The Influence of Classroom Community and Self-Directed Learning
Readiness on Student Retention in Online Distance Courses

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ABSTRACT

The purpose of my sabbatical was to do research on the application of mobile learning in distance learning to improve student retention. Due to the non-availability of information on mobile learning I expanded my research on distance learning, in general, to improve student retention through more student satisfaction and confidence in the courses. This paper describes a study in which I propose to investigate whether a sense of community influences student retention and whether self-directed learning readiness influences student retention in online distance courses. It is based on Alfred Rovai’s definition of a sense of community which defines it in terms of four dimensions: spirit, recognition of membership in a community and bonding that develops among learners; trust, credibility for one’s own self and benevolence for others in a group; interaction, task-driven and socio-emotional relationships; and common expectations (learning). It is also based on Murray Fisher’s et al., definition of self-directed learning readiness measured by the three subscales of self-management, desire for learning, and self-control. Finally, this paper describes a correlational research design implementing Rovai’s Classroom Community Scale to measure students’ sense of classroom community and Fisher’s et al., self-directed learning readiness scale to measure student self-directed learning readiness.

In the first part of this study I researched what distance learning is and how it has evolved over the years. In the second part I defined the problem or hypotheses and stated the reason for the study. For the third part I did the bulk of my research by reading and reviewing past studies and research already completed and that relates to my hypotheses. Finally I defined procedures that could be used to demonstrate my hypotheses.

The results of this study could shed light on whether building a sense of community through student-to-student and/or student-to-faculty interaction could be related to student retention. Additionally, they can investigate a possible relationship between self-directed learning readiness and student retention. The successful completion of this study could also result in a deeper understanding of the role of the instructor and/or course designer on incorporating best practices in online courses to promote a stronger sense of community and self-directed learning readiness, thus raising student level retention rates.

BACKGROUND

Technology-based innovation and new ideas in learning have created the modern era of distance learning. The Internet and World-wide web have made it possible to transcend the walls of traditional classrooms in almost unimaginable ways. Students can not only contact their instructors via email but they can also access their classroom environment with voice recognition, video technology, and group Netware, and they can do all this in the comfort of their own homes or offices.

Distance learning, where students and instructors are separated by physical distance and communicate with each other through communication networks, is defined by the Southern Association of Colleges and Schools (SACS) for the purposes of the Commission’s accreditation review as:

a formal educational process in which the majority of the instruction (interaction between students and instructors and among students) in a course occurs when students...
and instructors are not in the same place. Instruction may be synchronous or asynchronous. A distance education course may employ correspondence study, or audio, video, or computer technologies (Southern Association of Colleges and Schools, 1997).

The demands of a fluid, information-driven society are increasingly requiring new skills and knowledge in the workplace. Adults are faced with the necessity of continuing education to keep up with these new demands. As a result part-time students are the fastest growing population in higher education (National University Continuing Education Association, 1994) and the need for convenient distance learning programs is intensified. Adult students comprise much of the distance learning population. However, research indicates that the distance learning population is shifting toward younger students, local residents and those with full time course loads that combine distance learning with on-campus courses (Wallace, 1996). To meet this demand, distance learning is visibly increasing at both two-year and four-year post-secondary institutions in the United States (Snow, Farris, & Levin, 1999).

With the growth of distance learning through many types of online delivery (i.e. internet, mobile devices, videoconferencing, recordings, etc.) comes a need to examine the phenomenon of Internet-based courses (Schrum, 1998). Existing research has largely focused on technical issues while less attention has been given to students’ experiences in the learning environment (Hara & Kling, 1999; Schrum, 1998). Howland and Moore (2002) state that the importance of research lies in examining the student’s experience as an online learner, thereby increasing educators’ understanding of student needs so that they may provide optimal educational environments and opportunities for distance learners.

**Evolution of Distance Learning**

Distance learning has been around for over two centuries. Through the years it has served students who have not been able to attend traditional classes due to a variety of reasons including course location, life commitments, family responsibilities, and health issues. The United States Distance Learning Association defines distance education as the “acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance” (as cited in Bower & Hardy, 2004). This definition specifically points out that distance learning has encompassed a variety of learning media from the postal service to various forms of electronic transmission.

Correspondence study, the first form of distance learning, allowed students to correspond with the instructor via postal mail. Students who may be located many miles from the educational institution, have health issues which would preclude them from physically attending class, or who may have long work hours or ‘round-the-clock’ family commitments were very interested in this type of learning. Segments of the population that normally were not allowed to attend school frequently used this type of learning. In fact, women’s desire for an education greatly impacted correspondence study in the eighteenth and nineteenth century. The earliest record of this type of education was seen in the Boston Gazette on March 20, 1728, offering weekly lessons in shorthand (Bower and Hardy, 2004). However, even with all this interest, it was over one hundred years later before there was an established institution of higher education offering distance learning (Holmberg, 2002) of this sort.
Two individuals, Charles Wedemeyer of the University of Wisconsin and Gayle Childs of the University of Nebraska, played major roles in the advancement of distance learning research in the field of correspondence study (Wright, 1991). They not only provided leadership to their universities’ correspondence programs, but they also provided direction for the national and international growth of this method of teaching and learning. Both men made major contributions in the Correspondence Study Division of the National University Extension Association (NUEA) and Internal Conferences on Correspondence Education.

Due to advances in technology as well as postal system limitations, distance learning went from using the postal mail to the use of radio transmissions and audio recordings in the early 1900s. According to Simonson and colleagues, almost two hundred American radio stations delivered distance education to the masses during the 1920s. This was soon lessened due to a new visual technology, television broadcasts, in the middle 1900s (Simonson, Smaldino, Albright, Zvacek, 2000).

The combination of satellite technology in the 1960s and fiber-optic transmission media in the 1980s allowed for duplex (two-way) transmission of online courses. The Internet has enabled asynchronous (duplex communication with a time delay) and synchronous (duplex communication with no time delay) communications which have provided real-time student-to-student and student-to-instructor interactions (Bower and Hardy, 2004). Today this newly created virtual learning environment has allowed students great flexibility in determining the time and location for their study giving them the freedom to fit their education into their lives and schedules.

**Distance Learning and Retention**

Distance learning critics are quick to assert that completion rates (retention of students) are lower in distance learning courses than in traditional courses (Howell, Laws, & Lindsay, 2004, p. 243). With this in mind if distance learning really does have lower completion rates, some attribute the difference to the lack of faculty-student interaction, while others say it is impossible to compare the two groups because distance learning students are inherently different from traditional students (e.g., older with additional commitments) (Carr, 2000). In the absence of any generally accepted, standard algorithm for calculating completion rates for both types of learning, analyzing completion rates is best done by comparing distance learning to distance learning and traditional learning to traditional learning at the specific course and program level (Howell, Laws, & Lindsay, 2004).

While many studies reveal wide variance in completion rates between the two, additional research focusing on the specific dynamics that influence completion and retention appear to be more consistent and helpful. Kemp (2002) found that “the adult distance learner may be affected by a variety of internal and external factors that account for the continuance/discontinuance in their studies” (p. 65). Wlodkowski’s study found that “better social integration with peers correlates with persistence,” and he notes that “research findings from other studies confirm that positive involvement with peers and faculty encourages adult students to persist (New England Adult Research Network, 1999; Tinto, 1998, as cited in Wlodkowski, 2003, p. 12). Additionally, Tinto (1993) suggested that students increase their level of satisfaction and the likelihood of
persisting in a college program if they feel involved in the learning community and develop a relationship with other members of the community. In looking at these studies, it appears that improving a sense of community in an online environment may be an important contributing factor to reducing dropout rates (Braxton, Vesper, Hossler, 1995). Following that thought, there is a need to understand what “community” means in distance learning environments so that educators can promote a better sense of community (Rovai, 2001a).

Distance Learning and a Sense of Community

McMillan and Chavis (1986) define community as “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (p. 9). Westheimer and Kahne (1993) define a sense of community as a result of interaction and deliberation of people brought together by similar interests and common goals. Graves (1992) defines it as a cohesive yet self-reflective group. Drawing on research literature, the concept of learning community is applied to the virtual classroom by examining the issue of how best to design and conduct an online course that fosters community among learners who are physically separated from each other (Rovai, 2002a).

Rheingold (1991) and Hill (1996) believe that the dimensions of community differ from setting to setting suggesting that sense of community is setting specific. One such setting is the classroom, physical or virtual. Drawing on the definitions of community provided above, an online classroom community can be constitutively defined in terms of four dimensions: spirit, trust, interaction, and commonality of expectation and goals (learning) (Rovai, 2002a). To measure whether a sense of community exists or not Rovai developed the Classroom Community Scale (CCS) to determine students’ sense of classroom community. The CCS is sensitive to differences in sense of community within a higher education population.

Distance Learning and Student Self-direction

Student-to-student and student-to-instructor interaction also influences student self-direction on the assumption of shared control based on dynamic communication among the teacher, learners, and the curriculum (Lee & Gibson, 2003). Garrison’s comprehensive model (1997a) represents three dimensions of student self-direction: control, critical reflection, and responsibility. These three components of self-direction are connected to each other through student-to-student and student-to-instructor interaction. Past research conducted by Lee & Gibson establishing a close relation between interaction and self-direction suggests the importance of interaction in developing self-direction. Future research should explore components of these diverse perspectives on self-direction and the relation between interaction and self-direction.

Self-directed learning (SDL) is a method of instruction used increasingly in adult education (Fisher et al., 2001). SDL can be viewed in terms of the amount of responsibility the learner accepts for his or her own learning. Readiness for SDL exists along a continuum and is
present in all individuals to some extent. Literature supports the contention that matching teaching delivery with SDL readiness offers the best opportunity for learning (Grow, 1991; Guglielmino, 1977; O’Kell, 1988; Wiley, 1983).

THE PROBLEM

With the rapid increase of online distance education in the last 20 years due to advanced technology and its growing popularity, new responsibilities for adult learners along with heightened interest of experts and educators for quality courses have grown. Simultaneously, with funding tied closely to student enrollment and accreditation dependent on course quality, completion rates have become a significant measure in higher education (Howell, Laws, & Lindsay, 2004). In looking at completion rates (retention of students) in distance learning, critics are quick to assert that they are lower in distance learning courses than in traditional courses (Howell, Laws, & Lindsay, 2004, p. 243). These statistics point out a possible area needing further research investigating what could influence retention of students in distance learning in order to possibly increase it? This is the problem for this proposed study.

Conceptual Framework for a Study

In setting up a conceptual framework for this type of study research focusing on the specific dynamics that influence course completion and retention of students in traditional education appears to be consistent and helpful. Wlodkowski’s study (2003) found that better peer-to-peer social integration correlates with student persistence. Additionally, Tinto (1993) suggested the likelihood of students persisting in a college program is higher if they feel involved in the learning community. In looking at these studies, it appears that improving a sense of community in an online environment may be an important contributing factor in reducing dropout rates (Braxton, Vesper, Hossler, 1995). This leads to the question of whether providing a sense of community possibly influence student retention in online courses.

Past research conducted by Lee & Gibson (2003) establishing a close relation between student-to-student/student-to-instructor interaction and student self-direction suggests the importance of interaction in developing self-direction. The shift to a dependence on written communication in online courses has been seen as contributing to a difficulty in building collaborative relationships among students (Besser & Bonn, 1996). In looking at these studies, it appears that self-directed students in an online environment could be a factor in raising student retention. This leads to the question of whether self-directed students could possibly influence student retention in online courses.

This type of study could investigate the influence of a sense of community on student retention and of self-directed learning readiness on student retention in the online class environment. Rovai’s Classroom Community Scale (CCS) (2002c) could be used to measure a classroom community by measuring spirit, trust, interaction, and common expectations (learning). A self-directed learning readiness scale (SDLRS) (Fisher et al., 2001) could be used to measure self-directed learning readiness by measuring self-management, desire for learning, and self-control.
Classroom Community Scale (CCS)

Rovai’s CCS could be used to measure students’ sense of classroom community. The concept of classroom community was based on the concept of community as contained in the professional literature (e.g., Bellah et al., 1985; McMillan & Chavis, 1986). The CCS consists of a self-report questionnaire of 20 items including 10 items related to feelings of connectedness and 10 items related to students’ feelings regarding the use of interaction within the community to construct understanding and the extent to which their learning goals are being satisfied within the classroom setting (Rovai, 2002c). This instrument generates an overall classroom community score as well as two subscale scores connectedness and learning. Connectedness represents the feelings of the community of students regarding their connectedness, cohesion, spirit, trust, and interdependence. Learning represents the feelings of community members regarding interaction with each other as they pursue the construction of understanding and the extent to which their learning goals are being satisfied within the classroom setting (Rovai, 2002c).

