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## Virtual learning community: A student exit survey and qualitative framework

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VIRTUAL LEARNING COMMUNITY: A STUDENT EXIT SURVEY  
AND QUALITATIVE FRAMEWORK

by

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A dissertation submitted in partial fulfillment  
of the requirements for the

**Doctor of Philosophy Degree in Educational Leadership**  
**Department of Educational Leadership**  
**College of Education**

**Graduate College**  
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**March 2005**

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## Dissertation Approval

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David C. DiRamio

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Virtual Learning Community: A Student Exit Survey  
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Doctor of Philosophy in Educational Leadership

Examination Committee Chair

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## ABSTRACT

### **Virtual Learning Community: A Student Exit Survey and Qualitative Framework**

by

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Dr. Robert Ackerman, Examination Committee Chair  
Associate Professor of Educational Leadership  
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As the mystery and intrigue surrounding technology use in higher education dissipates, the time has come to bring technological initiatives, such as distance education, into the fold with the rest of campus in terms of assessment, accountability, and policy. Although online education shows promise for setting the collegiate learning experience free from the confines of the lecture hall, new challenges are emerging. For example, attrition rates for courses delivered via the Internet are higher than average: Typically ten percentage points higher in online courses than in the traditional campus classroom. In an era of declining resources and renewed interest in accountability of higher education, high attrition rates are troublesome.

Funding sources continue to press for accountability and higher education administrators require tools for evaluating campus programs. Since learning communities, as a course design strategy, have proven successful in confronting the challenges associated with attrition and retention, faculty may be able to meet these challenges by building learning communities within their online courses. This study

chronicles a five-stage research project for designing a valid and reliable measure of an "Online Learning Community." Using exploratory factor analysis, a three-element theoretical construct emerged. Data from this study is used to create a student exit survey for use by faculty leaders and program administrators to evaluate their own online courses and distance programs. Information from this survey can also be used as a data point in a comprehensive institutional assessment formula used to inform stakeholders, including policy makers.



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## CHAPTER ONE

### INTRODUCTION AND RESEARCH QUESTIONS

#### *Introduction*

Technological advances in computing and communication have the potential to transform higher education in ways that we are only beginning to understand. Traditional conceptions of instruction are being reshaped and altered in fundamental ways as a result of changes in how, when, and where people learn. Online distance education—teaching and learning via the Internet—shows promise for setting collegiate learning free from the confines of the lecture hall. However, along with transformation comes the requisite growing pains and problems.

For example, drop rates for courses delivered via the Internet are higher than the average for traditional classes (Diaz, 2002). Although they vary from institution to institution, and program to program, attrition rates are typically ten percentage points higher in online courses than those of their on-campus counterparts (Carr, 2000). Data from the Dallas Community College District exposed “an 11 to 15 percentage-point difference between course-completion rates in the district’s on-campus courses and those in its distance education courses” (Carr, 2000, p. A39). Another study, from the online MBA program at Texas A&M, showed attrition rates of 21 percent for online courses compared with 14 percent for traditional courses (Terry, 2001). In an era of declining

resources and renewed interest in accountability of higher education, high attrition rates are troublesome (Banta, 2002; Burke, 2002).

Senior management on campus, including distance education administrators, tend to talk of online distance education programs in terms of exponential increases in student headcount and the incessant demand for more courses (Green, 2002). The emphasis is on growth and meeting demand, with less attention paid to what is going on in the online classroom (Berge, 1998). Virtual universities and global competition are forcing many higher education institutions into online distance education in order to stay relevant in an Information Age economy (Kirp, 2003). As college and university leaders scramble to find their niche in this market, concerns about evaluation, assessment, and quality are likely of secondary importance on a list of priorities.

Certainly, more research investigating drop rates for online classes needs to be done, but evidence exists in the literature tracing the problem of attrition in online classes to the old-fashioned correspondence model of distance learning (Privateer, 1999). The correspondence learner is an isolated learner, working at his/her own pace with infrequent contact with the instructor (Foshay, 2002). However, Gunawardena and Zittle (1997) reported that the support promoted by a unified group of learners is critical in distance learning. Small (1999) suggests that distance students “bemoan the lack of frequent, face-to-face contact with faculty” (p. 36). Although research specifically examining attrition problems in the Internet classroom is scarce, it represents one missing piece of a larger, general absence of reliable research about online distance education. Tu and Corry (2002) noted, “Few conceptual frameworks have been developed regarding this new learning environment (online distance education)” (p. 208).

Nevertheless, several well-known and dependable general frameworks, such as the *Seven Principles for Good Practice in Undergraduate Education* (Chickering & Gamson, 1987), Tinto's (1975) model for understanding the process of student withdrawal from the conventional campus setting, or Boyer's (1995a) *Community for Learning*, provide both a good starting point for developing a framework for studying online education and have application regardless of mode of educational delivery. The most useful approach for reducing attrition in the online classroom, however, may ultimately be found in an innovative endeavor known as learning communities.

The learning communities movement is a well-established educational enterprise focused on designing programs that ensure incoming freshman do not "fall through the cracks" and drop out of school because of the negative experiences sometimes associated with the first year of college (Gabelnick, MacGregor, Matthews, & Smith, 1990; Smith, 2001; Tinto, 1995; Upcraft & Gardner, 1989). The original basis for learning communities involved the deliberate organizing of a curriculum through linking or clustering courses for a cohort of students (MacGregor, Smith, Tinto, & Levine, 1999). Today, these inventive programs have grown to include elements such as an interdisciplinary approach to the curriculum (e.g., blending history and literature courses), team-teaching pedagogies, extra-curricular initiatives with a community service focus, and residence hall/living community components. Learning communities have been shown to help ameliorate attrition and reduce drop out rates (Cross, 1998).

