day.

Retention at the university level is usually defined as on-time graduation (within four to five years) (Walleri, 1981, p. 3). Defining retention at the community college is much more challenging than defining it at the university level, because students come to the community college for a wide variety of reasons, often not including graduation. For this study, retention was defined according to Crawford’s report as “maintenance of
continued enrollment in classes throughout one semester” (Crawford, 1999). If this researcher continues with this study into the future, this definition would likely be modified to define retention over a longer period of time, possibly one academic year.

Supplemental Survey Questions

The Student Engagement Survey used in this study utilized Google Documents for online delivery and submission and included four open-ended response questions (Appendix B). These questions aimed to examine the students’ perceptions of the course and the course delivery. The two pre-survey questions were “What made you decide to take this particular course section over any other offered this semester?” and “Have you ever before in your college career taken a field studies or learning community course?” The two post-survey questions were “What aspects did you like the best about this course? Please explain why these were good,” and “What aspects of this course could be improved? Please explain why.” These questions were chosen after consultation with the program director and considering future needs for the program’s sustainability.

Qualitative Data Analysis

To analyze the first pre-survey question, a tally was made of positive responses. The second pre-survey question was coded and tallied according to four prevalent themes: 1) General Education requirement for transfer, 2) Love of the subject, 3) Camping/Field Studies aspect, or 4) Learning Community aspect. The first post-survey question “What aspects did you like the best about this course? Please explain why these were good,” was coded and tallied according to two prevalent themes: 1) The “hands-on”/field work/weekends camping, and 2) meet new people/make new friends. The second post-survey question was coded and tallied according to three prevalent themes:
1) More class meeting time/less condensed course length, 2) provide student transportation (students now transport themselves) and 3) more subject matter lectures. The results of these tallies are reported in chapter 4.

Human Subject Approval

Permission for using human subjects in this study was obtained from two sources: the Institutional Research Board at California State University Northridge and the Office of Institutional Research at the College of the Canyons. Descriptions of the study and permissions to participate were obtained from all participants in writing before any data beyond demographics was collected and analyzed.

Baseline Data Analysis

The pre-engagement difference between the intervention group and the comparison group was examined with an equivalence test to make sure that the intervention and comparison groups were not significantly different before treatment. No significant difference was found between them.

Demographic Data Analysis

Since the students self-select for these class sections, the current study attempted to address the selection bias in the data analysis. Any demographic variables which showed significant initial differences between the intervention group and comparison group were identified and controlled as covariates in the data analysis. The mean differences of the following independent variables between the groups were compared before students were placed into the groups: gender, age, ethnicity, and date of high school graduation or GED. Gender and ethnicity were analyzed as categorical variables employing Chi-square analysis. In terms of gender, male was coded as 1 and female as 0.
With regard to ethnicity, data was categorically coded according to the report supplied by the College of the Canyons Office of Institutional Research. Age and date of high school graduation or GED were analyzed as continuous variables using ANOVA.

In term of the graduation data, the most recent date was coded as 1 and the oldest as 29. Age and date of high school graduation between the intervention and the comparison groups were compared utilizing one way analysis of variance ANOVA. This was done to determine whether these variables must be controlled in the analysis of the effect of the intervention as per the three research questions. The results of these analyses are found in chapter 4.

The independent variable is intervention vs. comparison group. The intervention involves participating in two 48-hour residential learning community experiences, from Friday until Sunday at the Canyons Field Studies Station at Camp Tahquitz in the San Bernardino Mountains.

Research Question 1 Data Analysis

Binary logistic regression analysis was conducted to examine to what extent student achievement, as measured by grades, differed between students enrolled in a residential learning community and students enrolled in traditional stand-alone classroom environment. This was done because a general linear model with repeated measures is used to measure the changes of a variable (such as grades) over time (pre- and post-intervention). Logistic regression was used to investigate the percent of variance in student achievement explained by the intervention while controlling for demographic covariates. Age and high school graduation date or date of GED were identified to be
demographic covariates. They were controlled in the analysis because they were both found to be statistically different in the two subject groups (intervention and comparison).

Research Question 2 Data Analysis

General Linear Model with Repeated Measures (Vonesh, 1997) was conducted to examine to what extent student engagement differed between students enrolled in a residential learning community and students enrolled in traditional stand-alone classroom environment. Within-subjects variables included two time levels before and after the intervention occurred. The factors were (1) the total mean of engagement measured before the intervention was given and (2) the total mean of engagement examined after the intervention was occurred. The intervention group and comparison group were entered as between-subjects factors. The intervention group was coded 1 and the comparison group was coded 0. Age and graduation date were identified as demographic covariates. They were controlled in the analysis.

Research Question 3 Data Analysis

Binary logistic regression analysis was conducted to understand to what extent the level of retention differed between students enrolled in a residential learning community and students enrolled in traditional stand-alone classroom environment. Logistic regression was utilized to examine the percent of variance in retention explained by the intervention, controlling for demographic covariates. Age and graduation date were identified to be demographic covariates. They were controlled in the analysis. Results are reported in Chapter 4.
Limitations

There are several limitations in this study. Some of these are described below.

1) Since students self-select for either the traditional (comparison) or field studies (intervention) classes, this is not a true random sample of the population at College of the Canyons (COC). An attempt was made to introduce some control over this limitation through analysis of the demographic data before the two groups were created, mitigating some of the sampling issues by selecting students with similar demographics, but bias can still be present in this sample. This makes the study results difficult to compare to other programs and schools with similar programs.

2) The small sample size and the fact that this study was conducted only during the fall 2011 semester when two CRFSM classes were offered, make for a major limitation of this study. This is a critical issue because it makes it difficult to generalize the study findings to other academic settings. This limitation can be mitigated by extending this research longitudinally into future semesters at the college. Small sample size makes the quantitative data suspect and results difficult to extrapolate.

3) The data set supplied by the COC office of institutional research were a secondary source, therefore validity cannot be controlled because much of the data is self-reported and might not be accurate and because some students did not report their demographics at all. Data was also not available from the Office of Institutional Research for 10 of the 58 students.
4) Different instructors in the study classes also limited the study. This makes engagement comparisons difficult. This would again be mitigated by additional research over future semesters. It was impossible to have both intervention and comparison classes taught in fall 2011 by the same two instructors, but this may be achievable over future semesters.

5) Different grading policies among the classes in the study provided another limitation. This makes comparison of final grades difficult.

6) The Engagement Survey is not validated, and, therefore, the conclusions from it are questionable.

7) Grades are not the only, or best, measure of student learning. This makes evaluation of student success in the study courses difficult to compare among students and in a wider context.

8) The mix of delivery methods (online, hybrid, and face-to-face) in the study makes it hard to compare classes to each other.

9) Retention should be measured over a period of time longer than the length of one course in order to make conclusions from this area meaningful.

Summary

Mixed methods were used in this study of the effectiveness of a residential learning community model on community college students’ success at a large suburban institution. Data for success, as measured by final course grades, student engagement, and retention, were collected at the end of the semester for both comparison and intervention groups and analyzed using SPSS software analysis at the p = 0.05 level of significance. In terms of the engagement, General Linear Model with Repeated Measure
analysis was conducted to examine a mean difference between the traditional (comparison) and field studies (intervention) classes.
CHAPTER 4: RESULTS/FINDINGS

Introduction

This chapter presents the results of a study exploring the impact of participation in a field studies residential learning community at a suburban community college on student achievement as measured by grades, on student engagement as measured by an engagement survey instrument, and on retention, as measured by students completing the course. The chapter additionally contains comments from student participants from the classes in this study. This was done in order to gather qualitative data and evidence from the participating students in order to complement the quantitative data gathered in this study.

This study is based on the understanding that learning communities are structures that link two or more courses together with a common theme. The Canyons Residential Learning Community Model (CRLCM) additionally requires students to attend two 48-hour camp experiences at a field station in the local mountains which provides the setting and time required for a collaborative and socially-rich academic experience. A total of 48 students who participated in Canyons Residential Learning Communities in the fall 2011 semester were examined in this study.

In terms of the CRFSM, small groups of 4-5 students were established at the beginning of the course (the second class meeting) by the students’ own choices to encourage critical interpsychological relationships to develop early among both classmates and instructors. Interpsychological relationships are relationships that develop between individuals. These relationships lead to deeper learning and critical thinking inside individual students (intrapsychological), as per Vygotsky’s understanding of
human learning. With the CRFSM classes, the students learn from each other due to the full social interaction that the field experience and cumulative group project work support. This then leads to the full level of learning possible with Vygotsky’s zone of proximal development (ZPD) social components in place (1962).