A 5-point Likert scoring scale is used (See Appendix A) on the CCS. To obtain the overall classroom community score, one must add the weights of all 20 items. Total raw scores range from a maximum of 40 to a minimum of 0. Subscale raw scores range from a maximum of 20 to a minimum of 0. To calculate the connectedness score, the scores of odd CCS items, i.e., 1, 3, 5, 7, 9, 11, 13, 15, 17, and 19, are added together. Similarly, to calculate the learning subscale score, the scores of the remaining even numbered CCS items are added together.

Rovai (2002c) analyzed the validity and reliability of the instrument that was developed, refined, and field-tested using 375 graduate students enrolled in 28 different Blackboard-based online courses. An initial set of 20 items was developed for the CCS that addressed characteristics of sense of community regardless of class setting, including feelings of connectedness, cohesion, spirit, trust, and interdependence among members (Rovai, 2002c). Additionally, Hill (1996) and Rheingold (1991) suggested that sense of community was setting specific and that components of community differed from setting to setting. Consequently, a second set of 20 items was developed to represent the specific setting of the classroom, either traditional or virtual. Altogether, 40 items were included in the initial set of items for the CCS.

A panel of experts consisting of three university professors who taught courses in educational psychology evaluated the initial pool of 40 CCS items for content validity. Each expert independently rated the relevance of each CCS item to the sense of community in a classroom environment using a four-point Likert-type scale consisting of totally not relevant, barely relevant, reasonably relevant, and totally relevant. The potential score for each item ranged from 0 (totally not relevant) to 4 (totally relevant). The mean score for each CCS item as evaluated by the experts ranged from a low of 3.33 to a high of 4.00. This review resulted in the deletion of items not rated as totally relevant by all of the experts. The final refinement resulted in 20 remaining items; 10 items relating to feelings of connectedness and 10 items related to feelings regarding the use of interaction within the community (Rovai, 2002c). Validity analysis of the 20 CCS items revealed face value and appeared to measure classroom community.

Rovai (2002c) calculated two internal consistency estimates of reliability for the CCS. Cronbach’s coefficient alpha and the split-half coefficient corrected by the Spearman-Brown
prophecy formula were used. Cronbach’s coefficient alpha for the full classroom community score was .93 and the equal-length split-half coefficient was .91, indicating excellent reliability. Additionally, internal consistency estimates were calculated for each of the two subscales. Cronbach’s coefficient alpha and the equal-length split-half coefficient for the connectedness subscale were .92 each, also indicating excellent reliability. Cronbach’s coefficient alpha for the learning subscale was .87 and the equal-length split-half coefficient was .80, indicating good reliability (Rovai, 2002c).

Fisher-SDLRS

The Fisher-SDLRS could also be chosen for this study. It was derived from Guglielmino’s (1977) original self-directed learning readiness scale (Guglielmino-SDLRS), which has been used in educational and nursing research to measure self-directed learning readiness (Linares, 1989, 1999; O’Kell, 1988; Wiley, 1983). Fisher et al. (2001) developed the Fisher-SDLRS in response to a need for a valid and reliable instrument to measure self-directed learning readiness.

The Fisher-SDLRS (Fisher et al., 2001) is used to measure student self-directed learning readiness. It consists of a self-report questionnaire of 40 items in a unidimensional scale. A unidimensional scale measures the same underlying concept, in this case self-directed learning (Fisher et al., 2001). Exploratory factor analysis revealed three subscales: (1) self-management, defined by 13 of the items; (2) desire for learning, defined by 12 of the items; (3) self-control, defined by 15 of the items.

Field (1989) identified that the strongest item-to-score correlations for the SDLRS were produced by those items dealing with love and/or enthusiasm for learning (17.6% of total variance) and those items that appeared to be intimately connected with readiness for self-directed learning had low correlations with total Guglielmino-SDLRS scores (less than 5% for each factor; Fisher et al., 2001). Also, replication of the Guglielmino-SDLRS has proved difficult (Field, 1989, 1991; Straka & Hinz, 1996). Some studies have raised questions about the reliability of Guglielmino-SDLRS when used in different racial and class populations (Long & Agyckum, 1983, 1984; Straka, 1995). Bonham (1991) also reports concerns about the construct validity of the Guglielmino-SDLRS by questioning the meaning of low scores. It appears that low scores on the Guglielmino-SDLRS do not measure low readiness for self-directed learning but rather a dislike for any kind of learning. Therefore, construct validity remains questionable for low Guglielmino-SDLRS scores. The newer Fisher et al. (2001) scale has ameliorated the problems associated with Guglielmino-SDLRS (1977).

Fisher et al. (2001) developed the Fisher-SDLRS in two stages. In the first stage, Fisher et al. used a modified Reactive Delphi technique to develop and determine the instrument’s content validity. Fisher et al. used the modified Delphi technique was used to gain consensus among an expert panel about the characteristics required for self-directed learning. The expert panel was comprised by 11 nurse academics and nurse educators with previous research and teaching experience in the area of self-directed learning. Each panel member independently evaluated each item to determine the degree to which the item measures a characteristic of a self-directed learner. In stage 2, Fisher et al., distributed the scale to a convenience sample of
undergraduate nursing students in a pilot study to determine the scale’s construct validity and internal consistency. A convenience sample of 201 students enrolled in the Bachelor of Nursing program at the University of Sydney was used for the pilot study. To determine internal consistency, Cronbach’s coefficient alpha was used. The computed values of Cronbach’s coefficient alpha for the total item pool, self-management subscale, the desire for learning subscale, and the self-control subscale were 0.924, 0.857, 0.847, and 0.830 respectively. According to deVaus (1991), when a scale is represented by a computed alpha greater than 0.70, the scale can be considered to have an acceptable level of internal consistency. Thus, the Fisher-SDLRS has been evaluated as a more cost effective and more robust instrument for the proposed study.

RESEARCH

The first attempt to define distance learning and to articulate a theory appeared in 1972 and was named the theory of transactional distance (Moore 1973). Moore’s study (as cited in Dewey & Bentley, 1949) described the concept as the physical separation of teacher and learner that leads to a psychological and communications gap which requires special teaching procedures. What determines the extent of distance in a program is a function of the interplay of three variables: dialogue, structure, and autonomy. Dialogue describes the interaction between teacher and learner. Structure refers to the course design. Autonomy is a characteristic of learners who control and manage their learning in a self-reliant way (Moore, 1980). This function influences the way in which the course is structured so that it can be delivered through various communications media. Putting together these variables it can be seen that with high levels of dialogue and less structure transactional distance is decreased and learners are able to use instructional materials to meet their needs (Moore & Kearsley, 1996). Conversely, high structure and low dialogue result in greater transactional distance and more responsibility on the part of the learner to be autonomous in order to succeed.

In practice, however, transactional distance in many programs is so great that the teaching delivered cannot be just like conventional face-to-face teaching. Frequently, this will mean taking measures to reduce transactional distance in online courses by increasing the dialogue through more student-to-student and student-to-instructor interactivity (Moore, 1991). What is appropriate is left to the instructor to determine and varies according to content, level of instruction, and learner characteristics (Moore, 1993).

In another study, Saba and Shearer (1994) assumed a systemic and dynamic relationship between structure and dialogue and observed that transactional distance varies by the rate of structure and dialogue. They found that as dialogue increases in a videoconferencing environment, structure decreases. When structure increases, transactional distance also increases and dialogue decreases. Dialogue in the form of in-class discussion was the only factor found to lessen transactional distance between instructors and learners in a videoconferencing environment (Chen & Willits, 1998).

To add to the knowledge base on distance learning and teaching a study was conducted between September 2001 and June 2002 analyzing the roles of structure and interaction on learner satisfaction with knowledge gained in Web-based courses (Stein et al., 2005). It explored
the question of how student satisfaction with perceived knowledge gained varies with course format and satisfaction with structure, interaction, and technical expertise. A ten-item summated rating scale measuring satisfaction with the adequacy of course structure and interaction as well as satisfaction with perceived knowledge gained was developed by the researchers. The researchers obtained data from learners in six courses that varied by course format, structure, and opportunities for interaction. Using Moore’s (1993) theory of transactional distance as a conceptual framework it was found that as dialogue increases in a distance learning environment, structure decreases to keep the system stable. When structure increases, transactional distance also increases and dialogue decreases. Results indicated that learner satisfaction with the course structure—activities, assignments, and instructor guidance and encouragement—led to greater satisfaction with perceived knowledge gained. Technical expertise had no effect on satisfaction with perceived knowledge gained.

In accordance with these studies, what determines the success of distance education is the extent to which the institution and the instructor are able to provide the appropriate opportunity for, and quality of, dialogue between teacher and learner as well as appropriately structured learning materials. The findings also show the necessity for learners to make their needs explicit so that instructors can adjust the course structure to develop ongoing criteria for successful achievement and lessen transactional distance (Stein et. al, 2005).

Research activities of Britain’s Open University provided new directions and emphasis for more research in the field. The publication of Research in Distance Education described in 1989 the great opportunity to collect information on research projects and their results in the field of distance learning. Until its publication most research institute descriptions were difficult to access in the United States (Moore, 1985; Rumble & Harry, 1982). Coldeway (1982) identified the following reasons for the limitation of research activities in distance learning.

1. Educational researchers are rarely present during the design of distance learning systems.
2. There is no clear paradigm for research in distance learning, and it is difficult to attract funds to develop one.
3. Some institutions are averse to defining boundaries and variables clearly.
4. Educational researchers often ask questions of no practical or even theoretical relevance.
5. Researchers in distance learning test variables that are really classes of variables (such as comparisons of distance and classroom learning).

Even with the growth in distance learning in our higher educational institutions, few studies examined students’ learning experiences, effectiveness of instructional methods, and strengths and limitation of this model of teaching and learning (Nasseh, 1997). Clark (1996) mentioned that media forms are mere vehicles that deliver instruction, but do not influence student achievement any more than the truck that delivers groceries causes changes in the customer’s nutrition, thus confirming his belief that it is not media, but variables such as instructional methods that promote distance learning. Russell (1996) provided brief quotations from 218 research reports, summaries, and papers, from 1945 to the present that compare technology-driven education methods with traditional classroom instruction. This compilation
indicates that students learn equally well from education delivered by technology and from education in the traditional classroom.

In addition to the effectiveness of learning experiences, the reasons for learners’ participation in distance learning became another attractive topic of systematic investigation (Nasseh, 1997). Wallace’s (1991) findings show a high number of participants in online adult continuing education. In her dissertation, *Faculty and Student Perceptions of Distance Education Using Television (TV)*, she revealed reasons for student participation in distance learning as opportunity to earn an MBA (90.9%), opportunity to upgrade work skills (75.1%), and the opportunity to learn more about business concepts (83.2%). Her recommendation for additional investigation includes: research in educational training needs of both students and teachers, attitudes of faculty toward distance learners, evaluation of educational experiences with regards to a lack of personal interaction in the group, and follow-up study for comparison of performance of this group with face-to-face class students. Two major recommendations of hers were to incorporate asynchronous technology (electronic mail system) with synchronous technology (TV) education to better facilitate communication between students and teacher, and to focus on training needs of distance learning students as well as teachers.

**The Changing Student Population and Distance Learning**

The flexibility that distance learning offers in terms of where and when students learn has always been particularly advantageous to two groups of students: a) those who live at a geographic distance from the university, and b) those who are fully employed (either at home or in the workplace) and who must pursue a university education on a part-time basis. Therefore, distance education has become closely associated with adult education, both in practice and in the literature. Themes drawn from adult education that have come to dominate the distance education literature include the observations that adult students are different in terms of life circumstances, development, and experience (e.g., they are usually part-time students who assume a multitude of roles, such as full-time worker, spouse, and family caretaker and who are looking for practical implications of new knowledge, particularly for the world of work; (Wallace, 1996).