Indeed, the literature supports the notion that students feel valued and encouraged to participate when a course is structured so that both the professor and other students show interest, share insights, and express ideas (Bruffee, 1993; Dede, 1996; Harasim,

Hiltz, Teles, & Turoff, 1995). In the few studies that do examine the dynamics of online course offerings, results point to a student's sense of isolation and remoteness as significant barriers to learning via the Internet (Conrad, 2002; Everhart, 1999; Haythornthwaite, Kazmer, Robins, & Shoemaker, 2000;). Consequently, for faculty teaching via the Internet, striving to create community in the virtual classroom should strengthen the bond between students taking the course and make the course material more interesting.

### *Definition of Terms*

Several terms associated with technology use in distance education should be defined for the reader of this study. The oft-used term "online" has universally come to mean being connected to World Wide Web via the Internet (Ohio State, 2005).

"Courseware" is software designed expressly for use in an educational setting, including instructional and audiovisual materials (Ohio State, 2005). "Cyberspace" is a "metaphor for describing the non-physical terrain created by computer systems. Online systems, for example, create a cyberspace within which people can communicate with one another" (Webopedia, 2005, p. 1). Throughout the study, the term "virtual" is used to mean a simulation or environment that is not physical or real per se, but exists in a computer memory and is accessed via the Internet. An example would be the virtual classroom (Webopedia, 2005). An "online learning community" is an Internet-based learning environment in which participants are engaged by frequent and meaningful contact with each other (Palloff & Pratt, 1999).

### *Context for the Study*

*New Accountability.* Colleges and universities exist today in an environment characterized by increased scrutiny, shrinking or changing sources of funding, and calls for accountability (Alexander, 2000; Bender & Schuh, 2003; Burd, 2003). Governing boards, leaders of government and industry, students, the public at large, and others with a stake in higher education's future, although still holding post-secondary learning in high regard, are concerned about both the responsible use of fiscal resources and level of educational quality (Cabrera, Colbeck, & Terenzini, 2001; Ewell, 1998). An expanding \$250 billion annual enterprise (Armstrong, 2000), the American system of higher education is both quite diverse and highly competitive (Altbach, 2001), which adds to an entanglement of issues surrounding accountability and funding.

A fiscal forecast for the period 2000 to 2010, prepared by the National Center for Public Policy and Higher Education, projected that higher education should expect increased scrutiny and reduced public funding because of the serious fiscal deficits most states will face for the remainder of the decade (Hovey, 1999). Under this pressure, public colleges and universities must demonstrate accountability for scarce resources. Higher learning in the United States "had become too important and too costly to fund only inputs and ignore the results" (Burke, 2002, p. xv). Performance funding, especially in public higher education, has emerged as a method for tying state funding with results (Bogue & Hall, 2003). In light of this increased scrutiny, new and innovative measures for the effective evaluation and assessment of higher education are sorely needed (Lingenfelter, 2003).

This change in focus represents a unique challenge for higher education administrators because their institutions have been long managed on principles derived from what Astin (1985) called the Resource and Reputation Model. In the past, under the conventions of Resource and Reputation, college and university leaders focused mostly on the quality of “inputs” to their institutions—level of funding, SAT scores of incoming students, faculty research productivity, and campus facilities—as indicators of excellence. However, while working to meet the expectations of the Resource and Reputation model, these institutions usually did not factor in concerns for “outputs,” such as employment opportunities for students after graduation or the overall quality of services provided to stakeholders, including students, the business community, and taxpayers. Thus, Astin and others have been challenging the use of Resource and Reputation indicators, such as those used to formulate the rankings published annually by *US News and World Report*, accusing them of being inaccurate in defining true institutional quality (Astin, 1985; Hackett & Carrigan, 1998; Pascarella & Terenzini, 1991).

Fueled by both a national recession and a shift in society’s attitude toward higher education, the 1990s saw the beginning of a change in focus for accountability at public colleges and universities “from accounting for expenditures to accounting for results” (Burke, 2002, p. 5). This fresh approach, often referred to as New Accountability (Ewell, 1990; Burke, 2002; Lingenfelter, 2003), has now fully emerged, standing ready to replace age-old Resource and Reputation conventions. Rather than focusing on acquiring “inputs,” New Accountability emphasizes achieving results. Most call this a shift to focus on higher education “outcomes.” Outcome measures look not at the “inputs” of

reputation or resources, but are used to gauge the quality of a college or university's "products."

Although Burke and Serban (1998) found that only 15% of states still used Resource and Reputation indices, the transition to New Accountability and the requisite revised assessment criterion has not been smooth (Banta, 1993; Gray & Banta, 1997). Higher education has been accused by stakeholders of all types of being slow to respond to the demands of the new model for accountability (Welsh & Metcalf, 2003). To this day, in some sectors, slow reaction and resistance continues, prompting lawmakers to increase pressure on public colleges and universities to account for performance (Burd, 2000). Moreover, Lucas (1996) discovered that "when queried, members of the general public have a great deal of skepticism and confusion about conditions in colleges and universities" (p. 205).