The cumulative group project used in the CRFSM required students to evaluate and analyze their photographs of geoscience features from their field experience and then to create a multimedia or PowerPoint™ presentation which incorporates these analyses. The students worked on these projects as small groups from the second class meeting until the final class meeting, over five weeks. During this time, most groups met at least twice a week on their own time. The class in this study performed excellently on the final presentation project. The final project grades, which ranged from 89-98%, reflect this high level of quality and performance. This project, as well as the group activities designed into the experience, such as the GPS scavenger hunt and the sunset hike, includes active, cooperative, and collaborative learning tasks which build social relationships and interdependence among students while supporting powerful learning. The high grades student groups received on the project reflect the benefits of this collaborative teaching and learning model.

This chapter reports on the SPSS statistical analyses of the survey data that examined the extent to which student achievement (as measured by course grades), student engagement (as measured by the student engagement survey instrument), and level of retention (as measured by finishing or not finishing these respective courses) differ among students enrolled in a residential learning community and students enrolled in a traditional stand-alone classroom environment to determine whether one course
delivery method provides is more successful in these areas than the other. Additionally, the student responses to open-ended pre and post survey questions were examined and reported herein.

The intervention group in this study consists of the co-enrolled residential learning community classes that require two weekend experiences at Camp Tahquitz. The comparison group in this study consists of students enrolled in the same classes as the intervention group (Introduction to Photography and Introduction to Earth Science), but who take these courses as traditional face-to-face or online classes instead of in a learning community. The goal of this study was to examine whether the residential learning community model has any significant effect on student achievement, student engagement, and retention, as measured by students completing the course with a grade of A, B, C or D.

Preliminary Analysis

In an attempt to compare two groups of students who were as similar as possible, and to make sure that demographic variables were not significantly different between the two groups, demographic data analysis was conducted to identify any significant differences in the observed variables between the intervention group and the comparison group. Any demographic variables found to be significantly different were controlled as a covariate. Chi-squared analysis was run to examine whether students in the residential learning community (intervention group) differed significantly from students in the traditional stand-alone classes (comparison group) in terms of their gender and ethnicity. As gender and ethnicity are categorical variables, ANOVA cannot be used because these variables are not continuous and normal in distribution, as ANOVA requires. Therefore,
chi-squared analysis must be used instead to analyze group variance. Using chi-square analysis, no significant mean differences in the intervention versus the comparison group were identified by gender, ($\chi^2 = .321$, df = 1, $p = .571$), or ethnicity, ($\chi^2 = 1.909$, df = 1, $p = .385$). Gender analysis is shown in Figures 3 & 4 below.

Figure 3: Gender analysis of intervention group

Figure 4: Gender analysis of comparison group

As these charts show, the intervention group had a higher percentage of females than the comparison group, but these differences were analyzed and found to not be statistically significant.
For the intervention group, ethnicity distributions are shown in Figure 5 below.

![Intervention group ethnicity distributions](image)

**Figure 5: Intervention group ethnicity distributions**

For the comparison group, ethnicity distributions are shown in Figure 6 below.

![Comparison group ethnicity distributions](image)

**Figure 6: Comparison group ethnicity distributions**

These ethnicity charts show that both intervention and comparison groups were significantly diverse. They visually support the analysis that there were no statistically significant differences between the intervention and comparison groups.

The White/Caucasian students (represented population) were coded 1 and the students with the other ethnic backgrounds (underrepresented population) were coded 0.
For the intervention group, 14 were underrepresented and 12 students were not, and, for the comparison group, 14 were underrepresented and 15 students were not. The mean of the intervention group was .46, and the mean of the comparison group was .52. These are the percentages of the representative groups. Chi-squared analysis was run on ethnicity between groups and no significant difference was found. In other words, about half the students in both intervention and comparison groups were white/Caucasian (represented population) and the remaining students were a mix of other ethnicities with no one group dominating.

Since age and date of high school graduation are continuous variables, variance between groups in relation to these variables must be analyzed using ANOVA. The results of ANOVA presented significant differences between the groups in age, $F(1, 48) = 5.914, p = .021$, and date of high school graduation or GED, $F(1, 48) = 4.617, p = .037$. The median age of all students in the intervention group was 21.12 with standard deviation of 5.38, while the median age of all students in the comparison group was 25.58 with standard deviation of 7.96. This shows that the intervention group averaged over four years younger than the comparison group. This difference could be due to a variety of factors, one of which may include that fact that older students are more likely to have family and work commitments that make it harder to attend the two field weekends. Such attendance is easier for younger students, since many of them live at home with their parents. Expected from this difference, due in part to self-selection during enrollment, would be that younger students are more interested in social engagement than returning, older students, who are already on their own out in the world and have other commitments and responsibilities. If this were true, it would drive higher engagement
scores for the intervention group students since younger students are generally more attracted to social connections and networking.

The most recent student graduation date was June, 2011, and the oldest date was June, 1983. The oldest was coded as 25 and the most recent as 1. The mean of the graduation date for the intervention group was 3.96 with a standard deviation of 5.06. The mean indicates that most of the intervention group students graduated in June, 2008. The mean graduation date for the comparison group was 8.04 with a standard deviation of 7.81. Therefore, most of the comparison group students graduated in June, 2004. Accordingly, to answer the research questions fairly, age and date of high school graduation or GED variables were controlled as demographic covariates in data analyses. This was done because the small sample size (n = 48) of this study prohibited using a sample matching technique.

In addition, an equivalence test between the intervention group and the comparison group was conducted using the pre-class and post-class Engagement Surveys mean scores for both groups (see Appendix A and B for pre-class/post-class engagement survey questions). According to the mean scores of the two groups, the intervention group presented with a .17 higher engagement mean than the comparison group. The intervention group scores were $M = 2.66$, $SD = .342$ and the comparison group scores were $M = 2.49$, $SD = .347$. Determining group equivalency using pre-survey scores in engagement, there was evidence showing that the intervention group and comparison group had baseline data which were not significantly different from one another. According to the analysis result of ANOVA, no significant mean difference was found in the pre-survey scores in engagement: $F (1, 55) = 3.223, p = .078$. According to the
significance level of $= .078$ (which is higher than .05), the pre-test engagement survey scores between the intervention group and the comparison group are not significantly different; therefore, it is fair to characterize the two groups as starting from the same baseline. Since the only demographic data available from the COC Office of Institutional research were gender, ethnicity, age, and date of high school graduation or GED and all were analyzed, no further comparisons could be made between the intervention and treatment groups prior to the intervention.

Photography/Geology Learning Community Class Structure

Presented below and in Appendix C are the description, course timeline, student learning outcomes, and grading and class procedure for the Geology portion of the Photography/Geology Learning Community.

**Description:**

This course is a hybrid/field studies introduction to Earth Science. It features web-based Blackboard based assignments, media, power points and exercises to enhance your understanding of the subject area. It surveys the terminology and basic concepts of the fields of Earth Science, including astronomy, geology, oceanography, and meteorology. Examines the Earth’s changing geologic systems and the importance of Earth Science phenomenon to daily life.
## Course Timeline

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/3</td>
<td><em>Class meeting #1</em></td>
</tr>
<tr>
<td>10/3-10/8</td>
<td>Ch. 1: Introduction the Earth Science, Ch. 2: Minerals: Earth’s Building Blocks, Ch. 3: Rocks: Keepers of Earth’s History</td>
</tr>
<tr>
<td>10/9-10/15</td>
<td>Ch. 4: Weathering, Soils, and Mass Wasting, Ch. 5: Water On and Under the Ground, Ch. 6: Extreme Climatic Regions: Deserts, Glaciers, and Ice Sheets / <em>Test #1</em></td>
</tr>
<tr>
<td>10/16-10/22</td>
<td>Ch. 7: Plate Tectonics: Sculptor of the Earth’s Changing Landscape, Ch. 8: Earthquakes and Earth’s Interior</td>
</tr>
<tr>
<td>10/17</td>
<td><em>Class meeting #2</em></td>
</tr>
<tr>
<td>10/21-10/23</td>
<td><em>Field Studies Weekend #1</em></td>
</tr>
<tr>
<td>10/23-10/29</td>
<td>Ch. 12: The Oceans, Ch. 13: Where Ocean Meets Land, Ch. 14: The Atmosphere: Composition, Structure, and Clouds / <em>Test #2</em></td>
</tr>
<tr>
<td>10/30-11/5</td>
<td>Ch. 15: Global Circulation and Weather Systems Ch. 16: Global Climates Past and Present</td>
</tr>
<tr>
<td>10/31</td>
<td><em>Class meeting #3</em></td>
</tr>
<tr>
<td>11/4-11/6</td>
<td><em>Field Studies Weekend #2</em></td>
</tr>
<tr>
<td>11/6-11/12</td>
<td>Ch. 17: Earth’s Place in Space / <em>Test #3</em></td>
</tr>
<tr>
<td>11/14</td>
<td><em>Final Class Meeting #4 / Presentation</em></td>
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</table>

**Student Learning Outcomes:** (Outcomes for all credit courses must indicate that students will learn critical thinking and will be able to apply concepts at college level. Outcomes must be related to Catalog Description, Course Content, and Objectives.)