Research into the reasons why students decide to participate in distance learning has focused on barriers that inhibit access to on-campus courses. Cross’s (1981) very important work views barriers as falling into three types: situational (circumstances in the individual’s life such as family and work), institutional (organizational policies and procedures), and dispositional (attitudes toward self and learning). However, as noted earlier, it seems reasonable to assume that the greater flexibility of distance learning alone would be seen as an important attraction by at least some students (Wallace, 1996). Flinck (1978) and Dodds, Lawrence, and Guitton (1984) found students believed that distance learning offered advantages in terms of control over the pace and time of studies. Other studies (Ahlm, 1972; Beijer, 1972; Moore, 1985; Thompson & Knox, 1987) suggested that the independence offered by this mode of study extends beyond the choice of “when and where” to preferences for independence in terms of interaction (i.e., the opportunity to work alone with minimal contact with instructors or fellow students). Whether students engage in distance learning because of barriers to on-campus courses or because of
attractions to off-campus courses it does appear that the reason students are attracted to distance learning is because such courses better fit their learning style or preference (Wallace, 1996).

In an attempt to link reasons why students decide to participate in distance learning and the demographic composition of the distance learning student one needs to look at how the demographic composition of the distance learning student may have changed in the past decade. This may have obvious implications for the way in which distance learning courses should be designed and delivered (Wallace, 1996). A study was conducted at a western Canadian university on the students enrolled in a degree-credit distance learning course during the regular session in any of the years 1983-1984 to 1994-1995. The following fields were extracted from the archived student records: age at time of enrollment, gender, residence, course load, and type of registration (students taking only distance learning versus students taking distance learning with concurrent on-campus courses). Results indicated the total number of distance learning students quadrupled from 497 in 1983-84 to 2152 in 1994-95. The mean age of distance learning students dropped from 32 years to 26 years, the percentage of distance learning students under the age of 26 more than doubled, the percentage of distance learning students living in the local area more than doubled, and the percentage of distance learning students taking a concurrent on-campus course more than doubled. This study was also applied to general enrollment for on-campus programs for the same time periods. Data analysis showed the total enrollment at the university had only marginally increased by 4%. This showed that the increased demand for distance learning was not just an overall increase in demand for university courses. Finally, eight other universities were contacted to ask for similar responses in this study. Six universities responded and four had meaningful information. Overall, all of the responding universities indicated increases in distance learning enrollment, four of the universities confirmed a shift toward younger students and a direction of growth toward urban (local) enrollments (Wallace, 1996).

The findings of this study confirm that the demographic composition of the distance learning population has changed. A shift has occurred from non-traditional students (adult, part-time learners living at a geographical distance from the institution) to traditional students (younger, more local residents who are enrolled in heavier, often full-time, course loads). These findings have obvious and immediate implications for the way in which distance learning courses are designed (Wallace, 1996). This demographic shift in the distance learning population indicates an increased blurring of the distinctions between on-campus and distance learning populations. This convergence has not been the result of a planned or coordinated institutional effort and, as a result, instructional design in distance learning needs to be continually reevaluated. Furthermore, in a period of shrinking resources, there are considerable benefits in translating course content formerly delivered by face-to-face lecture methods into formats applicable to distance learning.

Asynchronous learning networks or ALNs in distance learning have had a tremendous impact in bringing the worlds of face-to-face learning and distance learning together. Email, computer conferencing, bulletin boards and discussion groups are examples of asynchronous systems in which sending and receiving are usually separated in time. For two decades, a research team at New Jersey Institute of Technology (NJIT) has been involved in constructing the “Virtual Classroom” and studying its use in a wide variety of courses (Hiltz & Turoff, 2002).
An analysis of the results is constructed as part of a “WebCenter for ALN Effectiveness Research.” (see www.alnresearch.org).

Nineteen studies have been identified that compare ALNs to traditional face-to-face courses on the same campus. These studies employ objective measures of student learning (for example, grades) about as frequently as subjective measures (survey responses by students). The evidence is overwhelming that ALNs tend to be as or more effective than traditional modes of course delivery at the university level. Furthermore, they are providing a strong online option to the learning process by promoting student-instructor interaction, student-to-student collaboration, and generating active participation with appropriate software. With the increasing enrollment of traditional and non-traditional students in distance learning courses, faculty are able to be effective virtual professors, students can work with their peers to build and share knowledge, and the software available to support such processes is constantly improving (Hiltz & Turoff, 2002).

As learning from a distance continues to gain popularity and an influx of traditional students attest to its flexibility, the question of whether they are equipped to succeed in a low-contact environment versus a face-to-face, on-campus environment arises. A study conducted by Deke and McMurry (2006) explored how several variables such as student background, preparedness, and self-perceptions may or may not contribute differently to the success of students completing one-way distance teleclasses versus students completing the same classes in face-to-face, on-campus environments. Questionnaires were completed on reading and study skills, self perceptions, and background information for students in four classes, each class having a face-to-face section and a teleclass section. Success was measured with class grades and retention rates. A MANOVA was conducted to compare both groups on all variables. Follow up ANOVAs indicated significant differences in Age, Reading Comprehension, and Success with distance learners being higher in the first two but not the third due to lower retention rates. For distance learners, student-initiated contact with the instructor approached significance with successful teleclass learners spending more than double the amount of time in contact with the instructor than unsuccessful ones.

Multiple studies have shown students taking distance classes fared the same, or even better, than students in face-to-face classes in terms of grades, yet worse in terms of retention rates (Denton, Clark, Rossing, and O’Connor, 1984; Hogan, 1997); Schoenfeld-Tacher, McConnell, and Graham, 2001).

Distance Learning Perspectives

Early pioneers of correspondence education, including William Rainey Harper of Chicago, William H. Lightly of Wisconsin, and Hans Hermod of Malmo, Sweden, wrote fervently about advantages and disadvantages of this form of education. Nevertheless, there was no systematic theory of distance education which might make it possible to classify practitioner’s individual experiences. Rudolf Manfred Delling, known as the historian of distance education, stated that the first theoretical work was developed in the 1950s. Over twenty years later the claim of Charles Weidemeyer, in 1974, stated that distance education has failed ‘to develop a theory related to the mainstream of educational thought and practice’. According to Keegan
this remains true today. The following sections attempt an analysis of online as well as traditional theoretical approaches that have been presented.

Perspectives that seek to minimize the ‘transactional distance’ that separates students and teacher in online and traditional courses, and to shape the ongoing inquiry of how wider choices of communication options, afforded by the online revolution, have given institutions opportunities to look afresh at ways of establishing online community. Some of these perspectives come from: Rovai (2002a) who linked the quality of student-teacher interaction and community to persistence in university studies; Tinto (1975, p. 107) who stated that “social interaction via friendship support is directly related to persistence;” and Garrison (1997a) who purported that self-directed learning integrates contextual control, cognitive responsibility, and motivation. The work of these theorists, relating to improving the quality of students’ learning experience through building a greater sense of community, will be examined below.

In 1974, psychologist Seymour Sarason’s book introduced the concept of “psychological sense of community,” and proposed that it become the conceptual center for the psychology of community, asserting that psychological sense of community “is one of the major bases for self-definition” (p. 157). Among theories of Psychological Sense of Community, McMillan & Chavis’s (1986) is by far the most influential, and is the starting point for most of the recent research on psychological sense of community. McMillan & Chavis (1986) prefer the label “Sense of Community,” and provide the following definition: “Sense of Community,” is a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together.” Rovai and Lucking’s (2000) Sense of Classroom Community Index (SCCI) was developed based on McMillan and Chavis’s (1986) construct of community which they applied to the classroom environment. Rovai’s (2002c) Classroom Community Scale (CCS) is the second major iteration of this community instrument developed specifically for the online environment.

Based on his strong beliefs on the importance of building classroom community in distance learning courses, Alfred Rovai has done much research comparing community in a distance learning environment to community in an on-campus class. He defined community as having four components: spirit, a recognition of membership in a community and bonding that develops among learners; trust, credibility for one’s own self and benevolence for others in the group; interaction, task-driven direction toward completion of assigned tasks and socio-emotional direction toward self-generated learner relationships; and common expectations, commitment to a common educational purpose or learning (Rovai, 2002a).

A basic question which is the foundation of much of his research is whether or not online instructors can create a virtual learning environment that promotes a sense of classroom community? To demonstrate this, many studies compare sense of community between online courses and face-to-face instruction. Data for the studies are gathered from a sense of classroom community index (SCCI) that he developed and tested. The SCCI consists of a self-report questionnaire of 40 items, 10 items each for the subscales of spirit, trust, interaction, and learning (Rovai, 2001a).
One such study, with the purpose of exploring the dynamics of a sense of classroom community, analyzed a five-week graduate-level education course taught entirely at a distance via the Internet. Subjects were administered the sense of classroom community index (SCCI) at the beginning and end of the course in order to measure classroom community. An analysis of student responses indicated that on-line learners took advantage of the “learn anytime” characteristics of the Internet by accessing the course seven days per week, 24 hours per day. A sense of classroom community grew significantly during the course (Rovai, 2001b).

Another area of interest Rovai researched is the difference in student motivation between the two types of course delivery: online and face-to-face. A three-way multivariate analysis of variance was conducted to determine the effect of type course (e-learning, traditional), student status (undergraduate, graduate), and ethnicity (African America, Caucasian, and other). A comparative analysis was used to determine whether classifications could be made between students enrolled in e-learning university courses and in face-to-face university courses (N = 353) based on their scores from the Academic Motivation Scale-College (AMS-C28) instrument which measures motivation along with demographic questions. The 28 item AMS-C28 is used to measure intrinsic, extrinsic, and amotivation in college students (Vallerand et al., 1992). Study results revealed that the stronger intrinsic motivation of the online group represents the most important predictor in discriminating between online and traditional students. However, it is not determined if a greater number of students who possess higher intrinsic motivation elect to study online, or whether online courses promote greater intrinsic motivation (Rovai et al., 2007).

A study by Ni and Aust (2008) used quantitative measures to gather data from online students to analyze the effects of perceptions about teacher verbal immediacy and classroom community on students’ level of satisfaction, perceived learning, and online discussion frequency. Teacher verbal immediacy refers to teachers’ verbal communication behaviors that reduce psychological distance in the interaction between teacher and student while the sense of classroom community is related to not only the interaction between teacher and student but also the collaboration between students. The study used a modified scale from Gorham’s (1988) original immediacy scale and McAlister’s (2001) online immediacy scale to measure teacher verbal immediacy and Rovai’s Classroom Community Scale (Rovai, 2002a). A bivariate correlation, multiple linear regression, and two-way analysis of variance (ANOVA) were used for data analysis. Multiple regression analysis revealed that sense of classroom community was the only significant factor able to explain variability of satisfaction and perceived learning and that it is critical to enhance students’ satisfaction and perceived learning.

It is the interaction of several factors, specifically academic and social, which may ultimately determine a student’s drop-out decision (Spady, 1971; Tinto, 1987). The integration of the student into the institutional environment depends on what can be called a “match” between student (i.e. academic preparation, personality, intelligence, and motivation) and external factors. Astin referred to this as “student-institutional fit” (1975, p.46). Building on Tinto’s work, Pascarella and Terenzini discussed “institutional and goal commitment” as part of the integration process (1980, p. 62).

Tinto (1975) developed a theoretical, longitudinal model of student attrition using Durkheim’s (1961) suicide theory as a theoretical framework. He believed the collegiate
environment could be viewed as synonymous to the social system Durkheim wrote about. A lack of appropriate integration into the collegiate environment could lead to drop out, just as a lack of appropriate integration into the social system would increase the likelihood of suicide. He also wrote that theory alone was insufficient for describing longitudinal dropout behavior. He believed that student background characteristics, expectations, motivational attributes, and student goal commitment were all important influences on student dropout behavior.

In Tinto’s book, *Leaving College: Rethinking the Causes and Cures of Student Attrition*, he presented a model describing student departure by viewing it as “arising out of a longitudinal process of interactions between an individual and other members of the academic and social systems of the institution,” (Tinto, 1993, p.113). This model emphasizes the importance of student intentions and the importance they have on dropout. It proposes that a student’s intentions will have a direct influence on goal and institutional commitment, which both directly influence dropout behavior. It also recognizes the importance of a student’s external commitments and how they have a direct influence on a student’s goal and institutional commitments.

Developing his theory on institutional departure, Tinto classified the college community as academic and social systems (Tinto, 1987). Within each of these systems were both formal and informal experiences. In the academic system, formal activities occur mostly in the classroom setting and informal activities could occur outside the classroom setting such as study hall. In the social system, formal activities could be described as extracurricular activities while informal experiences as day-to-day activities not formally addressed in the rules and regulations of the institution. According to Tinto these components vary in importance creating a unique environment into which the student may or may not integrate.