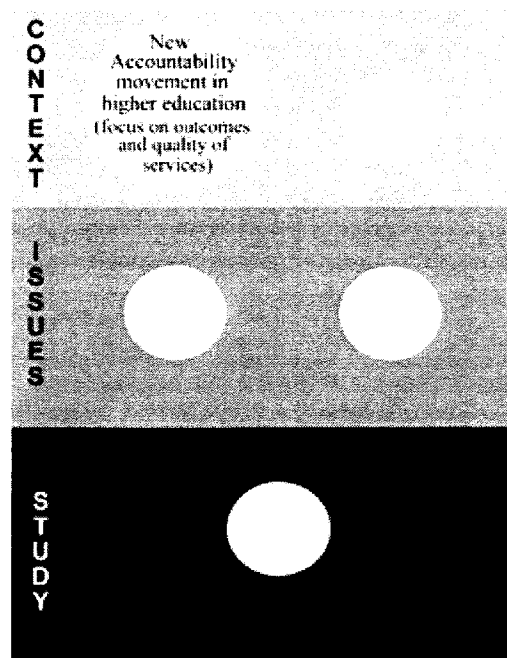
Ideally, New Accountability institutional measures are based on institutional leading indicators reflecting mission. These measures must also address the use of results to improve performance (Burke, 2002). Besides obvious outcome measures like graduation rates, interesting and previously unheard of indices under the rubric of New Accountability include: (a) shifting emphasis in faculty rewards structure to emphasize successful grant-writing and entrepreneurship, (b) increasing the "corporatization of research and patent divisions" (Burbules & Callister, 2000, p. 273), (c) adopting private sector business models such Total Quality Management for running campus programs, and (d) the "re-naming" of some administrative positions on campus to match similar positions in the business sector (i.e. COO, CIO).



Colleges and universities today are pressed to become increasingly entrepreneurial, including implementing innovative technologies to improve performance. Again, according to the principles of New Accountability in higher education, institutional measures of quality are quite rightly based on educational objectives, including "design indicators that reflect objectives" and "use of results to improve institutional performance" (Burke, 2002, p. 7).

Figure 1 shows New Accountability as a context element, an environmental factor, to be considered for this study. Context elements drive issues, which, in turn, shape both the theoretical framework and design of the study. For example, national disasters or emergencies often serve as focusing events that allow for issues to emerge and occupy the policy agenda for the nation. The Context-Issues-Study framework used

*Figure 1. New Accountability as a context element in the study.*



in Figure 1 was inspired by Kingdon's (1995) "streams" theory of policies, problems, and politics. Kingdon asserts that separate streams of problems exist until either politics or other events make them converge, thus instigating change and new policies.

*Emergence of Online Distance Education.* Another twist to the dynamic of change facing higher education emerged during the 1990s: The widespread acceptance of the Internet as an unprecedented communication tool, and the entrepreneurial possibilities of its use for delivering college courses (Privateer, 1999; Surgue, 2000). With the emergence of learning via the Web, faculty and administrators envisioned the potential for setting higher education free from confines of the lecture hall. Columbia Teachers College president Arthur Levine likens the phenomenon of online learning to the Servicemen's Readjustment Act of 1944 in terms of its impact on higher education. In an op-ed piece published in the New York Times, he predicted that information technology could one day make traditional brick-and-mortar universities obsolete (Levine, 2000).

While some may consider Paul the Apostle as the original distance educator, perhaps it is best to pinpoint the beginning of modern electronic distance education to the widespread acceptance and use of television in the post-World War II era. For example, in 1950 the Ford Foundation granted millions of dollars for the development of educational programs to be delivered via television (Blumenstyk, 1998). By the end of the decade of the fifties, television broadcast teaching gained wide acceptance as many public schools and community colleges offered classes.

When the Corporation for Public Broadcasting was established in 1967, a new emphasis on non-commercial uses for television began, including educational

programming (Watkins, 1991). So while all of the early distance initiatives were structured as independent study and correspondence courses, by the end of the 1960s it was more common to see student groups gathered around the television to receive lessons as a class. For example, the Open University was established in Britain as a degree-granting institution, with a focus on providing higher education opportunities using broadcast television and radio (Turner, 1989).

The widespread acceptance and affordability of video recording technology during the 1970s marked an important milestone for distance education as mass-produced videotapes featuring lessons and lectures that could be mailed to students. A defining moment for computerized distance education occurred with the launching of the Electronic University Network (EUN) in 1983. EUN, a private corporation, is considered the first to provide lessons on computer diskette using software designed for the Commodore 64 computer (EUN, 2002). Within two years, EUN began to offer instruction via a central computer on campus, with students logging in at terminals and downloading lessons and posting comments. EUN's business plan changed in 1987 and shifted focus to supporting computerized training and education efforts at several mainstream colleges and universities (Chronicle, 1992).

Undoubtedly, the emergence of the World Wide Web had the most profound effect on distance education to date. Online distance education exploded onto the scene in the mid-1990's due to Internet connectivity and standardization of browsers, such as Netscape Navigator and Microsoft's Internet Explorer. This new era in online distance education included a new twist: Students could now interact with each other in real-time and not just with the instructor (Moore & Kearsley, 1996). Today, scores of students

routinely log into a chat room to hear material presented by the instructor and for discussion with others in a setting more like traditional face-to-face classrooms. A recent survey suggests that nearly 60 percent of colleges and universities in the United States now offer online distance education courses (Chronicle, 2004).