**The student will be able to:**

1. Define, compare and contrast and trace the origin and evolution and/or significance of selected Earth Science terms, phenomena, concepts,
location, events and persons inherent within the topics of Earth science.

2. Analyze the symbiotic interrelationship of earth/son/moon effects, atmosphere, weather, climate and oceans as they relate to the earth’s changing geologic systems.

3. Assess the importance and practicality of Earth science phenomena to the daily life of humankind, individually, and collectively.

Grading & Class Procedures: The three exams and two field weekends are required to pass the class and the tests will not be rescheduled without a documentable emergency of the most severe nature. The field weekends cannot be rescheduled and both weekends must be attended in order to pass the class. The exams cover material from the lectures and the textbook. You are responsible for material from both sources so do your reading! Grading is on an A, B, C, D, and F system based on the following:

- Your grade is calculated from the three tests, each worth 15% and the final project worth 55%.

Because both classes enroll the same students (co-enrollment), the class meeting times and the field weekends were the same for both courses. As can be seen from the course timeline, the course was six weeks long, condensed substantially from the standard 16-week full semester delivery. This short-term format required focus, planning, and dedication on the students’ part to achieve success. That success was supported by the intensity of the field weekend experiences and the peer bonding that necessarily occurred along with this format. The challenge inherent in taking a course in a condensed format often benefits students by pushing them to perform at a more condensed and higher level than they would in a regular semester length course. Both
photography and geology course content was delivered in a hybrid format, including 12 hours of face-to-face meetings in the field for each class, 6 hours of meetings on campus over four days for each class, and an additional 32 hours required in the online portion for each class. The online portion consists of the textbook readings for both courses, and includes PowerPoint™ presentations, discussion board and research assignments, along with online quizzes and tests for both classes. Since both instructors involved in the CRFSM have successfully taught these classes online for several years, the online pedagogies are well-designed and tested as per student evaluations and accepted online practice principles. Many students reported that they spend more than 32 hours on the online portion of the course.

The first class meeting, on October 3, 2011, was primarily an orientation to the learning community course, the online course expectations and protocol, a review of the syllabi, the group project protocol and expectations, and the grading protocol. Additionally, trip safety and required paperwork processing, including liability waivers, rules of conduct at camp, and behavioral expectations were covered in this session. A general preview of each of the courses was also given by the respective professors in a lecture format. The first class ended with a question and answer period, which focused on inquiries about the trips and what students should expect at the field site.

The second campus meeting occurred exactly two weeks later, on October 17, 2011, after the students had covered substantial online content in both classes. In this session, group project membership was finalized and topics and membership were reported to the instructors for the group projects. In addition, both instructors presented over an hour each of content-specific lecture material. The last 45 minutes of the class
were opened to questions about what to expect and how to prepare for the first camp weekend, four days away.

The first weekend field experience came next, on October 21-23, 2011, and is described in the following section.

*Weekend #1 Description*

The final student project groups were pre-determined by or during the second on-campus class meeting, which preceded the first weekend field trip by one week. This was achieved by the students’ self-selecting for groups that they were attracted to according to members’ tastes and personalities. By the first field trip, October 21-23, 2011, the groups were well-established and students were generally well-bonded. The only restrictions placed on group membership by the instructors were that they must contain between four and six students.

On Friday, the first day of the weekend, October 21, 2011, the students checked in and attended an orientation session which discussed basic camp safety procedures and rules of behavior. The Icebreaker Exercise next consisted of pair-sharing personal information (likes and dislikes, favorite movies, phobias, etc.). It was designed to put students at ease with each other to facilitate sharing and bonding. The Photography/Geology residential learning community theme is the history of the more than 100-year relationship between professional photographers and the United States Geological Survey (USGS) and is termed “Pix and Shovels.” The schedule below (Figure 7) represents the latest version of a constantly evolving CRFSM course delivery design. All sites were chosen by the faculty based on their photographic and geologic offering and their proximity to the camp.
Figure 7: First weekend schedule for Photography/Geology Learning Community

This weekend plan has been extensively modified and revised over the four year history of the Photography/Geology Learning Community Class (CRFSM). This schedule works out well for learning, timing, and other logistical reasons.

The San Bernardino Mountains is an area rich in powerful geologic features and history, such as Yucaipa Ridge, the San Andreas Fault, and the Holcomb Valley gold mining area. Much geological research has been done there because of its proximity to the Los Angeles area and its academic institutions, and this has provided a rich research database for the instructors and students to benefit from while visiting the area. After the Icebreaker exercise, a 30 minute overview of the area’s geology was presented by the geology instructor, followed by a lecture on camera control by the photography instructor. Then, the students were led by both instructors on a camp excursion to two areas north and south of the classroom facility and separated by about one half mile and several hundred feet of elevation. This was the first opportunity the students had to
experience the physical effects of an elevation of over 6500 feet above sea level and the concurrent hydration issues. They noticed quickly how winded and thirsty they became during the hike. This is instructional because no amount of verbal warnings can prove the elevation effects to students better than experiencing the effects personally. After this hike, they realized that they were in a new and challenging environment with which they were unfamiliar. This was an important and powerful learning moment because it sharpened their awareness of the situation they were thrust into. This extrapolates well into their daily lives, where all of them are challenged every day by the unpredictability of the environment in which they live. This is just one of the many teachable moments that field experiences offer to students.

The students returned to their cabins at 5:30 PM to clean up and prepare for dinner, which they cooked themselves, usually in groups. The students planned their own menus, purchased their own food and cooked it themselves in a covered outdoor area central to the student cabins and campfire. They were encouraged to not only car-pool with their group members to camp (since transportation is up to them), but also to plan their meals collaboratively as well. The meal times, including preparation and clean-up, were important times for students to bond and form a tight-knit community, which frequently happened during the weekend experience. Students were engaged in conversations with each other while preparing and eating their meals. This time shared together with a common place and goals builds strong personal connections.

The instructors spent extensive time with the students in non-instructional time. For example, both the photography and geology professors cooked food with the students. This allowed time for faculty-student bonding to occur and was an important
part of the residential learning community experience. This quality time together cannot
easily be achieved in a traditional face-to-to class without significant effort but is easily
achieved in the CRFSM. The instructors then spent time with the students around the
campfire and led stargazing after darkness that night.

Saturday, October 22nd, was designed as a geology/photography road trip
experience to significant locations that supported each discipline. The first stop was
about eight miles east of camp, off the highway near Onyx Summit, the pass into the Big
Bear Lake area. Onyx Summit is an interesting site because, when the highway was built
over fifty years earlier, the construction crew cut through a limestone roof pendant that
had metamorphosed into marble, quite a rare sight in any igneous mountain range. (A
roof pendant is a remnant of an older rock body left on the top of a mountain after
tectonic uplift). The construction crew left a large quantity of the marble in a huge pile
next to the road cut, enabling the students to spend an hour collecting samples of marble.
This site provided not only a great opportunity to collect rock samples and take
photographs, but also to learn how marble forms from limestone. One of the most
powerful parts of the field experience occurs when core course concepts can be
experienced firsthand and visually; if field trips are planned properly, this happens quite a
bit.

Next the group traveled to an area that afforded the students their first view of the
highest mountain in Southern California: Mount San Gorgonio. The mountain cannot be
seen from camp due to the fact that it is blocked by a high steep ridge. At this stop
students took photographs and the geologist made a short presentation on the Pleistocene
 glaciation on the north face of the mountain. This additional connection of course
content to field experience made the course material come alive for the students. One student commented that the field experience weekends “Made geology real to him, because it was not just pictures in a textbook.” Next, the group traveled by caravan down to the Santa Ana River, to a location that allowed the students to sit in the shade next to the running water and explore the riparian habitat and its ecosystem while eating their pre-made sack lunches. The groups stayed at the river for about one and a half hours before heading west again to two significant highway pull-offs that highlight geology and coincide with photo opportunities.