Tinto (1993) includes the concept of external commitment as a way to explain some of the differences in dropout behavior. For example, many students in two-year institutions have external commitments related to work. TInto’s model proposes that when a student places more importance on his or her external work commitments, the likelihood for dropout increases. Another example is that some students come from backgrounds where little value is placed on the attainment of higher education. As more and more pressure is placed on the student from this external community, he or she may decrease his or her goal or level of commitment.

Using Tinto’s model, in 1975 Terenzini and Pascarella attempted to test the validity of the individual components, particularly the social and academic integration elements by conducting two studies. To test social and academic integration and the impact of these factors on student persistence, they collected data representing both the formal and informal types of integration as identified by Tinto. Academic data were in the form of grade point average and students’ perceptions of their academic program. Social integration was measured in three ways: the number of student extracurricular activities; perceptions of nonacademic life; and the number of informal interactions with faculty (Terenzini and Pascarella, 1977, p. 28). Results of the study appear to support Tinto’s and Spady’s concepts that the more academically and socially integrated a student is, the more likely the student will stay in college.
From adult education experts’ perspectives, self-directed learning contains three dimensions: motivation, metacognition, and self-regulation (Long, 2000). Self-directed learning has been used as a correlation for students’ academic performance and even as a perfect indicator of predicting academic success in traditional learning settings or non-web-based distance learning (Long, 1991). Darmayanti (1994) found a positive relationship between self-directed learning and academic success in the traditional classroom setting. A recent study also showed self-directed learning is a strong factor for predicting learners’ academic achievement in non-web-based distance learning (Hsu & Shiue, 2005). With the growing trend toward online learning, the concept of self-directed learning has received widespread attention again. For this reason, in the book “147 Practical Tips For Teaching Online Groups: Essentials of Web-based Education,” Hanna et al. (2000) believed self-directed learning is a key factor to successful online learning. Similarly, Guglielmino and Guglielmino (2003a) contended that although the students’ technical skills are important for e-learning, self-direction is even more vital in the successful e-learning environment.

Developed by Guglielmino (1977), the Self-Directed Learning Readiness Scale (SDLRS) uses a 58-item 5-point Likert scale. The scale includes eight factors: openness to learning opportunities, self-concept as an effective learner, initiative and independence in learning, informed acceptance of responsibility for one’s own learning, love of learning, creativity, positive orientation to the future, and ability to use basic study skills and problem-solving skills. Higher scores occurring from using the scale represent higher readiness for self-directed learning. Since development of the SDLRS, a number of studies have supported its reliability and validity (Guglielmino, 1989). According to Guglielmino and Guglielmino (2003b), “This instrument has consistently demonstrated strong reliability and validity in identifying those who were ready for self-directed learning in its 26-year history” (p.5).

Another instrument for assessing self-directed learning, developed by Dr. Oddi in her doctoral dissertation, is the Oddi Continuing Learning Inventory (OCLI). The OCLI is a 24-item 7-point Likert scale and contains three domains established by factor analysis: proactive/reactive learning drive, cognitive openness/defensiveness, and commitment/aversion to learning. Higher scores in the scale indicate having greater characteristics of a self-directed continuing learner. In this scale, the reliability coefficient also achieves a higher level (more than 0.8) (Oddi, 1984, 1986).

In an “Exploratory Study of the Relationship between Self-Directed Learning and Academic Performance in a Web-based Learning Environment” Chou & Chen (2008) proposed to identify whether or not self-directed learning is a key factor leading to successful academic performance in web-based learning environments by examining empirical case studies concerning self-directed learning in a web-based environment. The studies all use either the Self-Directed Learning Readiness Scale (SDLRS) or the Oddi Continuing Learning Inventory (OCLI). Three of the studies conducted by Chou & Chen (2008) to identify whether or not self-directed learning is a key factor leading to successful academic performance in web-based learning environments are as follows:

Case 1. Pachnowski and Jurczyk (2000) employed the Self-Directed Learning Readiness Scale (SDLRS) to explore learners’ attitudes and readiness for self-directed learning. In this
study, the academic performance, defined as a final course grade, consisted of students’ technical skills and attitudes/habits according to the course instructor’s standards. The SDLRS, transformed into digital format, was e-mailed to all online learners. Only 17 students returned completed SDLRS. The result of the study showed no significant relationship between self-directed learning and academic success. However, the number of participants for the study is insufficient.

Case 2. Doherty’s (2000) study distributed the SDLRS to online learners via e-mail in a Western college in the US. The purpose was to find the existence of a relationship between self-directed learning and academic performance as defined by a final course grade. After 147 valid questionnaires were collected the results showed that self-directed learning did not impact academic performance. According to Doherty, the final course grades of sample subjects were positively skewed.

Case 3. In Corbel’s (2003) study, the instrument for measuring student’s self-directed learning is the OCLI. Participants consisted of 191 graduate-level, online learners. Only 98 students submitted the surveys. In this study, the academic performance measure was the final grade for the course. The results showed a significantly positive relationship existed between self-directed learning and academic performance.

Grounded in a collaborative constructivist perspective, Garrison (1997a) developed a model which integrates student self-management (task control), self-monitoring (cognitive responsibility), and motivation (entering and task) dimensions to reflect a meaningful and worthwhile approach to self-directed learning. As Garrison defines the terms, self-management is concerned with task control issues. It focuses on the social and behavioral implementation of learning intentions, that is, the external activities associated with the learning process. Self-monitoring addresses cognitive and metacognitive processes; monitoring the repertoire of learning strategies as well as an awareness of and an ability to think about our thinking (plan and modify thinking according to the learning task/goal). Self-monitoring is the process whereby the learner takes responsibility for the construction of personal meaning (i.e. integrating new ideas and concepts with previous knowledge). Responsibility for self-monitoring reflects a commitment and obligation to construct meaning through critical reflection and collaborative confirmation. Motivation reflects perceived value and anticipated success of learning goals at the time learning is initiated and mediates between context (control) and cognition (responsibility) during the learning process. To begin to understand the pervasive influence of motivational factors, we need to distinguish between the process of deciding to participate (entering motivation) and the effort required to stay on task and persist (task motivation). Entering motivation establishes commitment to a particular goal and the intent to act (Garrison, 1997a).

Using Garrison’s comprehensive model (1997a) and his concept of control (1993) a study of online graduate students in a computer conferencing course was done to confirm that students exhibit self-direction as indicated by both the variety and the extent of concrete self-directed activities (Lee & Gibson, 2003). According to Garrison’s model, interaction also influences self-direction on the assumption of shared control based on dynamic communication among the teacher, learners, and curriculum. The study explained how students are self-directed by focusing on the instructor and peer roles of self-directed activities through content analysis of online
transcripts. Three components of self-direction—control, critical reflection, and responsibility—were shown to be connected to each other through interaction. Thus, this study suggested the importance of interaction in developing self-direction or taking control and responsibility for one’s own learning (Lee & Gibson, 2003).

**Research Regarding Online Interactivity**

There have been numerous studies regarding the quality of online instruction. Muirhead (2001) states the level of interactivity or interaction between students and between students and their teachers has a major impact on the quality on computer-mediated education programs. He highlights interaction research done by Berge (1999) who after investigating two online graduate education classes using in-depth interviews with 21 master of education students and their two instructors observes that “interaction does not simply occur but must be intentionally designed into the instructional program” (p. 5).

Jung (2001) discusses how the Web as a medium interacts with the pedagogical processes associated with web based instruction. Fifty-eight articles from six refereed international journals in the fields of distance education and educational technology were reviewed. The most frequently asked research questions were how to design effective web-based instruction, how to encourage interaction, and what are the effects of web-based instruction on learner satisfaction and perceived learning outcomes? Overall research indicated “student-centered learning environment,” “full of multimedia resources,” “expanded interactivity,” and “adaptability” to different student characteristics as distinctive features of web-based instruction, most of which reflect integration of technological features of Web into web-based instruction (Jung, 2001).

According to Pauls (n.d.), the caveat is not the medium but it is that pedagogically there is a difference in the delivery of online instruction and classroom instruction. In an online learning environment “to allow learning to occur attention must be paid to the specific nature of the medium. However, with sound pedagogical principles, there need be no significant difference in learning no matter what kind of media or methods were used” (Ascough, 2002, p. 18). An important factor in ensuring the quality of web based instruction is the changing role of the faculty (Perreault, Waldman, & Alexander, 2002). The faculty member must move from ‘sage on the stage’ to ‘guide on the side’ or ‘mentor in the center’ (King, 2002). This change requires the faculty to facilitate interaction with the students and between the students. A brief summary of literature regarding interactivity in web based instruction is presented here.

Kanuka & Anderson (1998), interested in the depth of online interactions, contended that participants in a communication process construct knowledge through a five-stage process. In Stage 1, participants share their information and opinions. In Stage 2, participants discover and explore dissonance and inconsistency in the information and opinions shared. In Stage 3, participants negotiate and co-construct knowledge. In Stage 4, participants further test and modify newly constructed knowledge. In Stage 5, the final stage, participants explicitly phrase agreements, statements, and applications of new knowledge. With data obtained from an online forum with 11 participants and coded into the above five stages, researchers found that students’ interactions in the online environment were primarily at the lower levels of communication (sharing information and discovering dissonance) and rarely developed into a higher level of
communication where negotiation, co-construction, and agreement occurred. If this learning is viewed from a Vygotskian perspective as a constructive or co-constructive process (Vygotsky, 1978), the shallow level of participation shown by Kanuka & Anderson’s study sharing and acknowledging only the differences in participants’ views is not sufficient to make construction or co-construction possible.

According to Vygotsky (1978) students learn only when their current view of knowledge is challenged, reformed, and synthesized through their interaction with others. Predominant in Vygotskian work is the attempt to link the social and individual levels of cognition (Hung & Nichani, 2002). These dimensions are based on two famous propositions concerning the so-called “zone of proximal development” (Vygotsky, 1978) and the “genetic law of cultural development” (Vygotsky, 1981). The concept of the zone of proximal development (ZPD) generally exemplifies Vygotsky’s interest in assessing how learners make progress as well as the learners’ potential level and the distance between the two. The law of cultural development brings together the social element and the individual in a ZPD setting.

Based on Vygotskian thought, meanings, tools, and goals all necessarily link the individual and the social world, of which the individual is part, to newly constructed knowledge for they are all formed in the sociocultural context (Hung & Nichani, 2002). Negotiation, co-construction, and agreement occur between students only when they intensify their participation in the online interaction upward to higher stages as in Kanuka & Anderson’s (1998) model. It is not known exactly what causes the students’ shallow participation in online interaction. One possible explanation is the lack of instructor guidance while promoting interaction such as online chatting and discussion (Tallent-Runnels, et al., 2006).

Some researchers believe that certain characteristics of the online environment would enhance the interaction between students and between students and their instructors. Believing that interaction is “the single most important activity in a well-designed distance education experience,” Mcissac, Blocher, Mahes, and Vrasidas (1999) qualitatively examined archived messages exchanged between doctoral students during chat time in six Web-based courses. They interviewed the students after the courses ended to learn about their experiences in the online interaction. They found that students’ positive experiences during the online interaction could be promoted by the instructors’ providing prompt feedback, participating in the interaction, encouraging social interaction, and employing collaborative learning strategies.

Althaus (1997) conducted a study to examine whether supplementing a face-to-face discussion with computer mediated discussions would enhance academic performance. All 134 students enrolled in the researcher’s face-to-face discussion sections, as well as students from outside the researcher’s sections, were invited to participate in computer-mediated discussion (CMD) groups supplementing their face-to-face class. The CMD groups used email to communicate during the 1992-93 academic school year. Students were able to log on and join the discussion whenever it was convenient for them giving them more time to read messages, reflect on them, and compose thoughtful responses. Results indicated that students who were actively involved in the computer-mediated discussions tended to earn higher grades than students who took part in face-to-face discussions only. Since participation in CMD groups was strictly
voluntary CMD participants could have already been committed to and involved in their courses without the influence of CMD.