Students today demand alternate pathways to higher learning (Maeroff, 2003). The rise of student consumerism (Riesman, 1998) is not limited to technical, post-secondary education for job-related vocational skills, but also includes more traditional collegiate experiences. Busy lives are not always suited to the traditional, on-campus collegiate experience and students are insisting on choices. Competition in higher education is intensifying because choice now includes both online and for-profit alternatives (Ruch, 2001). Wellman's (2001) notion of "competitive models developed by nontraditional providers of postsecondary education" (p. 47) is particularly germane to the Internet-learning marketplace.

In 1998, Western Governors University (WGU), a completely virtual higher education institution, was created by the visionary efforts of the governors of 19 Western states. In 2003, WGU had more than 1,000 students and was granted regional accreditation (Carnevale, 2003a). Many prestigious higher education institutions offer successful online programs, such as The George Washington University's Educational Technology Leadership M.A., Indiana University's M.S. in Adult Education, and Duke University's Global Executive M.B.A. Students, instructors, and administrators have come to realize the benefits of online distance education including: (a) access to courses not offered locally; (b) delivery of instruction at lower cost with reduced administrative overhead; (c) attracting top instructors due to the opportunity to create courses they

would not otherwise teach, including employing teaching strategies difficult to use in the traditional classroom setting; (d) communication with distant experts, as well as remote archives; and (e) ability to implement pedagogical strategies that match the learning styles of students growing up in a digital age.

Interestingly, Arthur Levine also gives this ominous warning about the move towards online higher education, “My big fear is that we will provide personal, highly interactive campuses for those who can afford them, and the rest will be given virtual higher education” (Press, et al., 2001, p.37). Levine’s concerns are consistent with the demands of New Accountability and whether or not students receive equal educational quality via the Internet (Simonson, 1997). Accrediting bodies are also weighing in on this issue. According to the Middle States Commission on Higher Education, if an institution offers “at least 50% of a program through distance learning, it must receive advance approval from the Commission to have those programs included within the scope of the institution’s accreditation” (MSCHE, 2002, p. 1). Doomsayers like David Noble, a vehement critic of distance education, see yet another darker side to the Internet learning phenomenon, “But there is more to it. For the universities are not simply undergoing a technological transformation. Beneath that change, and camouflaged by it, lies another: The commercialization of higher education. For here as elsewhere technology is but a vehicle and a disarming disguise” (Noble, 1998, p. 2).

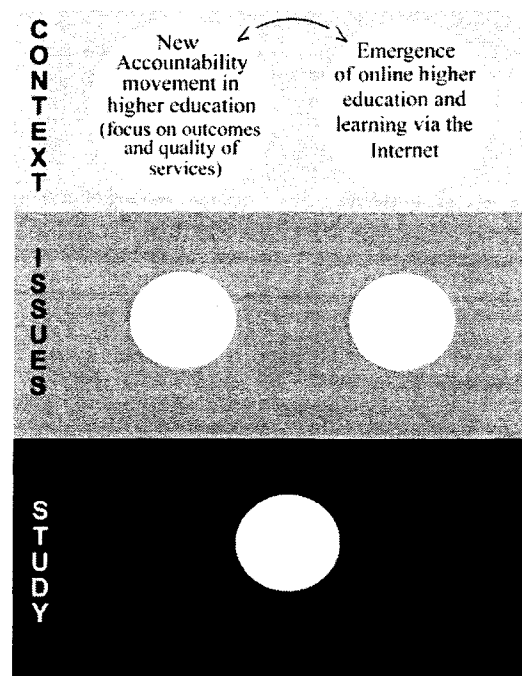
Nonetheless, in an Information Age economy, the skill set for future graduates requires a certain level of adroitness with technology, something to which experience and familiarity with online learning can contribute. This new skill comes from what

Haythornthwaithe, et al. (2000) called the receipt of a “dual education” (p. 12). They noted in their research findings that:

(Students) learn to use the new technology and gain experience in distanced interaction as well as learn the subject matter for the program. We believe this is an important addition to the repertoire of any educational program, and one well worth pursuing (p. 12).

Clearly, the emergence of learning via the Internet cannot be ignored, but more needs to be done to ensure students receive the best possible online learning experience. In order to contribute to a better future for online higher education, these programs must join the New Accountability movement. Rather than focusing on growth, the focus should be on continuous improvement and quality through assessment. Figure 2 shows the emergence of online higher learning as the second contextual element for the study.

*Figure 2. Emergence of online higher education as a context element in the study.*



Interestingly, as previously mentioned, Kingdon's theory of separate streams is applicable here, as these two phenomena appear to exist quite independent of each other. This contextual independence continues until issues come along to draw environmental factors together and initiate action.

### *Research Problem: Two Issues*

Although relatively new to the campus, online distance education has enjoyed rapid growth. Moreover, until recently, online distance education has politely resisted calls to join the New Accountability movement and the requisite revised assessment criteria described earlier (Lockhart & Lacy, 2002). Perhaps taking a step beyond Resource and Reputation, when some proud campus officials talk about distance learning, they use a lexicon reminiscent of the language of private industry and commercial activity. They sound more like Fortune 500 CEOs reporting quarterly earnings, rather than stewards of higher education. Derek Bok warns that today's academic institutions "appear less and less as charitable institutions seeking truth and serving students, and more and more as huge commercial operations" (2003, p. 46).