The first stop after lunch was a view of Slide Peak, which features a massive and recent mass wasting event. (Mass wasting events are any downslope movements of soil, rock, or regolith due to gravity.) This geologic feature is pertinent to the course content, and the geologist gave a short lecture to make this connection explicit. Only two miles further was a road cut that featured two distinctively different cross-cutting events: felsic and mafic dikes. Dikes are younger cross-cutting igneous events exhibited in older rock bodies. These features are rarely found together, and, here, they were especially interesting because they showed differential rates of erosion. One student commented about this road cut experience on the post survey, “I liked the field study weekends because it was easier to understand certain information by observing it occurring naturally (i.e., dikes, mass wasting).” Once again, a presentation was made here to connect this geologic event to the course content. By this time, the students had started to understand the power of field trips because they began to ask pertinent questions about how and why these dikes formed here. Finally, the group made one more stop just a half mile further west, which allowed the students an exceptional view of Yucaipa Ridge, the
most recently uplifted mountains in Southern California. A discussion about the San Andreas Fault, found just south and opposite of the ridge, and the cause of the uplift and mass wasting events in the area, once again, connected the students with the course content and student learning.

The group then drove back to camp, allowing the students two hours of free time before dinner. Many of them took this time to go up to the internet café to work on their group projects, since all members were conveniently together for this weekend experience, and because the instructors required a progress report on all the group projects before departure on Sunday (see the first weekend schedule). Dinner as usual was followed by a campfire, stargazing, and games or movies in the lodge. Since this was the students’ second day at camp, most of them retired quite early because they were physically exhausted due to the full day’s agenda and the unfamiliar change in elevation.

The large lodge was used as one of two classrooms and was a place that students often gravitated to during the late evening to play games or just talk (see Figure 8). Movies were offered here as well. This area served as a community gathering place at camp that provided a commons for recreational as well as academic endeavors.
The class met for a third time on campus a week later, on Monday, October 31, 2011. During this 90 minute class, the instructors met with the final project groups to give them direction and suggestions. These meetings consisted of independent meetings with each of the five final project groups for about 20 minutes.

The following weekend, the students attended the second field studies weekend. Surprisingly, it snowed over a foot. Prior to this weekend, the instructors and the field studies director had followed the weather closely, expecting a storm (they had been teaching together in this residential learning community format for over four years and 15 classes), and made sure that the students were informed of what to expect and how to prepare for winter weather in the mountains before they departed on Friday, November 4, 2011, for camp. Most students reported being very excited about the possibility of snow at that class meeting because many had never personally experienced snow before, having been born and raised in Southern California. The second weekend field experience occurred on November 4-6, 2011, and is described in the following section.
Weekend #2 Description

The second field weekend was similar in structure to the first weekend. It was held on November 4-6, 2011. (See schedule in Figure 9 below)

<table>
<thead>
<tr>
<th>Friday, 11/4/11</th>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00 PM</td>
<td></td>
<td>Arrive at camp/move into cabins</td>
</tr>
<tr>
<td>2:00 PM</td>
<td></td>
<td>Orientation</td>
</tr>
<tr>
<td>3:00 PM</td>
<td></td>
<td>A brief history of USGS and GPS technology</td>
</tr>
<tr>
<td>4:30 PM</td>
<td></td>
<td>Group Scavenger Hunt using GPS</td>
</tr>
<tr>
<td>6:00 PM</td>
<td></td>
<td>Dinner</td>
</tr>
<tr>
<td>7:00 PM-?</td>
<td></td>
<td>Group time/stargazing/movies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Saturday, 11/5/11</th>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 AM</td>
<td></td>
<td>Breakfast</td>
</tr>
<tr>
<td>10:00-1:00</td>
<td></td>
<td>Geology Road tour ending at Forest Falls/Big Falls</td>
</tr>
<tr>
<td>1:00-2:00 PM</td>
<td></td>
<td>Lunch at Thermal Flats (bring a packed lunch)</td>
</tr>
<tr>
<td>3:00-5:00 PM</td>
<td></td>
<td>Group time in Internet Café</td>
</tr>
<tr>
<td>5:00-6:30 PM</td>
<td></td>
<td>Sunset hike at view of Slide Peak</td>
</tr>
<tr>
<td>7:00-9:00 PM</td>
<td></td>
<td>Potluck at Internet Café</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sunday, 11/6/11</th>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 AM</td>
<td></td>
<td>Breakfast and move out</td>
</tr>
<tr>
<td>9-10:30 AM</td>
<td></td>
<td>Professors meet with groups/assess progress</td>
</tr>
<tr>
<td>11:00 AM</td>
<td></td>
<td>Sign out and obtain permission to leave</td>
</tr>
</tbody>
</table>

Figure 9: Second weekend schedule for Photography/Geology Learning Community

As is clear from this schedule, extensive time was once again embedded throughout the schedule for social interaction, team-building, and building even deeper relationships among students as well as between faculty and students than were developed during the first weekend. While, at first glance, it may not seem like the students were doing many traditional academic activities, they were actually strongly engaged in learning activities the entire 48 hours because much of the time was set aside for them to work together on their group project. Student independence and self-directed learning at camp is strongly supported by an internet café, fully equipped with broadband access and laptop computers for their use 24 hours a day. This is exemplified by the following quotes from a student. He said, “I liked how the class made us talk to other
students. It makes students communicate and learn about each other! It is really great because I know a lot of people made new friends.” Another commented, “Going to camp in the San Bernardino Mountains was really great, Vince taught us so much about the history of the mountains and how they formed over time. Learned a bunch from you in geology!” These quotations are significant because they show that the experiential aspect of the learning community supports deep learning, retention of material, as well as the building of strong social bonds and relationships. This is a goal of field studies in general. Another student commented: “I loved how close everyone in the class became. It was almost as if we were one big family. The field trips to Camp Tahquitz were a lot of fun and I'm definitely glad I got to experience a field studies class because it is much different than a normal course.” This quotation shows that this student understands that the CRFSM is a unique and powerful way to take a course and is significantly different than traditional on-campus classes in that deep personal bonds develop among many participants.

Upon arrival at camp on Friday, November 4th, the students moved into their cabins and reported back for orientation, as they did the first weekend. The camp director reiterated all rules and regulations again for clarity during this time. Next, came a lecture in the lodge on the history of the USGS and photography, and GPS technology befitting the “Pix and Shovels” theme of the learning community and providing focus and the context for the weekend activities.

Global Positioning Systems (GPS) are an important everyday tool used by the USGS to survey lands and set landmarks that are necessary to long-range planning and development. The students were supplied with a Scavenger Hunt list of objects located
within the 640 acres of Camp Tahqitz and hand-held GPS devices. Their assignment was to locate the objects by tracking them using the provided latitude and longitude. When they located the objects, they took photographs as evidence that they had found the objects (Figure 10 below).

![Figure 10: Students hunting for objects on the scavenger hunt](image)

The learning goal of the Scavenger Hunt was to find all the objects on the list using GPS handsets. An additional learning goal was to understand how and why GPS devices are important tools in field geology. The objects the students located include a benchmark set in concrete, and, in this case, buried under snow. A benchmark is a permanent metal object placed in concrete by the USGS or other government agency for the purpose of fixing a location. Other objects include waterproof cards placed by the instructors on trees, rocks, building, and other objects throughout the camp. The cards identify features on camp property. The students covered over a mile from their starting location, travelling over rugged terrain, to find all the objects, and were quite challenged by this activity. Although exhausted, the groups who completed the hunt developed a strong sense of accomplishment from their success. Some groups worked after dusk
trying to find all the objects; all students were extremely proud when they found the last and hardest object: the USGS benchmark (Figure 11 below). This is located furthest from starting point and was the hardest item to find.

![USGS benchmark](image)

**Figure 11: USGS benchmark**

The field studies experience typically leads to an increase in student engagement that is difficult to replicate in the traditional classroom environment because students have limited time in the classroom to engage in the material and each other. In activities such as the Scavenger Hunt, students engage in the material for several reasons. The topics of GPS and USGS come alive because the content presented in the presentation earlier helps students successfully complete the scavenger hunt and earn credit. In addition, the scavenger hunt was a group effort which required cooperation and teamwork, both of which also supported high levels of engagement.