Wilson and Whitelock (1998) reported on a project piloted at the Open University consisting of 110 computer science students based throughout the United Kingdom and Europe. The project was called M205-STILE (Students’ and Teachers’ Integrated Learning Environment). It was aimed at improving the presentation of the course and providing structured access to interactive online facilities by assessing distance learners perceptions of collaboration and group work in an online environment. In order to monitor students’ availability to collaborate, the number of students using the presentation software was recorded each month throughout the Spring, Summer, and Fall of 1995. Monitoring online questionnaires about students’ willingness to collaborate and participate in group work were completed during and after the students’ online experiences. Students gradually trickled away throughout the time period of the study. However, 53% of the students were still online in September even with a disturbance occurring around the Easter break. Results showed more than half of the total students reported an interest in group work however, only a small number of students initiated collaborative work. Results concluded that the number of online interactions needs to be kept relatively high in discussions, incentives in terms of the interface and pedagogical instructions need to be given, and some dramatic tension should be created to motivate participation. They also suggested that involving students in the process of getting to know each other also affects collaborative engagements.

Along the same line, Keefe (2003) found a high degree of interactivity and student participation to be critical components of online instruction. In Keefe’s comparative study (2003) surveys were administered before and after each semester to gather demographic and psychological measures between two versions of the same class, one online and one face-to-face, with randomly assigned students. Both performance and student perceptions were tracked across each semester. Results found that students performed better and were more satisfied in the face-to-face environment than in the online environment. More important was the impact of interaction separate from lecture on student performance in online courses. Keefe suggested the difference could be attributed to the lack of interaction experience during lecture in the online section.

Another study by Tallent-Runnels et al., displays the importance of creating a learning community in an online class by forming small groups and allowing students to see effective communication modeled by instructors. Instructor presence during discussions, posting of timely feedback, and announcements was found beneficial to the students. Finally, promotion of and participation in teacher-student and student-student interaction promoted learning. It was also noted that this interaction should reflect a deep understanding of the course content in order to be truly helpful (Tallent-Runnels et al., 2006).

As demonstrated in the studies described above current research shows that a key element in online courses is providing effective communication and interaction. However, research is needed to determine which format provides the highest level of interaction and the most effective learning experiences for various kinds of students. Future research also needs to examine the
kinds of instructor and student roles in online interactions that enhance class discussions and encourage critical thinking and construction of knowledge (Tallent-Runnels et al., 2006).

**Online Community in Distance Learning**

Strong feelings of community can increase the flow of information among all learners, the availability of support, commitment to group goals, cooperation among members and satisfaction with group efforts (Bruffee, 1993; Dede, 1996a; Wellman, 1999). Additionally, learners benefit from community membership by experiencing a greater sense of well-being and having a larger set of willing individuals to call on for support (Wellman & Gulia, 1999). Distance education courses must move away from imparting feelings of isolation and move toward generating greater feelings of community and personal attention (Rovai, 2001a). Thus, there is a need to understand what community means in distance-education environments so that educators and administrators can promote a better sense of community.

Looking at community in an other than distance-education environment, the general construct of community by Bellah, Madsen, Sullivan, Swidler, and Tipton (1985), in their book *Habits of the Heart*, is defined as follows:

A community is a group of people who are socially interdependent, who participate together in discussion and decision making, and who share certain practices that both define the community and are nurtured by it. Such a community is not quickly formed. It almost always has a history and so is also a community of memory, defined in part by its past and its memory of the past. (p. 333)

Additionally, McMillan and Chavis (1986) offer the following definition of community: “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (p. 9). These definitions identify or imply the most essential elements of community: mutual interdependence among members, interactivity, common expectations, and shared values and beliefs.

Hill (1996) and Rheingold (1991) believe that the components of community differ from setting to setting suggesting that sense of community is setting specific. Sergiovanni (1994) points out that learning is an attitude as well as an activity. He stresses the need for authentic community, a tie binding learners and teachers through shared values and ideals. Bielaczyc and Collins (1999) describe such a community as one that embodies a “culture of learning in which everyone is involved in a collective effort of understanding” (p.271). Members of such classroom communities have feelings of belonging and trust and they believe that they matter to one another and to the group; that they have duties and obligations to each other and to the school; and that they possess a shared faith that members’ educational needs will be met through their commitment to shared goals. Accordingly, classroom community can be constitutively defined in terms of four components: spirit, trust, interaction, and learning (Rovai, 2001a).

**Spirit.** The first component, spirit, denotes recognition of membership in a community and the feelings of friendship, cohesion and bonding that develop among learners as they enjoy one another and look forward to time spent together (Rovai, 2001a). Learners need to feel a
sense of connectedness, to feel a part of and be included in the group (Gibbs, 1995). Noninvolvement in the classroom community can possibly lead to feelings of loneliness, low self-esteem, isolation, and low motivation to learn, which in turn can lead to low achievement and dropout.

**Trust.** The second component, trust, is the feeling that the community can be trusted and represents a willingness to rely on other members of the community in whom one has confidence (Moormon, Zaltman, & Deshpande, 1993). Trust consists of two dimensions: credibility and benevolence (Doney & Cannon, 1997). Credibility is an expectation that the word of other learners in the community can be relied on. Benevolence is the extent to which learners are genuinely interested in the welfare of other members of the community and are motivated to assist others in their learning. Trust in the community also fosters contribution and support in times of need (Haines, Hurlbert, & Beggs, 1996).

**Interaction.** The third component of classroom community is interaction. According to Haythornthwaite, Kazmer, Robins, and Shoemaker (2000), “Building community requires more than just work activity. Moreover, socializing eases work relations”. Accordingly, Hare and Davies (1994) categorize interaction as either task-driven or socioemotional in origin. Task-driven interaction is directed toward the completion of assigned tasks while socioemotional-driven interaction is directed toward relationships among learners. Socializing can take on many characteristics, from exchanging empathetic messages (McMahon, 1997) to self-disclosure (Cutler, 1996). According to Cutler (1996), “the more one discloses personal information, the more others will reciprocate, and the more individuals know about each other, the more likely they are to establish trust, seek support, and thus find satisfaction” (p. 326). Thus, increased disclosure of personal information strengthens classroom community.

**Learning.** Learning, the final component of classroom community, reflects a commitment to a common educational purpose. Situated learning (Brown, Collins, & Duguid, 1989) maintains that learning and cognition must take account of social interaction and work. Emerging from situated learning research is “communities of practice,” the concept that learning takes place through the sharing of purposeful, patterned activity (Lave & Wenger, 1991). Lave and Wenger (1991) stress that learning is considered “an integral and inseparable aspect of social practice” within the classroom community (p. 31). Rather than merely adding to the student’s knowledge, learning involves a “process of transformation of participation itself,” which occurs as a function of all active members of the classroom community, “transforming roles and understanding in the activities in which they participate” (Rogoff, 1994, p. 209). Learning thus represents the common purpose of the community and members of the community grow to feel that their educational needs are being satisfied through active participation in the community (Rovai, 2006).

**Building Community**

Students in asynchronous distance classes work at computers miles apart at all hours of the day and night. This feeling of being alone is overcome when students join together in a community of learners who support one another. The process of forming a community of
learners is an important issue in distance learning because it can affect student satisfaction, retention, and learning.

A study was done to develop a theory on the process of community-building in adult computer-mediated asynchronous distance learning classes (Brown, 2001). Archived class input as well as interview data from twenty-one students and three faculty members were incorporated into a grounded theory design. This study used a systematic set of procedures to develop an inductively derived grounded theory to explain the process of forming a community in a distance learning class. Data collection procedures included site selection, sampling to select participants, interviews with participants, follow-up email correspondence, and archived input. Data analysis procedures included open coding to develop categories of information, and a paradigm created by axial coding to explore relationships between categories.

Results of this study showed participants described community along two themes: one describes members as having something in common; the other describes members as responsible, in part, not just for their own learning but for others’ learning, too. Results also indicated participants’ definitions of community often were a predictor of whether or not they felt part of a community. Those who felt connected placed a high priority on the class, were highly motivated, and allotted time for it accordingly. Those who did not feel connected either did not place a high priority on the class or on community, were “out of synch” with the class due to outside problems and/or commitments, or were only interested in the knowledge from the course and/or course credit. Further implications from the study are that community-building should help keep the students in the class and in the program, promote full engagement in the class, facilitate effective collaborative learning, and encourage continued communication after the course or program (Brown, 2001).

If instructors and curriculum designers realize how community is built online and if students understand the benefits of community and of being fully engaged in the class, then community should happen more readily (Brown, 2001). The purpose of an educational experience, whether it is online, face-to-face, or a blending of both is to structure the educational experience to achieve defined learning outcomes (Garrison & Cleveland-Innes, 2005). In this context, interaction must be more structured and systematic. Some have argued that in higher education, it is valuable and even necessary to create a community of inquiry where interaction and reflection are sustained and where the process of critical inquiry can be modeled. Interaction in such an environment goes beyond social interaction and the simple exchange of information and should be more of a community of inquiry. A community of inquiry must include various combinations of interaction among content, teachers, and students (Anderson and Garrison, 1997; Moore, 1989).

To capitalize on the potential of online learning for educational purposes, a qualitative shift in the nature of interaction must be considered. Garrison, Anderson, and Archer (2000) provided a model of a community of inquiry that maps and defines educational presence. It is the integration of social, teaching, and cognitive presence. To appreciate interaction and the quality of learning outcomes, one must understand how social, teaching, and cognitive presence come together to create a purposeful community of inquiry (Garrison & Cleveland-Innes, 2005).
Rourke, Anderson, Garrison and Archer (1999) differentiate core components of social presence, teaching presence, and cognitive presence as a framework for interpreting the online teaching and learning environment. They define social presence as that which supports the community’s cognitive presence; teachers’ presence as facilitating cognitive presence by the teacher’s knowledge and organization of learning; and cognitive presence as the extent to which the participants can construct meaning through sustained communication.

Social Presence. Social presence has varying definitions in literature. As defined by Garrison (1997b) social presence is ‘the degree to which participants are able to project themselves affectively within the medium’ (Stacey, 2002). Rourke, Anderson, Garrison, and Archer (1999) place more responsibility on the learners when they describe social presence as “the ability of the learners to socially and affectively project themselves in communities of inquiry.” Others have defined it as the “the degree of person-to-person awareness” (Tu, 2000, p.1662) and “the degree to which a person is perceived as a ‘real person’ in mediated communication” (Gunawardena and Zittle, 1997, p. 9).

Recent literature has shown that social presence is one of the most significant factors in improving instructional effectiveness and building a sense of community. Rovai (2002a) presents factors that professional literature suggests contribute to a sense of community. They include social presence along with other variables such as transactional distance, social equality, collaborative learning (small group activities), group facilitation, teaching style and learning stage (self-directed learning), and community size. The social presence factor stresses that sense of community will whither unless the community is nurtured and support is provided in the form of heightened awareness of social presence (Rovai, 2002a). All other factors point to an increased growth of community.

Rovai (2002a) proposes small-group activities, group facilitation, teaching style and learning stage, and community size as positive correlates to a sense of community. He states small group activities enable students to become meaningfully engaged in a variety of learning activities, thereby making connections with each other and promoting community, while instructor facilitation efforts are meant to inspire learners to interact. Gunawardena and Zittle (1997) suggest that when students connect with others in new social situations they create social presence or a degree of interpersonal contact. The challenge in online learning environments is facilitating this degree of interpersonal contact with the instructor and other participants because all contact is electronic.

A sense of community is supported where teaching style and learning stage are aligned. Grow (1991) suggests that good teaching does two things: (a) it matches the students’ stage of self-direction, and (b) it empowers the student to progress toward greater self-direction. Thus the teaching style and learning stage must accommodate the needs of the learners. Learners in a community evolve from being dependent learners in a more structured environment to being fully functional self-directed learners in a less structured environment.

Teaching Presence. A review of recent literature by Shea et al., proposed that teaching presence—viewed as the core roles of the online instructor—is a promising mechanism for developing learning community in online environments (Shea et al., 2006). Tinto (1997) argued
that the classroom is the nexus bridging social and academic integration for college learners—
clearly this relationship in the online classroom is also significant for students. Tinto further
suggested that what instructors do in the classroom is critical to learners’ sense of scholarly
“belonging” and ultimate persistence in their academic pursuits. Also, Pascarella & Terenzini’s
(1991) convincing research, along with Tinto’s (1997), supports the critical importance of
community development to overall student success in higher education. Yet questions persist
regarding the capacity for fully online environments to support high levels of community
(Brown, 2001).