*Accountability and Assessment.* Now, in 2005, the newness and intrigue associated with online distance education has begun to wear off, replaced by the beginnings of accountability. For example, governing boards and legislators now regularly ask questions about funding and other concerns about online distance education in public higher education (Carnevale, 2003b). In fact, in a study by Ruppert (1998), the major concern of policymakers was the higher than expected costs associated with delivery of courses via the Web. While there is nothing wrong with accounting for

expenditures, this myopic emphasis on “inputs” falls under the rubric of the older accountability model, Resource and Reputation. Where are the concerns from both campus administrators and governing boards for issues of quality in online teaching and learning? Quality, according to the rules of New Accountability, is measured by demonstrating both that college instruction has impact on learning and that faculty use continuous improvement strategies to improve instruction (Welsh & Metcalf, 2003).

One obstacle to moving online higher education closer the rest of the campus in New Accountability efforts is that outcome measures of quality and learning in online courses are, perhaps, too intangible and elusive to assess properly (Chia-Chang, 2002). New technology can increase quality by improving instruction methods, but it can also prove disastrous if left unchecked (Ehrmann, 1999). Moreover, research on the effects of computer-mediated learning is not as well established when compared with the voluminous research on the effects of traditional teaching methods, such as in-class lectures and "live" group projects. So while the limited amount of useful research available today about the effects on Internet-delivered learning is a shortcoming, the entrepreneurial attitude surrounding online higher education holds promise for innovation, flexibility, and continuous improvement (Seely Brown, 2000).

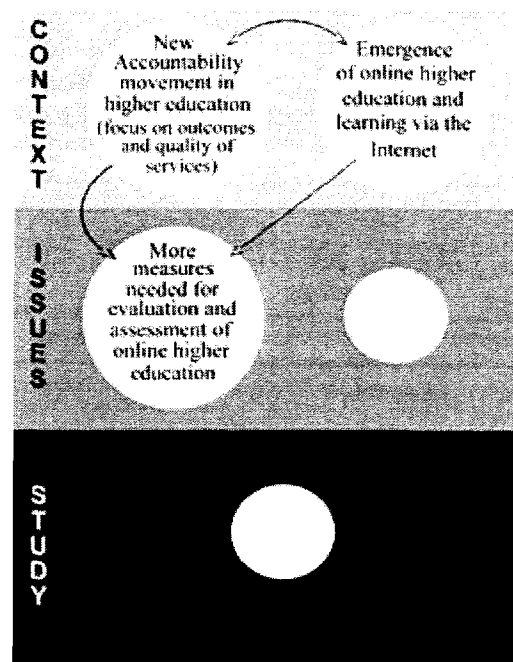
Each year, hundreds of new online courses are added at colleges and universities across the nation, but a review of the literature reveals that only limited measures for evaluation and assessment exist (Tu & Corry, 2002). Not surprisingly, technology is well out in front of policy and administration in this area (Burbules & Callister, 2000; Gellman-Danley & Fetzner, 1997; Simonson, 2002). Before online higher education grows much more, it is important to institute thorough evaluation processes, including



both quantitative and qualitative measures (Simonson, 1997; Voorhees, 2001). Burbules and Callister (2000) predict a “boon for testing (organizations), who will be asked to assess (job-related) competencies” (p. 288) of students receiving degrees both online and on-campus. Testing to confirm outcomes fits neatly with the new rules of accountability (Ewell, 1998).

One positive feature present among the fundamentals of New Accountability is the emphasis on improving performance through rewards rather than punishing failure (Lingenfelter, 2003). Typically, using the old rubric of public higher education accountability, governing boards and accrediting bodies relied heavily upon detailed rules and regulations for enforcement; but, as discussed earlier, the New Accountability movement has shifted the emphasis to measures of performance and quality. The need for measures to evaluate distance courses is illustrated as an issue in Figure 3. This study

*Figure 3. The need for measures for evaluating online education as an issue element in the study.*



is designed to address that need and help fill a gap in the existing research about teaching and learning via the Internet.

*Drop Rates and Attrition.* As mentioned previously, another issue related to online distance education in a postsecondary setting is the high drop rates. Attrition rates that are typically ten or more percentage points higher in online courses than in on-campus courses simply will not do according to New Accountability rules. Studies discussed earlier, from both the Dallas Community College District and the Texas A&M online MBA program, are examples of the undesirable drop rate difference for online courses (Carr, 2000; Terry, 2001).

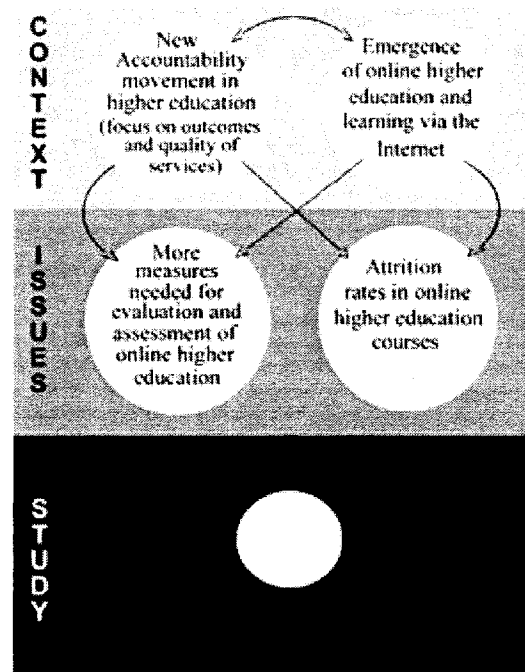
We also know that, in the context of New Accountability and its focus on outcomes, high attrition rates are an unacceptable. However, as discussed earlier, online higher education is partially shielded from rules of New Accountability and the issue of higher drop rates has taken a backseat to exploding enrollments and dramatic growth in programs. Ironically, the phenomenon of distance learning is at least partially responsible for opening a “new discourse of accountability that stresses ‘clients,’ ‘service,’ and ‘delivery services’ as the new metaphors” (Burbules & Callister, 2000, p. 272).