As seen in the schedule, after breakfast on Saturday November 5th, the group traveled to Forest Falls, a small mountain community that boasts Big Falls, a beautiful waterfall and hiking area twenty minutes by car from camp. This site was chosen for its aesthetic (photographic) appeal as well as for the powerful geological features exhibited at the site. The students hiked about 30 minutes from the parking area to view the falls and then were given time while there to scramble around the base of the falls or even
venture up to the top (Figure 12). Notice in Figure 12 how light in color the rock that the falls formed in is. This is due to the presence of a high quantity of quartz, which is the most resistant mineral on Earth to weathering and erosion. This area is also excellent for observing evidence of mass wasting in the mountains due to compressional uplift caused by the San Andreas Fault, just three miles away. A research question was proposed for students to discuss and answer later as a group, which was, “Why did the falls form where they did and not somewhere else?” Then, they searched for evidence to answer this question around the falls and the rocks. This question relates to their textbook and requires the students to synthesize mineralogy, petrology, and observational evidence at the site to come to conclusions and a hypothesis. They learned from the debriefing of this assignment how the mineralogy of the rocks in the area and the granitic resistance to erosion is the true reason that the falls formed there.

Figure 12: The view of Forest Fall during the hike to the base of the falls
Past students usually mentioned how much they enjoyed the hike to Forest Falls, which is clearly seen on the smiling faces of the students in Figure 13 above. The assignment that required the students to submit a hypothesis on the reason the falls formed where they did is an important way that the scientific method is built into the field experience and is an expected course learning outcome as well. This is difficult to achieve in the classroom with only words, pictures and technology, but is easy in the field with the environment and all its complexities supplementing instruction. Students often discuss their hypotheses with the instructor in the free time during the evening hours on Saturday, which is evidence of how engaged they are in the assignment.

Thermal Flats, a National Forest picnic area with shaded tables next to Millcreek stream, provides another powerful photography/geology opportunity. Sunset photography required an advanced knowledge of camera control to capture the shot. This
hike also provided the opportunity to discuss the composition of the atmosphere and the local effects of air pollution in this area.

The two-hour potluck at the end of the day represented an important bonding and sharing experience for the students. This was a new addition to the field studies learning community design that has shown great promise to bond all the students into a larger community. In a condensed course like this one, it is critically important to maximize every opportunity for students to build strong relationships, and this event provides a perfect setting for this. Students cooked a variety of entrees that they put out on a long table for everyone to share. The instructors cooked and shared their food as well. The sharing of dishes stimulated conversation and dialogue, as food always does. One student reported, “I especially liked planning the meals and cooking with my group and the others. It really makes me feel like one big family.” This is the epitome of the personal bonding that the field experience and CRFSP affords. When students say they feel like one big family, they have socially bonded. This does not happen very often in traditional classes delivered on campus.

The fourth and final class campus meeting occurred on November 14, 2011, a week and a day after the students returned from the second field studies weekend. This class was dedicated to the final project presentations. Each presentation took between 15-20 minutes, and, after the final group presented, the instructors met privately with each group for about 10 minutes to give them feedback and their final project grade (all members of the group earn the same grade). This was an important piece to the course because it allowed the instructors an opportunity to give suggestions to all group members at once, so that, the next time they work in groups, they can utilize what they
learned in this class to make their group project more effective. This debriefing also allowed the students to know exactly where they stood in the course at this point, before they received their final grade in the course from admissions and records, which can take up to four weeks.

Qualitative Data Analysis of the Intervention Group

Tallies were made of the four student pre and post survey questions and are presented in Table 2 below. Since these questions were designed to gather information on the intervention students only, the comparison group responses were not tallied.

Table 2: Results of Pre/Post Survey Questions for Intervention Group

<table>
<thead>
<tr>
<th>Question</th>
<th>Themes</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>What made you decide to take this particular course section over any other offered this semester? Please explain.</td>
<td>G.E./Transfer requirement 91.3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Love for photography 69.7%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Camping/field studies aspect 47.8%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learning Community aspect 65.2%</td>
<td></td>
</tr>
<tr>
<td>Have you ever before in your college career taken a field studies or learning community class? If so, please explain</td>
<td>Number of positive responses &lt;1%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hands on/field experience/ weekends away 43.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meet new people/make friends 43.5%</td>
<td></td>
</tr>
<tr>
<td>What aspects did you like the best about this course? Please explain why these were good.</td>
<td>More class meetings/longer class/class overly short 17.4%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provide Transportation 4.3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>More lectures 13.0%</td>
<td></td>
</tr>
</tbody>
</table>

The results from this table and pre- and post-survey question tabulation show the large number of students who took this course for either the learning community or the camping/field studies aspect. This is important because this is one of the only classes offered in this manner at this campus and in California community colleges in general,
and one of the few classes on this campus that offers both a learning community and residential camping experience. The results also show the large number of students who liked the hands-on/field experience/weekends away and the meeting new friends aspect of the class best. Again, this is an important finding because it shows a need to make the classroom a community space for the cultivation of new relationships and learning together. The question that showed only one student surveyed had even taken a field studies or learning community class before showed that this delivery method is novel, and warrants examination as a way to increase engagement and student success at this campus.

Additional Student Comments

Many students noted they made powerful friendships which have lasted over months and years during these field study trips. This has been demonstrated over the four years that this program, at the time of this study, had been active at the college by student verbal and written feedback, corroborating the evidence found from this study. The following comments are typical, and represent what a residential experience can offer to students as well as faculty. The prompt used in the survey to obtain the following comments at the end of the course was “What aspects did you like the best about this course? Please explain why these were good.”

- I really enjoyed the field studies portion of this class. It was a good team building experience and I met a lot of new people!

- I enjoyed taking the trip to Big Bear and actually seeing the mountains and learning something new each day that we were there and the in class time with the
maps were very interesting to look at and learn about. I enjoyed gathering the information that was given to us throughout this semester.

- I really am glad I took this course. I had so much fun on the trips and the "group" inclusion, with EVERYTHING, is a phenomenal idea. Not only did making friends and getting to know the professors on a deeper level help with make the class more enjoyable, I also learned a TON about photo and geology. I hope this course doesn't ever get cut! I believe students will benefit from this course if they give it a little effort.

- I really liked the hands-on experience of learning. When we went to camp, we were able to look at different types of rocks and be out in the element. I also liked the work ethic of the students and how the teacher collaborated with the students when it came to assignments being due.

These comments from the learning community students in the study reflect the strong sense of community that is built by the residential experience. This social integration is important because the ability of higher educational institutions to retain students, which is necessary to supporting student success, is directly related to its ability to integrate the students’ life into the institutional life (Tinto, 1993). The CRFSM does this through the residential experiences in the field setting and these comments support this premise.

The next section documents the quantitative and qualitative results from this study.
Research Question 1

To what extent does student achievement, as measured by course grades, differ between students enrolled in a residential learning community and students enrolled in a traditional stand-alone classroom environment?

To examine to what extent student achievement, as measured by grades, differed between students enrolled in a residential learning community and students enrolled in traditional stand-alone classroom environment, binary logistic regression analysis was conducted. The final grades were reclassified into two groups: successful and unsuccessful students. The final grades for both the intervention and the comparison groups were the final course grades for the Photography and Geology sections of the intervention and comparison groups reported at the conclusion of the course to the college registrar by the instructor and also reflected on the students’ transcripts. The descriptives of these grades are shown in Table 3 below.

Table 3: Course Final Grade Descriptives

<table>
<thead>
<tr>
<th>Both groups grades</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>D, F, W (0)</td>
<td>31</td>
<td>4.48</td>
<td>0.769</td>
</tr>
<tr>
<td>A, B, C (1)</td>
<td>26</td>
<td>4.00</td>
<td>1.442</td>
</tr>
<tr>
<td>All Grades</td>
<td>57</td>
<td>4.26</td>
<td>1.14</td>
</tr>
</tbody>
</table>

Binary logistic regression analysis was conducted to understand whether student grades differed between students enrolled in a residential learning community and students enrolled in traditional stand-alone classroom environment. Logistic regression is a form of regression which is used for analyses with a dichotomous dependent variable (categorical variable). Logistic regression can help determine the percent of variance in the dependent variable, explained by the independents and the impact of covariate control variables. In this case, the analysis enables us to examine the percent of variance in
course grades as explained by enrolled in the residential learning community. For this analysis, the course grades were recoded and analyzed using ANOVA with $A = 5$, $B = 4$, $C = 3$, $D = 2$, $F/W = 1$ to see if there was a difference in the intervention group final grades versus the comparison group final grades. The result was: $p = .112$. Therefore, no significant difference was found (Table 4, below).