To address some of these concerns a study was conducted to investigate the link between
“teaching presence” in higher education classroom-based and online learning environments and
learner sense of community in these different settings (Shea et al., 2006). The conceptual basis
for this analysis of community and learning in online higher education is derived and adapted
from what is known about learning in three areas. The first area is about how people learn
generally and is based on the perspectives of Bransford et al., (1999) indicating that good
learning environments are learner, knowledge, assessment, and community centered. The second
area of conceptual understanding of online learning and community development can be derived
from research into higher education learners. The seven principles of good practice in
undergraduate education offered by Chickering and Gamson (1987) affirm that good learning
environments promote high levels of interaction between students and faculty. The third area that
provides a conceptual basis for thinking about the importance of online community for learning
is the more recent work on the concepts of presence outlined in the community of inquiry model
(Garrison, Anderson, & Archer, 2000). In this framework the authors propose that a successful
community of learners develops as a result of the joint work of instructors and students.

The investigation (Shea, et al., 2006) assessed students’ sense of classroom community as
it relates to perceived instructors’ teaching presence. To measure teaching presence the
“Teaching Presence Scale” (TPS), also called the community of inquiry model (Anderson,
Rourke, Garrison, & Archer, 2001; Garrison et al., 2000) was presented to a random sample of
learners at the end of the semester to assess effective instructional design and organization,
facilitation, and direct instruction. To measure connectedness and learning Rovai’s Classroom
Community Index (2002a,b) was used. The main research question was “Do students’ ratings of
their instructors’ teaching presence correlate with their overall sense of connectedness and
learning (learning community) as measured by the Classroom Community Index?” This analysis
indicated that there is a clear connection between perceived teaching presence and students’
sense of learning community and that “directed facilitation” by the instructor contributes more to
students’ sense of connectedness and learning than effective instructional design and
organization or learner characteristics (Shea et al., 2006). The authors conclude stating more
research needs to be done to understand how to increase the level of learning community in the
classroom and in the online environment.

Cognitive Presence. Recent research of online environments has focused on learning
effectiveness (Shea et al., 2002; Swan, 2003), the impact of social aspects of online learning
environments (Picciano, 2002; Richardson & Swan, 2003), student satisfaction (Shea, Pickett,
and Pelz, 2003), and learning strategies (Brown, Myers, and Roy, 2003). However, little research
has looked at how students engage with their online courses, especially in terms of learning
strategies and motivations (Richardson & Newby, 2006). Cognitive engagement, allows researchers to go beyond the course grades to gain knowledge about how students “go about learning” while taking into account the unique individual experiences that shape them and their learning (Biggs, 1987). Given that students learn differently, it would be useful for online instructors and designers to have a better understanding of how students’ learning strategies, motivation, and prior experiences intersect within the online environment.

Corno and Mandinach (1983) first coined the term cognitive engagement in research that examined classroom learning from the perspective of learning, motivation, and instruction (Richardson & Newby, 2006). To them, self-regulated learning is considered to be one form of cognitive engagement, “the highest form...in which a student derives solutions on his or her own” (p. 90). Ultimately, they believe the students must “learn to learn” and be encouraged to “become adroit at strategy shifts across tasks, even within certain complex tasks” (p. 106).

Guthrie et al., (1996) defined student engagement as “the integration of motivations and strategies in literacy activities” (p. 306). Research stemming from the National Reading Research Center cites motivation as the underlying definition for the outcomes for literate learners, or learners who “generate their own literacy learning opportunities” (Guthrie, 1996, 433). Greene and Miller (1996) found that students’ perceived ability and learning goals were positively correlated with meaningful cognitive engagement. In Stoney and Oliver’s (1999) study of the use of interactive multimedia on motivation and engagement, it was determined that when a student is engaged, it can be assumed that students’ prior learning will act in concert with the instruction to determine the types of cognitive engagement they exhibit, such as attention to specific information, analyses and synthesis of information, visualization, or ability to distinguish between relevant and irrelevant information. (Stoney & Oliver, 1999, Cognitive engagement, para 3) Richardson and Newby (2006) investigated the degree to which students cognitively engage with their online courses especially in terms of learning strategies and motivations. The study utilized Biggs’s (1987) Study Process Questionnaire to measure motivations and strategies in general, rather than for a specific task, and to create a learner profile. The authors were also interested to know whether students who enrolled in online courses coming from different program focus areas demonstrated different learning strategies and motivations. Statistically significant findings were observed for program focus, gender, age, and prior online experience in accordance with students’ learning strategies and motivations. Specifically, the findings indicate that as students gain experience with online learning, they come to take more responsibility for their own learning. The findings also have implications for how instructors facilitate online courses as well as how designers organize online courses. The study recommends future research on exploring factors that go beyond demographics and self-selecting factors explored in this study and on examining additional factors that allow teachers to more directly influence learning designs.

**Measuring Community**

There must be proper attention to community building in distance-education programs because it is the sense of community that attracts and retains learners (Rovai, 2001a). Tinto (1993) suggested that students increase their level of satisfaction and persistence in a college program if they feel involved in the learning community. This means improving sense of
community may be an important contributing factor to reducing dropout rates. Thus, there is a need to understand what community means in distance education environments in order to promote a better sense of community. Accordingly, a study measured sense of community in two university distance-education programs using asynchronous learning networks (ALNs), networks where students can learn using the Internet at the time and place of their choosing. Participants consisted of the following: (a) an ALN-based program including annual 5-day residencies; and (b) an ALN-based program including monthly 9-hour traditional face-to-face sessions. The research hypothesis in this study are that, all else being equal, the program with the stronger sense of community will be the one with more and diverse opportunities for members of the community to interact. Data for the study were gathered from the Sense of Classroom Community Index, second edition (SCCI2) to measure sense of community. A self-report questionnaire was administered to both groups during the final 2 weeks of the course (Rovai, 2001a).

The analysis of the study provided evidence that sense of community in the monthly meetings group was stronger than in the annual-residencies group at the end of the first year of coursework and that the most important components in which the groups differed were spirit and trust (Rovai, 2001a). Community was stronger in the group in which there were more and diverse opportunities for members of the community to interact with each other. These results lend support to Cutler’s (1996) belief that socialization can lead to greater feelings of trust and satisfaction that, in turn, result in a greater sense of community. This finding also supports Dede’s (1996b) contention that “to succeed, distributed learning must balance virtual and direct interaction in sustaining communion among people” (p. 199).

The implication of this study for higher education ALN programs is clear. If community is valued, programs that include opportunities for learner-learner and learner-instructor interaction outside the ALN environment can improve sense of community (Rovai, 2001a). Indications for further research might extend this research to other settings and examine the relationships of various online program characteristics to classroom community.

Retention in Distance Learning

With funding tied closely to student enrollment and accreditation dependent on course quality, completion rates have become a significant measure in higher education (Howell, Laws, & Lindsay, 2004). Debate also continues on whether and why courses for distance education students lead to higher noncompletion rates. If they really do have higher noncompletion rates, some attribute the difference to the lack of faculty-student interaction, while others say it is impossible to compare the two groups because distance education students are inherently different from traditional students (e.g., older with additional commitments; Carr, 2000).

Studies on distance education completion are still sparse due to the medium’s relative newness (Howell, Laws, & Lindsay, 2004). In an article in The Chronicle of Higher Education in 2000, Brady reported the following:

No national statistics exist yet about how many students complete distance programs or courses, but anecdotal evidence and studies by individual institutions suggest that course-
completion and program-retention rates are generally lower in distance-education courses than in their face-to-face counterparts. (p.352)

In a study completed before the widespread use of online distance education, researchers (Moore & Kearsley, 1996) found that distance education completion rates were low, 50% at best. However, Carr (2000) found significant variation existed among institutions, “with some reporting course completion rates of more than 80% and others finding that fewer than 50% of distance-education students finish their courses”. While these studies reveal wide variance in completion rates, additional research focusing on the specific dynamics that influence completion and retention appear to be more consistent and helpful.

Kemp (2002) found that “the adult distance learner may be affected by a variety of internal and external factors that account for the continuance/discontinuance in their studies” (p.65). He also cited studies by Kennedy and Powell (1976) and Brindley (1987) which state that “life circumstances combine with other factors (e.g. independence, organizational abilities, and social support) as predictors of persistence or withdrawal” (p. 65). Kemp (2002) pointed out that a number of studies show that previous experience with distance education is associated with greater retention and lower frequencies of dropout (Coldeway, 1982; Langenbach & Korhonen, 1988; Rekkedal, 1983, as cited in Kemp, 2002). Wlodkowski’s (2003) study found that “better social integration with peers correlates with persistence,” and he notes that “research findings from other studies confirm that positive involvement with peers and faculty encourages adult students to persist” (New England Adult Research Network, 1999; Tinto, 1998, as cited in Wlodkowski, 2003, p. 12).

The importance of community for improved retention is supported by research. Wehlage, Rutter and Smith (1989) found that effective schools provide students with a supportive community. In a study of adult learners in a worksite GED program, Vann and Hinton (1994) found that 84 percent of completers belonged to class cliques, whereas 70 percent of dropouts were socially isolated. Finally, Ashar and Skenes (1993) found that by creating a social environment in a higher education business program, social integration had a significant positive effect on retention. They found that learning needs alone appeared strong enough to attract adults to the program, but not to retain them.

Much research evaluating distance education retention has been done by comparing it to traditional education. Earlier studies on retention describe caveats and complexities in comparing distance education and traditional education completion rates. Analysis reveals many problems in comparing the two formats stem from a lack of student-faculty interaction in distance courses, differences in student demographics between the two course types, and inconsistent methods of calculating and reporting completion. Howell, Laws, & Lindsay (2004) state that if completion rates are used as a criterion for evaluating the effectiveness of courses, they are best done by comparing 'apples to apples' and 'oranges to oranges' instead of 'apples to oranges'. They also state that traditional students enroll in distance courses and therefore, the lower completion rates of distance courses could be caused from motivational problems and not just internal and external factors relating to nontraditional students. Along with this these researchers cite past research that shows a necessity for student interaction which is hard to compare between a distance course and its “in-class equivalent”. Based on this research the more important effort
Mentzer, Cryan & Teclehaimanot (2007) conducted a study comparing student learning outcomes and student perceptions of two randomly selected sections of the same class—a web-based section and a traditional face-to-face (f2f) section. Due to the random assignment of students to groups, the students' perceptions and experiences were more indicative of the "average" student as opposed to those students who generally enroll in web-based courses. Student perceptions of student-teacher interactions as well as course satisfaction were measured by an identical end-of-semester evaluation in each section and a comparison of mean evaluation scores using an independent sample t-test. Results revealed a statistically significant difference between the teacher/student interactions during class discussions in the two groups. Student achievement differed in that the final grades were lower in the web-based course due to incomplete assignments indicating students in web-based courses may be less conscientious or less motivated to complete assignments. Findings of this study showed that the two equivalent groups did not have equal experiences in the area of student perceptions and that the face-to-face encounter motivates students to a higher degree. This higher level of motivation can contribute to a higher level of student course completion rates.

Some learning experts consider motivation to be a more important requirement in distance education courses than in conventional courses because distance learners with low motivation have more of a tendency to drop out or fail (Jung et al., 2002, p. 160). A study by Wlodkowski (2003) found that lack of time was the primary reason for student attrition among adults. Jacquelyn Tulloch, while executive dean of distance education and college services at the Dallas Community College’s LeCroy Center for Educational Telecommunications, commented, “Distance education students tend to leave us because they are very busy, their lives are crammed full of things, and suddenly they find themselves in a situation of having to rethink their priorities” (as cited in Carr, 2000). Howell, Laws, & Lindsay (2004) state that because adult learners generally have more responsibilities in their daily lives that make it harder to complete their courses, the criticism of “lower” completion rates for distance education—if they are really lower—should be mitigated. Traditional students enroll in these distance courses having the same problems with a lack of motivation. Jackson (2001) contends that “there is little doubt that Web-based or even interactive video courses present a daunting challenge to undergraduate students whose discipline and motivation may not be sufficient to complete such courses” (p. 4). Visser (2002) found that in distance education “it is often motivational problems, and not the instruction itself, which lay at the root” of low completion rates (p. 95).

“Moore (2001) noted that to be successful in delivering online courses, faculty must … provide specialized attention to students with low levels of self-directedness” (as cited in Lindner et al., 2002, p. 2). “Establishing some form of personal contact with students and letting them know what is required are both essential” (Carr, 2000). Motivation and retention problems may be mitigated by mentoring and other encouraging social factors. Student-student and faculty-student interaction can be critical to the perseverance (Howell, Laws, & Lindsay, 2004).