A body of knowledge that speaks to the attrition issue is only now emerging (Maeroff, 2003). Without consistent support from administrators and faculty leaders, the future of quality in learning via the Internet may suffer; the pseudo-revolution of online higher education risks being viewed as just another failed experiment or “fad” in higher education (Birnbaum, 2000). The significance of accountability on campus, including assessment and performance monitoring, is intensifying and this is particularly important

for online higher education because of the varied and distinct philosophical and methodological approaches to learning via the Internet (Newlin & Wang, 2002). The Internet, as an independent and unregulated medium, has given educators an interesting opportunity to challenge the status quo on campus. Decisions about who will be educated, who controls the privileges of access and inquiry, and who holds claim to certain kinds of information and knowledge, are being reshaped and altered as a result of advances in communications and computing. However, under the rubric of New Accountability and the emergence of online education, many of the long-established evaluation models, which focus exclusively on the quantitative and empirical (Stufflebeam & Shrinkfield, 1985; Worthen & Sanders, 1987), may not fit.

Figure 4 depicts the attrition rates problem as an element in this study. As online teaching and learning is further established as a legitimate method for delivering higher

*Figure 4. High attrition rates in online education as an issue element in the study.*



education, problems associated with quality and attrition rates must be addressed.

This study investigates the phenomenon of the learning community in the context of the college-level Internet course, with the caveat that information uncovered here will help overcome the barriers to successful online learning, thus influencing retention rates by reducing student dropouts.

According to Chickering and Ehrmann (1996), frequent instructor-student contact is the preeminent factor in student engagement, motivation, and involvement. Moreover, Haythornthwaite, et al. (2000) contend “those (students) who fail to make such connection feel isolated and more stressed than those who are more active in the community” (p. 1). The literature review for this study further explores the rich history of the learning communities movement.

### *The Study*

Much of this dissertation project describes an eighteen-month long effort to design a valid and reliable survey instrument for detecting and measuring community in an online class. The campaign includes several stages. Ultimately, data from this survey instrument and the discussion to follow are intended to make a valuable contribution to a small, but growing, body of knowledge about the quality of online courses. As discussed earlier, according to the rules of New Accountability, quality is measured by demonstrating both that college instruction has impact on learning and that faculty use continuous improvement strategies to improve instruction (Welsh & Metcalf, 2003). This study focuses on the second-half of the Welsh and Metcalf measure, efforts to improve online instruction by forming a community of learners.

The implication here is that faculty could improve poor student retention rates by building a learning community within their online course. Perhaps this is easier said than done however. Few, if any, measures exist to gauge whether or not important elements of community are present in an online course. Two research questions arise:

1. What are the identifiable factors that best describe a learning community that have application for online teaching and learning?
2. In what ways would a valid and reliable student exit survey, designed to detect the presence of an online learning community, prove useful to faculty leaders and administrators in evaluating online courses and programs?

Using principles from the learning communities movement, the purpose of this study is to develop and validate a survey instrument for measuring the presence of community in an online course.

This study uses a three-fold, general methodological approach for developing a theoretical framework and a survey measure. The first component of the approach, the literature review, presented in Chapter Two, provides an overview about online teaching and learning via the Internet, as well as identifying some knowledge gaps. The procedure used for conducting the literature review was inspired by the “nomological network” concept, a framework first developed by Cronbach & Meehl (1955) for use in psychological testing and scale development. The nomological network results from a systematic and comprehensive approach for developing an exhaustive list of concepts, ideas, and sub-themes. This framework provides a “net,” a visual representation that

captures the interrelations among variables for the construct of interest (John & Benet-Martinez, 2000).

The second component to the general approach for this study, expert and practitioner knowledge, are employed to provide an update for the literature review and help pilot the concepts derived. This type of knowledge helps ensure that key contemporary ideas, perhaps not yet in the literature, are considered when developing a measure. Moreover, as delineated in Chapter Three, expert review is an important ingredient for addressing concerns about the validity of a measure (DeVellis, 2003).

Statistical analysis, the third and final component of the approach, includes exploratory factor analysis, checks for validity, and reliability measures. These computer-based quantitative procedures help to further refine and perfect the survey instrument and are discussed in greater detail in Chapter Three. These same procedures help to translate survey data into useful information for later discussion (Behling & Law, 2000).