Table 4: ANOVA

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>MeanSquare</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>3.311</td>
<td>1</td>
<td>3.311</td>
<td>2.6</td>
<td>0.11</td>
</tr>
<tr>
<td>Within Groups</td>
<td>69.742</td>
<td>55</td>
<td>1.268</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>73.053</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This finding is important because it shows that the residential learning community model does not necessarily translate into higher grades in the courses taken. This is not surprising due to the fact that both courses use the same assessments. In other words, final grades demonstrated that students in both intervention and comparison groups were highly successful. Higher n numbers in a larger study might show different results as well. Since engagement is a social phenomenon and takes time to develop and mature, it makes sense that the beneficial effects of student-to-student and student-to-faculty relationships will take time to appear. This means that the CRFSM may still help students succeed, but may take longer for result to become apparent. There are other ways to measure success, such as measuring these same students over time to see whether the relationships they developed during the field weekends and in the learning community truly benefit their lives or have no impact. This supports the need to build more learning communities and run more studies on them.
Research Question 2

To what extent does student engagement differ between students enrolled in a residential learning community and students enrolled in a traditional stand-alone classroom environment?

To examine to what extent student engagement differed between those students in the intervention and comparison groups, a general linear model with repeated measures was conducted. Student engagement was measured using an online Engagement Survey modified from the National Survey of Student Engagement (NSSE), a highly tested and accepted instrument (NSSE, 2012). A 4-point Likert-scaled survey was used, again modeled after the NSSE. A total of 21 items (APPENDIX A) assessed student engagement in the class by measuring how often they had done each of various engagement activities. The instrument scaling the responses had four categories: Very Often, Often, Sometimes, and Never. Never was coded as 1 and Very Often as 4. In this study, reliability measured by Cronbach’s alpha was .80. Cronbach’s alpha is the coefficient of reliability of a psychometric test or instrument/survey. Measurement is out of a possible 1.00. Therefore, .80 indicates a high degree of reliability for the engagement survey.

A general linear model with repeated measures was used to measure the changes of a variable over time. For example, engagement (a variable) was measured at two different times: pre- and post-intervention. This allowed the researcher to determine whether the intervention actually had any effect on the dependent variable (engagement in this case). This finding is critical in this study because the efficacy of the intervention is at the heart of this study.
The results of the analysis showed there was a significant mean difference in engagement between the observed two groups after the intervention, $F (1, 49) = 4.084, p = .049$. This result indicated that the intervention group gained a mean or average of .068 in engagement. However, the comparison group lost a mean or average of .184. This is a critical finding for this study because the increase in engagement of the intervention group suggests that the residential learning community model works as a tool for increasing student engagement, since there is only a 4% probability that this result was due to chance. The means and standard deviations of before- and after-engagements are presented for both intervention and comparison groups in Table 5.

Table 5: Descriptive Statistics before and after the Intervention

<table>
<thead>
<tr>
<th></th>
<th>Before Intervention</th>
<th>After Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Intervention Group</td>
<td>2.658</td>
<td>.342</td>
</tr>
<tr>
<td>Comparison Group</td>
<td>2.493</td>
<td>.347</td>
</tr>
</tbody>
</table>

However, these data tell only part of the story of the power of the CRFSM. The other part that is pertinent is what the students say about the experience, and why they engage more in the field studies course than in an on-campus, non-field studies course. For example, a student put it this way:

The statement below is really an understatement on how positive the experience was for me. Not only was the field study academic aspect of the program amazing, but the environment was such that it cultivated relationships and friendships I hope to cherish for a long time. I must say, and I'm sure many of my peers will agree, that this type of delivery of education is quite remarkable. For one, the community learning reinforced concepts and ideas we learned in class by
actually taking that knowledge and applying it to a field study (which has been one of the most positive learning experiences I have ever had.) This type of hands on approach would help people of all faculties learn. It takes a student out of this idea that we, as students, are competing with the classmates sitting next to us. And, maybe we are, but if a class is designed to have students work as a part of a community, students are better able to cooperate and work towards a common goal. After all, we as students share a common goal, we are all here to learn, aren't we? Lastly, the title of this type of program is a learning community. This title is very appropriate as it describes exactly what we are doing - learning as a community. Unlike a course taught in a class room, this type of field study experience encourages students to work with one another, to form a community- a cohesive unit. And, as we learn to work together, we learn from each other, (dare I say) as much as we learn from the teachers. It's a different kind of knowledge. A type of knowledge I believe is just as valuable as the educational knowledge we learn in a traditional classroom format. These personal skills demand as much respect as the general concepts of algebra. To be a well-adjusted person, one of those people who is able to get along with his peers and isn't scared of other people. Someone who is able to offer good to other people's lives and is able to take the good offered by other people as well... These types of personal skills deserve as much attention as any kind of knowledge or genius that I value in any scientific, academic, or even artistic setting.

This student may speak for a large majority of less vocal students and his quotation supports the primary premise of the power of the CRFSM in building
collaborative relationships between students and faculty that last beyond the class length. He noted that he suspects that this type of hand-on approach would help many other students learn and also noticed how the application of the concepts in the field students worked powerfully for him. These are important goals of the CRFSM and his comments show he agrees with them. The core power and value of the CRFSM is that cooperative learning activities combined with field-based experiential learning in a learning community setting are extremely conducive to building personal relationships that last beyond the course length. Building these relationships is the core purpose of the CRFSM because relationships help students succeed at school by developing a strong personal support network that surrounds and nurtures each individual.

Research Question 3

To what extent does level of retention differ between students enrolled in a residential learning community and students enrolled in a traditional stand-alone classroom environment?

To understand to what extent level of retention differed between the two groups, binary logistic regression analysis was conducted. Regression is a statistical procedure to examine an impact of predictors on the dependent variables. This was done because retention is a categorical variable. This was coded as retention = 1 and drop out = 0. Retention in this study is defined as completing the course through the final class meeting. Dropping out is defined as not completing the entire course, meaning not taking the final exam or attending the last class session in the intervention class. This is not a continuous variable; therefore logistic regression must be used. In this case, a residential learning community was a predictor and retention was a dependent variable. The
outcome of the analysis revealed that there was no significant difference between the groups and that the residential learning community program was not a significant predictor of level of retention, \( p = .998 \). The mean of the intervention group was .92 with SD of .272 and the mean of the comparison group was 1 with SD of 0. Only two students dropped out (did not finish) in the intervention group \( (n = 2) \). This is an interesting finding because it indicates that the residential learning community model did not retain students at a higher rate than the comparison group of traditional classroom students. This could be due to the fact that the retention rate is high in these particular courses, since they are required for the general education transfer student, and students know that they need to complete the class regardless of the delivery method. Therefore, this motivation may help them accomplish completion of the course. The outcome of the analysis is presented in Table 6.

Table 6: Logistic Regression Analysis Results

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>8.575</td>
<td>26.226</td>
<td>0.107</td>
<td>1</td>
<td>0.744</td>
<td>5299.44</td>
</tr>
<tr>
<td>Age</td>
<td>-0.361</td>
<td>1.545</td>
<td>0.055</td>
<td>1</td>
<td>0.815</td>
<td>0.697</td>
</tr>
<tr>
<td>HS Grad</td>
<td>0.592</td>
<td>1.694</td>
<td>0.122</td>
<td>1</td>
<td>0.727</td>
<td>1.808</td>
</tr>
<tr>
<td>Group</td>
<td>17.649</td>
<td>7310.89</td>
<td>0</td>
<td>1</td>
<td>0.998</td>
<td>4.6E+07</td>
</tr>
</tbody>
</table>

*Notes: S.E. = Standard Error*

Since all the significance (probabilities) in this analysis are well the above standard .05 threshold, this shows that the intervention did not significantly affect retention in the course.

Summary of Findings

This study found that, for Research Question 1, no significant difference in achievement was found between the observed two groups. The residential learning
community program was not a significant predictor of student achievement in this particular semester.

This study found that for Research Question 2, there was a significant mean difference in engagement between the observed two groups after the intervention was given, with the intervention group gaining in engagement and the comparison group losing in engagement. This finding is important because it indicates that the CRFSM is effective in increasing student engagement. This is supported in the literature. Astin, for example, states that the quality and quantity of the student’s involvement will influence the amount of student learning and development (1984, p. 297).

This study found that, for Research Question 3, there was no significant difference in retention between the intervention and comparison groups and the residential learning community program was not a significant predictor of level of retention.