Howell et al. (2004) state that because completion appears to be linked to faculty and staff interaction with students, institutions cannot increase their enrollments and expect to
improve completion rates without adequate faculty and staff support for students. In a 2000 study by the National Education Association (NEA), 66% of NEA faculty had an enrollment limit on their courses, and faculty with enrollment-limited courses felt more favorable about distance learning than those without limits (Howell, Laws, & Lindsay, 2004). Astin (1993) states that small classes make it easier to build community, which is significant because “students who feel connected to other students and campus community are more likely to persist to graduation” (as cited in Scagnoli, 2001).

**Self-Direction in Distance Learning**

Within the last 30 years, researchers of self-directed learning have identified many aspects of this field that have unique and differing concepts (Howland & Moore, 2002). The shift away from oral discourse to a dependence on written communication in online courses has been seen as contributing to a difficulty in building collaborative relationships among students (Besser & Bonn, 1996), perhaps due to the depersonalized nature of electronic communication or the absence of social cues and informational feedback (Kiesler, Siege, & McGuire, 1984). Past research has suggested that self-directed students are more successful in online classes than students who require more external direction even though asynchronous, online classrooms pose a situational difference in student/student and in student/instructor interactions.

Perhaps due in part to the general shift in education from primarily direct instruction to more constructivist online learning environments, early, linear models (Knowles, 1975; Tough, 1971) have been joined by later models proposing more interactivity (Brockett & Heimstra, 1991; Cavaliere, 1992; Danis, 1992; Garrison, 1997a). The instructional design of online courses that reflect components of Brockett and Heimstra’s Personal Responsibility Orientation model (1991) consider the learner as being fundamentally responsible for learning with learning facilitated by the instructor. The self-management, self-monitoring, and motivational dimensions integrated in Garrison’s (1997a) model are specific aspects of self-directed learning that the instructors believed were germane to individuals engaged in an online class environment and perhaps critical to success (Howland & Moore, 2002).

Garrison’s (1997a) theoretical model of self-directed learning “integrates self-management (contextual control), self-monitoring (cognitive responsibility), and motivational (entering and task) dimensions” (p.18). Self-management focuses on goal-setting, use of resources, and external support for learning where Garrison contends that the learner “does not construct meaning in isolation from the shared world” (p. 23). Self-monitoring refers to the ability of learners to monitor both their cognitive and metacognitive processes. To promote self-monitoring learners integrate external feedback with their own self reflection as a form of collaborative confirmation of learning (Garrison, 1997).

According to Garrison (1997), “motivation plays a significant role in the initiation and maintenance of effort toward learning and the achievement of cognitive goals” (p. 26). Moore & Kearsley (2005) discuss motivation as an important variable related to adult distance learner success. Citing Merisotis and Phipps (1999) they point out that the most important factors influencing student success are student motivation, the nature of the learning tasks, learner characteristics, and the instructor. The e-learning instructor plays a crucial role in maintaining
and sustaining students’ motivational level by planning structures and facilitating interpersonal events.

Brockett and Hiemstra (1991) created a model of Personal Responsibility Orientation (PRO) in self-directed learning. This model depicts personal responsibility in the teaching-learning process and views it as the “cornerstone of self-direction in learning” (p. 27). Personal orientation refers to the internal characteristics that “predispose one toward accepting responsibility for one’s thoughts and actions as a learner” (p. 29). Process orientation refers to the external factors that contribute to self-directed learning such as planning, implementation, and evaluation. Personal responsibility in the PRO model provides the link between the external and internal characteristics.

A common thread that runs through many constructs of importance in understanding motivational processes is the identification of internal and external sources of motivation. According to Bandura (1997), outcomes resulting from goal attainment can be personal, self-evaluative, or social. Current research by Rovai et al. (2007) focuses on intrinsic and extrinsic motivation to explain students' performance in distance learning and face-to-face learning by comparing the differences in seven measures of motivation between students enrolled in 12 e-learning and 12 traditional classroom university courses. In this study Rovai et al. describe distance learners as older than traditional students, more likely to be female, married with a family and job responsibilities, and apt to have higher incomes (Ashby, 2002). The study results also provide evidence that e-learning students possess stronger intrinsic motivation than on campus students who attend face-to-face classes. This is not to suggest that traditional classroom students do not desire the same personal or self-evaluative outcomes but that they have different perceived likely outcomes and levels of capability. Such differences may be attributable to the types of students who would self-select e-learning as their educational mode of choice. The present results suggest that instructional methods more suited for self-directed learners represent a better approach in facilitating successful e-learning ((Rovai et al., 2007). Also, the question remains whether such differences will continue as e-learning becomes more common and the majority, non-traditional as well as traditional students, embrace the medium.

A qualitative research study conducted by Howland and Moore (2002) examined students’ experiences as online learners, thereby increasing understanding of their needs in online courses. This work is intended to raise issues regarding student communication, learning experiences, and strategies for success. A questionnaire with 12 open-ended questions was sent to students via e-mail. The information collected was segmented and coding categories were developed. The data generated were self-reported perceptions of students’ experiences in their online course. The data revealed that self-management, self-reliance, and accurate expectations of learner responsibilities are important attributes for successful Internet-based learning experiences. Some students reported better retention, higher self-confidence, and more opportunity for flexibility to fit the needs of all learners. Students reporting positive attitudes about their online course experiences exhibited attributes of constructivist learners including self-direction.

Using content analysis to analyze transcripts from an online course conducted via computer conferencing, a study by Lee and Gibson (2003) explains how students can be self-
directed in a computer-conferencing course by focusing on the instructor and student peer roles and exploring techniques students use to be self-directed in an online course. The study references Garrison’s model (1997a) which shows that interaction influences self-direction of students assuming their shared control based on dynamic communication among teachers, learners, and curriculum. The study also references Moore’s theory of transactional distance (1991) which uses dialogue and structure to describe the students’ distance from the course and the course’s flexibility or rigidity to individual needs. In this study transcripts of student messages in an online course were analyzed during weeks 3, 8, and 13 where students posted 87% of the class messages. The instructor established minimum guidelines and facilitated learning as a director and observer. Students exhibited interdependent rather than independent responses building collective knowledge through interaction. Students’ high level of participation and initiation illustrated their active roles related to learning. Interaction between learner and instructor and among learners provided shared control, critical thinking, and responsibility for learning. Conclusions from analyzing each of these dimensions support the importance of interaction, collaborative knowledge, and frequent feedback in facilitating self-direction in online learning. The author calls for further research in the relationship between interaction and self-direction.

PROCEDURES

A correlational research design could be used to conduct this study. Community could be assessed using the CCS by Rovai (2002c) to establish whether or not a sense of community has been developed in the online courses, according to the participating students. Self-directed learning readiness could be assessed using the self-directed learning readiness scale Fisher-SDLRS (Fisher et al., 2001). Questions from both instruments could be combined into one survey and made available to students through an online survey to which the researcher will maintain control. Survey results would be correlated with students’ retention data found in the CCCC student database.

Classroom Community Scale (CCS)

The CCS could be used to measure students’ sense of classroom community. The concept of classroom community would be based on the concept of community as contained in the professional literature (e.g., Bellah et al., 1985; McMillan & Chavis, 1986). The CCS consists of a self-report questionnaire of 20 items including 10 items related to feelings of connectedness and 10 items related to students’ feelings regarding the use of interaction within the community to construct understanding and the extent to which their learning goals are being satisfied within the classroom setting (Rovai, 2002c). This instrument generates an overall classroom community score as well as two subscale scores connectedness and learning. Connectedness represents the feelings of the community of students regarding their connectedness, cohesion, spirit, trust, and interdependence. Learning represents the feelings of community members regarding interaction with each other as they pursue the construction of understanding and the extent to which their learning goals are being satisfied within the classroom setting (Rovai, 2002c).

A 5-point Likert scoring scale could be used (See Appendix A) on the CCS. To obtain the overall classroom community score, one could add the weights of all 20 items. Total raw scores
range from a maximum of 40 to a minimum of 0. Subscale raw scores range from a maximum of 20 to a minimum of 0. To calculate the connectedness score, the scores of odd CCS items, i.e., 1, 3, 5, 7, 9, 11, 13, 15, 17, and 19, would be added together. Similarly, to calculate the learning subscale score, the scores of the remaining even numbered CCS items would be added together.

Rovai (2002c) analyzed the validity and reliability of the instrument that was developed, refined, and field-tested using 375 graduate students enrolled in 28 different Blackboard-based online courses. An initial set of 20 items was developed for the CCS that addressed characteristics of sense of community regardless of class setting, including feelings of connectedness, cohesion, spirit, trust, and interdependence among members (Rovai, 2002c). Additionally, Hill (1996) and Rheingold (1991) suggested that sense of community was setting specific and that components of community differed from setting to setting. Consequently, a second set of 20 items was developed to represent the specific setting of the classroom, either traditional or virtual. Altogether, 40 items were included in the initial set of items for the CCS.

A panel of experts consisting of three university professors who taught courses in educational psychology evaluated the initial pool of 40 CCS items for content validity. Each expert independently rated the relevance of each CCS item to the sense of community in a classroom environment using a four-point Likert-type scale consisting of totally not relevant, barely relevant, reasonably relevant, and totally relevant. The potential score for each item ranged from 0 (totally not relevant) to 4 (totally relevant). The mean score for each CCS item as evaluated by the experts ranged from a low of 3.33 to a high of 4.00. This review resulted in the deletion of items not rated as totally relevant by all of the experts. The final refinement resulted in 20 remaining items; 10 items relating to feelings of connectedness and 10 items related to feelings regarding the use of interaction within the community (Rovai, 2002c). Validity analysis of the 20 CCS items revealed face value and appeared to measure classroom community.

Rovai (2002c) calculated two internal consistency estimates of reliability for the CCS. Cronbach’s coefficient alpha and the split-half coefficient corrected by the Spearman-Brown prophecy formula were used. Cronbach’s coefficient alpha for the full classroom community score was .93 and the equal-length split-half coefficient was .91, indicating excellent reliability. Additionally, internal consistency estimates were calculated for each of the two subscales. Cronbach’s coefficient alpha and the equal-length split-half coefficient for the connectedness subscale were .92 each, also indicating excellent reliability. Cronbach’s coefficient alpha for the learning subscale was .87 and the equal-length split-half coefficient was .80, indicating good reliability (Rovai, 2002c).

**Fisher-SDLRS**

The Fisher-SDLRS could be chosen for this type of study. It was derived from Guglielmino’s (1977) original self-directed learning readiness scale (Guglielmino-SDLRS), which has been used in educational and nursing research to measure self-directed learning readiness (Linares, 1989, 1999; O’Kell, 1988; Wiley, 1983). Fisher et al. (2001) developed the Fisher-SDLRS in response to a need for a valid and reliable instrument to measure self-directed learning readiness.
The Fisher-SDLRS (Fisher et al., 2001) would be used to measure student self-directed learning readiness. It consists of a self-report questionnaire of 40 items in a unidimensional scale. A unidimensional scale measures the same underlying concept, in this case self-directed learning (Fisher et al., 2001). Exploratory factor analysis revealed three subscales: (1) self-management, defined by 13 of the items; (2) desire for learning, defined by 12 of the items; (3) self-control, defined by 15 of the items.

Field (1989) identified that the strongest item-to-score correlations for the SDLRS were produced by those items dealing with love and/or enthusiasm for learning (17.6% of total variance) and those items that appeared to be intimately connected with readiness for self-directed learning had low correlations with total Guglielmino-SDLRS scores (less than 5% for each factor; Fisher et al., 2001). Also, replication of the Guglielmino-SDLRS has proved difficult (Field, 1989, 1991; Straka & Hinz, 1996). Some studies have raised questions about the reliability of Guglielmino-SDLRS when used in different racial and class populations (Long & Agyckum, 1983, 1984; Straka, 1995). Bonham (1991) also reports concerns about the construct validity of the Guglielmino-SDLRS by questioning the meaning of low scores. It appears that low scores on the Guglielmino-SDLRS do not measure low readiness for self-directed learning but rather a dislike for any kind of learning. Therefore, construct validity remains questionable for low Guglielmino-SDLRS scores. The newer Fisher et al. (2001) scale has ameliorated the problems associated with Guglielmino-SDLRS (1977).