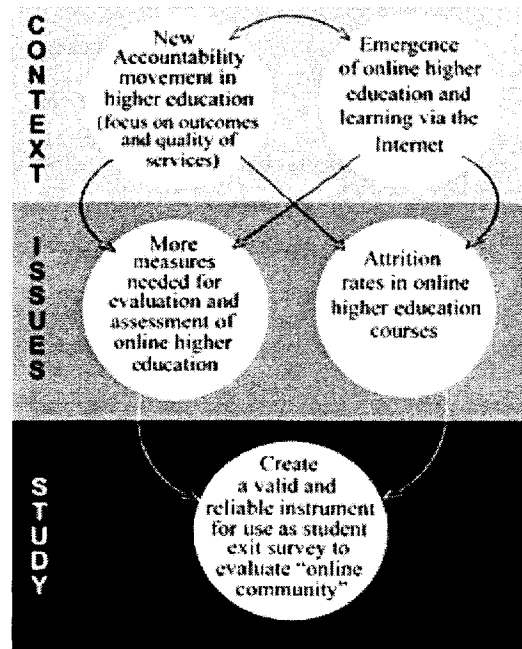
The study is strengthened by both the diversity of sources and the synergy achieved from a three-fold approach to develop the measure. The goal is to contribute to the newly emerging body of knowledge about teaching and learning via the Internet. Ultimately, data from the survey instrument developed for this study, as well as from the discussion that follows, should make a valuable contribution to the body of knowledge about pedagogy in online courses. Survey results likely will prove useful to faculty teaching online courses, as well as college administrators charged with monitoring the quality of academic programs offered via the Web.

Higher education faces unprecedented technological challenges due to the dizzying pace of advances in information technology. These advances are revealing creative and exciting new ways for colleges and universities to address the educational needs of learners. As institutions make available new options for learning, such as online distance education, the emphasis should be on quality, not commoditization. Despite pressure from non-traditional providers of postsecondary education, online higher learning must fit neatly into an institution's own values and compliment its mission.

More measures are needed to assess whether or not an online course meets the test for quality, and, no doubt, these will be developed. The time has ended for institutions to continue evaluating their online offerings solely in terms of skyrocketing enrollments and explosive growth in courses and programs. As online teaching and learning further establishes itself as a legitimate tool for the delivery of higher education, problems such as attrition rates and student dissatisfaction will surely increase if the focus does not shift to an emphasis on the quality of the learning experience.

Using the Internet to promulgate higher education should have a democratizing effect on students, attracting a wide variety of students from diverse backgrounds (Johnson, 2003). The lack of geographic boundaries makes more courses and programs available for more students, including those in rural areas. This medium for learning has huge potential for both frequency and quality of student collaboration, communication, and learning. Innovative pedagogical strategies, such as the formation of online learning communities, can help improve distance education. The creation of a valid and reliable survey instrument to detect and measure a learning community, as depicted in Figure 5, will assist in meeting the challenges associated with online learning.

*Figure 5. Study to create survey instrument for detecting the presence of an online learning community.*



### *Significance of the Study*

The construct developed in this study will be useful as both a qualitative framework and a quantitative measure. Findings from the study should make a valuable contribution to the literature on distance education and online teaching and learning. Few frameworks or measures exist in the literature for use as a Web-based exit survey for students. In light of the criticisms of today's student evaluations detailed in Chapter Two, the framework presented in this study will be useful to faculty leaders and higher education administrators as an alternative assessment tool for evaluating student satisfaction and online course design. While student course evaluations used for online classes today tend to be adapted from those used in regular classes, the survey produced from this study is designed specifically for the virtual classroom.



The framework developed in this study, with its associated factors and indicators, should be used as a checklist for designing online courses. Moreover, campus teaching and learning centers could use the framework for familiarizing both faculty and students with factors that lead to a satisfying online learning experience. Innovative pedagogical strategies, such as the formation of online learning communities, can help meet the challenges associated with attrition and drop rates in distance education via the Internet. The construct presented in this study, both the qualitative framework and the quantitative measure, provides a means for ascertaining the existence of these types of pedagogical strategies.

#### *Limitations of the Study*

Several limitations to this study are based on characteristics of the sample of students voluntarily completing the Web-based student exit survey. Due to the voluntary nature of student exit surveys, students choosing to participate are, by definition, self-selected; it is not known how the characteristics of the volunteers differ from those who decide not to participate. Many of the students who did not participate are the very students who have dropped an online course. The research design used in this study did not capture survey scores from those who do not complete an online course.

Moreover, what did the students who completed the course but did not participate in the study think about the online experience? Missing data from those who did not participate could be crucial to a comprehensive study of community in an online learning environment. Students responded using a Web-based survey, which points to a certain level of online sophistication for participants. However, since all students took an online

course, this limitation is likely not as much of a major concern as in other studies employing a Web-based survey data collection method.

Other limitations arise from sample size. The total sample for this study, at nearly 1,300 students, represents less than one-tenth of one percent of all students taking online courses annually in the United States. Although results from the study will provide a general understanding of the presence of community in an online course, the sample of participants is not necessarily statistically representative of the tens of thousands who take online courses offered at all colleges and universities annually. Therefore, as with most studies attempting to generalize results, this research should be considered preliminary and suggestive of how students with similar characteristics, graduate students or upper-division undergraduates at research universities, might view an online course. Another concern about sample size is the effect that attrition and drop rates in an online course will have on response rate estimates. Will the typically strong response rates achieved for student evaluations in traditional on-campus classes prove useful for estimating response rates in distance courses?

Another potential limitation of this study is associated with complexities of administering the survey. For example, professors were asked to invite students to participate in the Web-based survey. The research design could not allow for control over how the professor shared the Web survey link with the students. Many professors crafted their own email message, choosing not to use the message provided by the researcher. This freedom given to professors assisted in gaining their support for the project, but represents a limitation due to less control over survey administration and protocol. Despite these limitations, it is assumed that the observed patterns used to

develop the survey instrument over several stages do rise above the noise of inherent measurement error to provide valid and useful results.