The qualitative data, from the two pre- and two post-questions, yielded interesting results. While this researcher expected that the majority of students who enrolled in the learning community did so to fulfill their transfer General Education requirement, it was instructional to see such a high percentage of enrollees also listed the camping/field studies aspect high (47.8%), the learning community aspect even higher (65.2%), and love of photography higher yet (69.7%). This indicates that this class serves a unique demographic of the college’s student body who enjoy learning in a different setting (i.e. in an experiential setting in the field). This has important implications for the value of building additional residential learning communities at the college in the future. The second pre question that asked about prior field studies or learning community experience
(<1% of students, n=1) shows that the CRFSM is a unique offering for the vast majority of students at the college, and, because of this, has value. Many students may not yet know what learning style serves their particular needs best, and this experience offers them an example of another way to learn that might work well for them. The fact that 43.5% of the intervention students liked both the hands-on/residential and meeting/making new friends best in the course indicates the relational power of the collaborative and cooperative residential experience that is central to the CRFSM. This supports the premise that the CRFSM can help students engage more fully into the institutional fabric and their studies by building personal relationships through the residential and experiential delivery method.

Chapter 5, which follows, offers discussion and conclusions drawn from these results, as well as recommendations for future research on this subject.
CHAPTER 5: DISCUSSION

As stated in earlier chapters, criticism has recently been leveled at the community colleges for low rates of degree completion (i.e. high rates of student departure). To respond to this criticism in this era of rising tuition, class cuts, budget reductions, and lack of growth funding, all stakeholders in the higher educational system must create ways to be more successful in spite of reduced resources. But to be fair, these criticisms are not justified, because community college students are not the same as the four-year college students to which they are so often compared. Community college students are different in several demographics, not the least of them age (community college students are a broader range of age than four-year college students) and percentage of full-time students (a larger percentage of community college students attend college part-time), as well as admission policy (California Community College’s open door policy for incoming students compared to four-year colleges competitive selection process for admission). These differences make meaningful comparisons between the two groups difficult, if not impossible. Since community college students are usually commuting to campus, most student-to-student and student-to-faculty contact occurs in the classroom, which minimizes the opportunities to build meaningful relationships compared to the opportunities offered in a residential setting. If learning community models like the CRFSM can be shown to increase student success by increasing student engagement through their design, then changes can be made to community college course deliveries that may result in increased completion rates without a large impact on institutional budgets.
The purpose of this study was to examine whether the Canyons Residential Field Studies Model (CRFSM) is linked to an increase in student success as measured by final course grade, student engagement, and retention. A key aspect of student engagement is faculty and student interaction. Studies have shown that students are more likely to succeed academically if they are more actively engaged with faculty and staff, other students, and the academic course content (Astin, 1984; Cohen, 2003; Cole, 2007). This faculty-student interaction has been linked to an increase of persistence and achievement as well (Astin, 1985; Cohen, 2003). Because the CRFSM is designed to incorporate active learning, group work, and relationship-building between students and faculty into the field experience, an examination of the efficacy of these learning styles on student success is an important accountability measurement to assess and evaluate this program and its future.

Studies of residential learning communities at community colleges are extremely rare in the current educational research literature. The major reason this is the case is the basic nature of the community college system in the United States. Community colleges are, by design, non-residential. They normally are located in communities at short distances from students’ residences, with large numbers of automobile parking spaces to accommodate daily commuting students. This makes community colleges more economical for students of limited means to enroll and attend than most residential institutions because community college students can live at home and commute from there to the school, saving rent and other expenses. Four-year institutions are, on the other hand, often residential due to the fact that students from far and wide attend them and necessarily must live either near or on campus to attend the school.
Community colleges students often engage less in the culture of the campus than four-year college students because they drive to class and then often leave the campus after their classes are finished. This makes it difficult for students to build the personal relationships that have been shown to increase student success by increasing retention and persistence rates (Cooper, 1989; Johnson, 1991; Tinto, 1994; Millis et al., 1998; Millis, 2002, 2005). In an effort to understand the impact of developing personal relationships at a community college, this study examined whether a residential learning community experience might support increasing student success as measured by achievement, engagement, and retention by building personal connections between students and faculty. This building of personal connections is aided by the residential experience combined with the active learning strategies and the experiential learning activities embedded in the course deliveries of these field studies classes. Across published educational research, the concept is broadly accepted that each institution needs to develop learning communities considering the unique needs of its students, with faculty expertise as well as with the financial support of college administration (Gabelnick, 1990; Shapiro, 1999; Lenning, 1999).

The College of the Canyons has offered residential field study courses since 2008 at Camp Tahquitz, a residential field studies station 125 miles east of campus in the San Bernardino Mountains. Since that time, learning community classes in Introduction to Photography (Photography 150) linked with Introduction to Earth Science (Geology 109) have been offered by the college. These include two 48-hour residential weekends at the Canyons Field Study Station. This is the intervention group examined in this study.
This study addressed three research questions that explored whether student participation in the CRFSM was linked to any increase of student achievement as measured by final course grade, student engagement, and level of retention as compared to students in traditional face-to-face class on campus.

Summary of Findings

The study found that, for the research questions one and three, which asked about the effects of the treatment on final grades and retention of students, CRFSM students did not show significant increases in student final grades or level of retention compared to students in the traditional classrooms. However, the study found CRFSM students showed an increase in student engagement as compared to traditional classroom students.

The results of the pre- and post-survey questions for the intervention group were examined and reported in Table 2 in chapter 4. The responses to the following four questions were tallied, Questions #1 and #2 were in the pre-survey and questions #3 and #4 were in the post-survey.

1. What made you decide to take this particular course section over any other offered this semester? Please explain.

2. Have you ever before in your college career taken a field studies or learning community class? If so, please explain.

3. What aspects did you like the best about this course? Please explain why these were good.

4. What aspects of this course could be improved? Please explain how.

These tallies showed that 91.3% of students who chose to take the residential learning community photography/geology classes took it to fulfill their General Education/transfer requirement. Most, 69.7%, of the students reported that they enrolled
in the classes because they loved photography, 47.8% because they liked field studies or camping, and 65.2% of the students reported that they enrolled for the learning community aspect of the course. The tallies also showed that only one student out of 125 (<1%) who completed the pre-survey had taken a field studies or learning community class before this class. Two responses had the same high response rate for the post-survey question asking what aspects the students liked best about the course, and why these were good. Forty-three percent of the post-survey students reported that they liked the hands-on/field experience/weekends-away aspect of the course best and 43% reported they liked the meeting new people/making friends aspect of the course best. For the final post-survey question, which asked how the course could be improved, 17.4% of the respondents reported that they would prefer a longer class term than the existing six week format. For this same question, 17.4% of respondents reported that they would prefer more lecture delivery, and 4.3% reported that the course could be improved by the college’s providing transportation to the site.

Several conclusions can be drawn from these tallies. One is that, since 91.3% of students who enrolled into the residential learning community did so to fulfill their transfer General Education requirement and 47.8% of enrollees cited outdoor experiences (camping) as the deciding factor in their decision to enroll, then the CRFSM can definitely look to other General Education classes broadly to market and promote this program to additional faculty to participate in the program. One of the big advantages that learning communities enjoy is that any classes can be linked together in them; they do not require common content. This could expand the CRFSM into a variety of other disciplines at the college and eventually reach a much larger number of students. The
fact that 43.5% of post-survey respondents reported they liked the hands-on/field experience/weekends-away aspect best in the course can be used to support locating and securing other sites closer to campus that require less cost, travel time and effort to attend, thereby serving as a cost-effective alternative college site for field studies and the CRFSM. Finally, the fact that 43.5% of the post survey respondents reported they like meeting new people and making friends best about the courses can be used to support a push to promote learning communities broadly across disciplines on campus. Students in their twenties, the millennials or Y/“we” generation) are inevitably committed to social networking with their peers as part of their life and culture. Learning communities can build on this fact because they naturally build friendships and relationships with or without the residential aspect; therefore, on-campus learning communities have value and should be supported as well as the CRFSM.