Fisher et al. (2001) developed the Fisher-SDLRS in two stages. In the first stage, Fisher et al. used a modified Reactive Delphi technique to develop and determine the instrument’s content validity. Fisher et al. used the modified Delphi technique was used to gain consensus among an expert panel about the characteristics required for self-directed learning. The expert panel was comprised by 11 nurse academics and nurse educators with previous research and teaching experience in the area of self-directed learning. Each panel member independently evaluated each item to determine the degree to which the item measures a characteristic of a self-directed learner. In stage 2, Fisher et al., distributed the scale to a convenience sample of undergraduate nursing students in a pilot study to determine the scale’s construct validity and internal consistency. A convenience sample of 201 students enrolled in the Bachelor of Nursing program at the University of Sydney was used for the pilot study. To determine internal consistency, Cronbach’s coefficient alpha was used. The computed values of Cronbach’s coefficient alpha for the total item pool, self-management subscale, the desire for learning subscale, and the self-control subscale were 0.924, 0.857, 0.847, and 0.830 respectively. According to deVaus (1991), when a scale is represented by a computed alpha greater than 0.70, the scale can be considered to have an acceptable level of internal consistency. Thus, the Fisher-SDLRS has been evaluated as a more cost effective and more robust instrument for the proposed study.

Data Analysis

This study would investigate the relationship of each of the three scale scores generated by the CCS (Rovai, 2002c) to student retention and the three scale scores of the Fisher-SDLRS (Fisher et al., 2001) to student retention in online classes. The seven null hypotheses would be tested using Pearson correlation coefficients between each of the seven independent variables and the student retention data.
Before the Pearson $r$ correlation coefficients could be calculated, the assessments would be scored. A 5-point Likert scoring scale would be used to determine the sense of classroom community. To obtain the overall classroom community score, one must add the weights of items 5 - 24 (See Table 1). Total raw scores range from a maximum of 40 to a minimum of 0. Subscale raw scores range from a maximum of 20 to a minimum of 0. To calculate the connectedness score, the scores of odd numbered CCS items, i.e., 5, 7, 9, 11, 13, 15, 17, 19, 21, and 23, would be added together. Similarly, to calculate the learning subscale score, the scores of the remaining even numbered CCS items, i.e., 6, 8, 10, 12, 14, 16, 18, 20, 22, and 24 would be added together.

A 5-point Likert scoring scale would be used to determine self-directed learning readiness. To obtain the overall self-directed learning readiness score, the weights of items 25-64 would be summed (See Table 2). Total raw scores range from a maximum of 40 to a minimum of 0. Subscale raw scores range from a maximum of 13, 12, and 15, respectively, to a minimum of 0. To calculate the self-management score, the scores of SDLR items 25-37 would be added together; to calculate the desire for learning score, the scores of SDLR items 38-49 would be added together; and to calculate the self-control score, the scores of the remaining SDLR items, i.e., 50-64 would be added together.

Pearson $r$ correlation coefficients would be calculated between each of the following for classroom community to answer the first question: overall classroom community and student retention, connectedness and student retention, and learning and student retention. Pearson $r$ correlations would also be calculated to answer the second question regarding student self-directed learning readiness between each of the following: self-management and student retention, desire for learning and student retention, and self-control and student retention.

**Summary**

This study’s primary purpose is to describe research that could be used to investigate whether building a sense of community and student self-direction impact course level student retention. It identifies previously conducted research that applies to its purpose and identifies two instruments that could be used to conduct its own research.

As seen in this study, distance learning has evolved simultaneously with technology innovation and a changing student population. Community colleges have served the social forces resulting from these changes. As distance learning continues to grow theories and perspectives of distance learning must be reviewed and revised to meet the needs of the traditional as well as the non-traditional student. Theories such as transactional distance (Moore, 1973) and distance learning perspectives such as McMillan & Chavis’s (1986) Psychological Sense of Community and Rovai’s Classroom Community Scale (2002c) help to identify the need for community in online classrooms. Rovai defined classroom community in terms of four components: spirit, trust, interaction, and learning. Garrison, Anderson, and Archer (2000) provided a model of a community of inquiry that integrates social, teaching, and cognitive presence as a framework for interpreting the online teaching and learning environment.
Online learners and their persistence in learning are affected by their learning environment. Learners who succeed can often be self-directed learners or may become self-directed due to the learning environment as perceived by Garrison (1997a) through his model which integrates student self-management, self-monitoring, and motivation.

This study also shows that the quality of student/student and student/teacher interaction is linked to student persistence (Rovai, 2002a), social integration is directly related to student success (Tinto, 1975), and self-directed learning integrates student control, responsibility, and motivation (Garrison, 1997a).

The questions addressed in this study ask if student’s sense of classroom community relate to student retention and if students’ self-directed learning readiness relate to student retention. Each question would be answered by testing its null hypothesis. Each null hypothesis would be tested in accordance with a survey instrument based on a CCS (Rovai, 2002c) and the Fisher-SDLRS (Fisher et al., 2001). Three independent variables measure classroom community and four independent variables measure self-directed learning readiness. The seven independent variables would be correlated using six Pearson $r$ correlations with student retention, the dependent variable.
APPENDIX A

CCS Test Booklet

Classroom Community Scale (CCS)

Developed by
Alfred P. Rovai, PhD
alfrov@regent.edu
**SURVEY**

**DIRECTIONS:** Below you will see a series of statements concerning a specific course or program you are presently taking or recently completed. Read each statement carefully and place an X in the parentheses to the right of the statement that comes closest to indicate how you feel about the course or program. You may use a pencil or pen. There are no correct or incorrect responses. If you neither agree nor disagree with a statement or are uncertain, place an X in the neutral (N) area. Do not spend too much time on any one statement, but give the response that seems to describe how you feel. **Please respond to all items**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree (SA)</th>
<th>Agree (A)</th>
<th>Neutral (N)</th>
<th>Disagree (D)</th>
<th>Strongly Disagree (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel that students in this course care about each other</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. I feel that I am encouraged to ask questions</td>
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<td>3. I feel connected to others in this course</td>
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<tr>
<td>4. I feel that it is hard to get help when I have a question</td>
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<tr>
<td>5. I do not feel a spirit of community</td>
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<tr>
<td>6. I feel that I receive timely feedback</td>
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<tr>
<td>7. I feel that this course is like a family</td>
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<tr>
<td>8. I feel uneasy exposing gaps in my understanding</td>
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<td>9. I feel isolated in this course</td>
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<td>10. I feel reluctant to speak openly</td>
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<td>11. I trust others in this course</td>
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<tr>
<td>12. I feel that this course results in only modest learning</td>
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<tr>
<td>13. I feel that I can rely on others in this course</td>
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<tr>
<td>14. I feel that other students do not help me learn</td>
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<tr>
<td>15. I feel that members of this course depend on me</td>
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<tr>
<td>16. I feel that I am given ample opportunities to learn</td>
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<td>17. I feel uncertain about others in this course</td>
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<tr>
<td>18. I feel that my educational needs are not being met</td>
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<tr>
<td>19. I feel confident that others will support me</td>
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<tr>
<td>20. I feel that this course does not promote a desire to learn</td>
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</tr>
</tbody>
</table>
Scoring Key

Overall CCS Raw Score

CCS raw scores vary from a maximum of 80 to a minimum of zero. Interpret higher CCS scores as a stronger sense of classroom community.

Score the test instrument items as follows:

For items: 1, 2, 3, 6, 7, 11, 13, 15, 16, 19
Weights: Strongly Agree = 4, Agree = 3, Neutral = 2, Disagree = 1, Strongly Disagree = 0

For items: 4, 5, 8, 9, 10, 12, 14, 17, 18, 20
Weights: Strongly Agree = 0, Agree = 1, Neutral = 2, Disagree = 3, Strongly Disagree = 4

Add the weights of all 20 items to obtain the overall CCS score.

CCS Subscale Raw Scores

CCS subscale raw scores vary from a maximum of 40 to a minimum of zero. Calculate CCS subscale scores as follows:

Connectedness Add the weights of odd items: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19

Learning Add the weights of even items: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20
Classroom Community & Self-Directed Learning Scale
Pilot test for Dissertation
Please complete the following survey concerning your online course in the Business, Information, & Engineering Technology (BIET) division this semester. Read each statement carefully and choose the answer that comes closest to indicate how you feel about the course. There are no correct or incorrect responses. If you neither agree or disagree with a statement or are uncertain, choose the neutral (N) option. Do not spend too much time on any one statement, but give the response that seems to describe how you feel. Please respond to all items. Your responses will be kept completely anonymous. By clicking on the link to begin the survey you are consenting to participate in the study. There are 65 questions in this survey.

Demographics
Student Information
1 Please type your Student ID. Your name will not be identified as part of this study, and your identity will remain anonymous. *
Please write your answer here:

2 Please select your ethnicity/race
Please choose only one of the following:
Caucasian/White
Hispanic/Latino
African-American
Asian-American/Pacific Islander
Native-American
Multi Racial

3 Please select your gender
Please choose only one of the following:
Female
Male

4 How many cumulative college-credit hours have you earned at all institutions prior to the start of this class? (This includes hours that may not have transferred to this college.)
Please write your answer here:

5 Please type your course prefix, number, and section.
Example: PSYC 2314 8430
Please write your answer here:

CCS
Pilot study
6 I feel that students in this course care about each other *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

7 I feel that I am encouraged to ask questions *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

8 I feel connected to others in this course *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

9 I feel that it is hard to get help when I have a question *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

10 I do not feel a spirit of community *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

11 I feel that I receive timely feedback *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

12 I feel that this course is like a family *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

13 I feel uneasy exposing gaps in my understanding *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

14 I feel isolated in this course *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

15 I feel reluctant to speak openly *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

16 I trust others in this course *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

17 I feel that this course results in only modest learning *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

18 I feel that I can rely on others in this course *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

19 I feel that other students do not help me learn *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
20 I feel that members of this course depend on me *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

21 I feel that I am given ample opportunities to learn *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

22 I feel uncertain about others in this course *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

23 I feel that my educational needs are not being met *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

24 I feel confident that others will support me *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

25 I feel that this course does not promote a desire to learn *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

SDL
Self-Directed Learning Scale

26 I manage my time well *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

27 I am self disciplined *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

28 I am organized *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

29 I set strict time frames
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

30 I have good management skills *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

31 I am methodical *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

32 I am systematic in my learning *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

33 I set specific times for my study *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

34 I solve problems using a plan *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

35 I prioritize my work *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

36 I can be trusted to pursue my own learning *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

37 I prefer to plan my own learning *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

38 I am confident in my ability to search out information *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree
39 I want to learn new information *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

40 I enjoy learning new information *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

41 I have a need to learn *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

42 I enjoy a challenge *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

43 I enjoy studying *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

44 I critically evaluate new ideas *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree
45 I like to gather the facts before I make a decision *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

46 I like to evaluate what I do *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

47 I am open to new ideas *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

48 I learn from my mistakes *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

49 I need to know why *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

50 When presented with a problem I cannot resolve, I will ask for assistance *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree
51 I prefer to set my own goals *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

52 I like to make decisions for myself *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

53 I am responsible for my own decisions/actions *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

54 I am in control of my life *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

55 I have high personal standards *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

56 I prefer to set my own learning goals *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree
57 I evaluate my own performance *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

58 I am logical *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

59 I am responsible *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

60 I have high personal expectations *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

61 I am able to focus on a problem *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

62 I am aware of my own limitations *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree
63 I can find out information for myself *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

64 I have high beliefs in my abilities *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

65 I prefer to set my own criteria on which to evaluate my performance *
Please choose only one of the following:
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

Thank you for completing this survey.
Table 1

<table>
<thead>
<tr>
<th>CCS Items</th>
<th>Concept Variables</th>
<th>Score</th>
<th>Overall Concept Variables</th>
<th>Score</th>
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<tbody>
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<td>5</td>
<td>Connectedness</td>
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<td>Classroom Community</td>
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Table 2

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<th>Score</th>
<th>Overall Concept Variables</th>
<th>Score</th>
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<td>Self-directed Learning</td>
<td>1</td>
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REFERENCES


Childs, G. B. (1973). *Correspondence study: Concepts and comments*. Paper published at the meeting of the National University Extension Association, Omaha, NE.


National University Education Association. (1957). Correspondence Study Newsletter.