Implications for Practice

Even though learning communities vary from one to another and from college to college, the importance of assisting students in making the difficult transition to college and to be successful academically is critical. In the residential learning community model, the student benefits by integrating effectively into the college’s institutional fabric while developing social and intellectual relationships with faculty members and other students. The product of these relationships may lead to increased student confidence and support for the student from these relationships. This, in turn, could help students focus on their studies better because they feel comfortable and connected with the college. The findings from the qualitative post-questions show that many students liked meeting new people and making new friends best about the course. This finding supports
pedagogies that build upon personal relationships and connections among students and faculty. The learning community model does this by incorporating cooperative and collaborative learning techniques that are integral to the model’s achievement of these desired outcomes. College faculty, staff, and administration all need to continue to work together and support students’ becoming participating members of the college community, in order to integrate them into the fabric of the campus family. This may lead to improvement of students’ success rates and lowering of attrition. This, in turn, requires strategic planning and goal-setting. Happy, well-adjusted students are often successful students, and successful students serve both themselves and their institution by reaching their academic goals.

The CRFSM could be made more effective in several ways. It would be well-served to continue using the Students Engagement Survey in all future classes as well as gathering additional qualitative data from future participants in the program through additional open-ended questions to the student survey. The program could be made longer in length, eight weeks instead of six weeks for example, which would give more class time for both lecture delivery and student-to-student bonding. Both suggestions came from student course improvement comments. This, in turn, could increase the effectiveness of the engagement component of the learning community. The quantitative data could also be supplemented by an analysis of the individual student engagement questions and the response scale and implementing possible modifications and additions to the same based on this study.

Because the demographic data supplied by the COC Office of Institutional Research was limited and some data was missing, demographic questions should be
added to the online pre-survey so that more meaningful results and conclusions can be
drawn from the results of the study. The next time the CRFSM is studied by this survey
instrument, the comparison group’s classes could be more similar. For example, since the
CRFSM (intervention group) uses hybrid course delivery method, the comparison group
classes could include more hybrid courses to make analysis of intervention versus
comparison group classes more meaningful.

Implications for Future Research

As a result of the findings of this study, recommendations for future research that
could be conducted include:

1. Follow up studies similar to this one on the CRFSM could be performed that
   include classes besides geology and photography. Other disciplines at College of
   the Canyons that are now using this model include sociology, biology, and
   history. All these classes also offer sections on campus in a traditional face-to-
   face delivery, so studying the impact of the CRFSM on these classes would be
   relatively easy and might show interesting results.

2. Since the Photography/Geology learning community is still actively offering
   classes under this model, the study should be repeated on these classes to increase
   n numbers and corresponding validity.

3. If and when the First Year Experience (FYE) is incorporated into the CRFSM as
   has been proposed, a study will be needed to document the effectiveness of the
   model in helping new incoming students succeed, particularly in respect to
   engagement.
4. All future classes offered in the CRFSM and in on-campus learning communities should be studied to test whether the outcomes of the program are supported by assessment, data and sound research methodology. Other research questions might also be crafted to examine other possible linkages between the CRFSM and student success.

5. Students from the comparison group could be followed over future semesters to see if the influence of the intervention on future student success can be documented. It may well be that the benefits of the social and institutional connections that are nurtured by the CRFSM take time to mature and bloom. If these students are followed down the road a few semesters, a determination can be made if this is indeed the case.

6. Since the intervention group was significantly younger than the comparison group and the persistence rates were found to be the same, a new study could be designed to see if this observation is due to increased engagement.

Conclusions

One way community colleges similar to College of the Canyons might support an increase in student engagement is through the incorporation of learning communities across their curricula. If successful, this tactic would benefit both students and their institutions. All efforts in this direction should be monitored for effectiveness and documented by accepted research methods, qualitatively and quantitatively. Educational communities are no different than other human communities. In both instances, students depart because of the absence of social and intellectual integration into the college community’s life and the social support such integration provides. This is why
relationships always matter, and building them is an important part of teaching. If students do not persist, they cannot succeed. Tinto states it clearly, “An institution’s capacity to retain students hinges on the establishment of a healthy, caring educational environment which enables all individuals, not just some, to find a niche in one or more of the many social and intellectual communities of the institution” (1993, p. 204).
Community colleges can reap particularly powerful and cost-effective benefits for their students by supporting and building learning communities across their curricula.
REFERENCES


http://www.cccco.edu


https://misweb.cccco.edu/mis/onlinestat/studdemo_coll_cube.cfm


http://www.cscsr.org/retention_issues_definitions.htm


http://www.changemag.org/Archives/Back%20Issues/July-August%202008/full-new-era.html


APPENDIX A

Google Documents Engagement Survey

Directions: Please answer the following questions to the best of your ability. The records of this study and the records of the course will be kept separately and your decision to participate or not to participate in this study will in no way affect your grade in this course. You can drop out of this study at any time. In your experience in this class, how often have you done each of the following?

1. Asked questions in class?
2. Contributed to a class discussion?
3. Made a class presentation?
4. Prepared more than one draft of a class assignment or paper before turning it in?
5. Worked on an assignment that required integrating ideas or information from several sources?
6. Come to class without completing readings or assignments?
7. Worked with other students on projects during class time?
8. Worked with students outside of class to prepare class assignments?
9. Participated in service learning as extra credit?
10. Used email to communicate with the instructor?
11. Used the intranet to complete an assignment?
12. Discussed grades or assignments with the instructor?
13. Talked about your career plans with the instructor?
14. Discussed ideas from your readings with the instructor outside of class time?
15. Worked harder than you thought you could to meet the instructor’s standards or expectations?

16. Received prompt feedback (written or oral) from the instructor on your performance?

17. Skipped class?

18. Discussed ideas from your reading or classes with others (students, family members, co-workers, friends, etc.)?

19. Worked with the instructor on activities other than coursework?

20. Had serious conversations with students who differ from you in terms of their religious beliefs, political opinions, or personal values?

21. Had serious conversations with students of a different race or ethnicity than your own?
APPENDIX B

Supplemental Interview Questionnaire

Directions: Please answer the following four questions to the best of your ability. Use as many words as necessary to answer these questions.

1. What made you decide to take this particular course section over any other offered this semester? Please explain.

2. Have you ever before in your college career taken a field studies or learning community class? If so, please explain.

3. What aspects did you like the best about this course? Please explain why these were good.

4. What aspects of this course could be improved? Please explain why.
APPENDIX C

Geology 109 Section # 83763 Fall Semester 2011 Course Description

Description: This course is a hybrid/field studies introduction to Earth Science. It features web-based Blackboard based assignments, media, power points and exercises to enhance your understanding of the subject area. It surveys the terminology and basic concepts of the fields of Earth Science, including astronomy, geology, oceanography, and meteorology. Examines the Earth’s changing geologic systems and the importance of Earth Science phenomenon to daily life.

Timeline:

10/3  Class meeting #1
10/3-10/8  Ch. 1: Introduction the Earth Science, Ch. 2: Minerals: Earth’s Building Blocks, Ch. 3: Rocks: Keepers of Earth’s History
10/9-10/15  Ch. 4: Weathering, Soils, and Mass Wasting, Ch. 5: Water On and Under the Ground, Ch. 6: Extreme Climatic Regions: Deserts, Glaciers, and Ice Sheets / Test #1
10/16-10/22  Ch. 7: Plate Tectonics: Sculptor of the Earth’s Changing Landscape, Ch. 8: Earthquakes and Earth’s Interior
10/17  Class meeting #2
10/21-10/23  Field Studies Weekend #1
10/23-10/29  Ch. 12: The Oceans, Ch. 13: Where Ocean Meets Land, Ch. 14: The Atmosphere: Composition, Structure, and Clouds / Test #2
10/30-11/5  Ch. 15: Global Circulation and Weather Systems Ch. 16: Global Climates Past and Present
10/31  Class meeting #3
11/4-11/6  Field Studies Weekend #2
11/6-11/12  Ch. 17: Earth’s Place in Space / Test #3
Student Learning Outcomes: (Outcomes for all credit courses must indicate that students will learn critical thinking and will be able to apply concepts at college level).

The student will be able to:

1. Define, compare and contrast and trace the origin and evolution and/or significance of selected Earth Science terms, phenomena, concepts, location, events and persons inherent within the topics of Earth science.

2. Analyze the symbiotic interrelationship of earth/sun/moon effects, atmosphere, weather, climate and oceans as they relate to the earth's changing geologic systems.

3. Assess the importance and practicality of Earth science phenomena to the daily life of humankind, individually, and collectively.

Grading & Class Procedures: The three exams and two field weekends are required to pass the class and the tests will not be rescheduled without a documentable emergency of the most severe nature. The field weekends cannot be rescheduled and both weekends must be attended in order to pass the class. The exams cover material from the lectures and the textbook. You are responsible for material from both sources so do your reading!

Grading is on an A, B, C, D, and F system based on the following:

- Your grade is calculated from the three tests, each worth 15% and the final project worth 55%.