## CHAPTER TWO

### LITERATURE REVIEW

#### *Introduction*

The psychologist William James said, "The community stagnates without the impulse of the individual. The impulse dies away without the sympathy of the community" (quoted in Hartmann, 1999, p. 274). But, what is the sociological phenomenon of the community? What activities do communities engage in? Does community play a role in education; in teaching and learning?

This chapter begins with a discussion of community, learning communities, and online learning. Next, two frameworks from the literature, used to develop the introductory conceptual framework used in the study, are described. Finally, a review of literature, based on factors from the conceptual framework, was performed to capture the essential ideas and content domain for building community in an online classroom.

#### *What is a Community?*

A general-purpose definition of a community is "A group of people having common interests" (Merriam-Webster, 2003). While very limited, this definition does supply the core concept of common interest to the meaning of community. The idea of common interests implies relatedness of purpose, such as that which normally occurs in the college classroom: professors and students coming together in a learning

environment. The Latin roots of the word community can be found in two words: *Communis*, “belonging to all,” and *communitas*, “the association of people on mutually equal and friendly terms” (Webster’s, 1979).

Perhaps a more practical description, for use by social scientists, defines community as a sociological construct of meaningful human behaviors, expectations between members, and interactions based on shared values, meanings, and beliefs (Bartle, 2004). Several disciplines within the social sciences are concerned with how communities form, sustain, and evolve. For example, central to anthropological study is the description and interpretation of meaningful human behavior patterns found in socio-cultural systems, such as communities (Wright, 1994). Cybernetics uses mathematics and the theory of networks to study group behavior and how entities such as communities organize, operate, and communicate (Griffin, 2002). According to principles of cybernetic in collegiate institutions, a campus community member’s self-image is based in community expectations and responses (Birnbaum, 1988).

Communities are also organizations with shared values. Peters and Waterman (1982), scholars in the study of organizations, view the idea of shared values as integral to these types of social configurations. They stress the role of the authority figure in an organization, whether executive or professor, as a vital player for securing commitment and shaping the shared values. More than simply sharing values, members of a community also hold similar beliefs and common meanings. It is these commonalities that provide the foundation for the social and cultural cohesion of a community.

Rhinegold (1993), in *The Virtual Community*, anticipated the Internet’s powerful impact on communications, media, and politics. He took special note of the possibilities

for reinvigorating the activist community and revitalizing citizen-based democracy. In the Information Age, the “period beginning in the last quarter of the 20th century when information became easily accessible” (Princeton, 2004, p. 1), the term “community” has new connotations. An Internet message board service, boasting 14 million registered users, characterizes community as “An online or virtual gathering place for people with similar interests (e.g., professional, social or demographic) to engage in two-way communication and share ideas, knowledge, information and opinions. A community is made up of one or more forums” (Ezboard, 2004, p. 1).

If anything, the new era reveals a futility in attempting to precisely define community by “imply(ing) false circumscription and coherence” (Wilson & Peterson, 2002, p. 455). For decades, sociologists and anthropologists have viewed communities as self-contained and complete. However, contemporary communities, including those fueled by unprecedented communications technology, are much more asymmetrical. Today, individuals in one community are likely to belong to other interrelated communities, subcultures, and groups.

### *Learning Communities*

For more than forty years, colleges and universities have experimented with the idea of creating campus programs designed to make certain that lower-division undergraduates would not drop out of school because of the negative experiences often associated with the first year of college (Tinto & Goodsell, 1993; Upcraft & Gardner, 1989). These programs are representative of experimentation and innovation in higher education, with new programs aimed at enhancing student development, improving

persistence rates, and humanizing what had become a massive national collegiate system (Astin, 1984; Pascarella & Terenzini, 1980; Tinto, 1987). Innovators in this effort, which began during the 1960s, include Western Washington University, the University of Nebraska, and the University of Michigan. These universities created new programs or “sub-colleges” which incorporated both a cohort structure and an interdisciplinary approach to curriculum design (Smith, 2001).

In 1985, Evergreen State College established a center that has come to be known as a pioneering clearinghouse for research and practical information about learning communities (MacGregor, et al., 1999). Since then, important work in the area of student retention, collaborative learning, and learning communities by Smith (1993), Tinto (1995), and others (Smith & Hunter, 1988; Gabelnick, et al., 1990) marked an important period for growth in the movement. Today, these inventive programs can be found at approximately five hundred institutions across the nation and are used “to address a variety of issues from student retention to curriculum coherence, from faculty vitality to building a greater sense of community within our colleges” (Smith, 2001, p. 1). Learning Communities have been shown to help ameliorate attrition and reduce drop out rates (Cross, 1998; Shapiro, 1998).

Today, learning community programs vary from institution to institution, but most include some or all of the following: (a) an interdisciplinary approach to the curriculum (e.g. blending history and literature courses), (b) team-teaching pedagogical techniques, (c) extracurricular initiatives with a community service focus, and (d) a residence hall component. An interdisciplinary approach to curriculum design is an important ingredient in most learning communities. Gabelnick, et al. (1990) described the basis for

an interdisciplinary effort as "students and faculty members (recognizing) courses or disciplines as complementary and connected" (p. 19). Smith (1993) defined learning communities as "intentionally link(ing) together courses or coursework to provide greater curricular coherence, more opportunities for active learning, and interaction between students and faculty" (p. 34).

There is a difference between cohort programs and learning communities. Cohort programs typically select students participants based on gender, geographic location, ethnicity, work experience, or other factors intentionally chosen by program administrators (Yerkes, 1995). Learning communities, however, while still deliberative and intentional, have an emphasis on thematic and integrated curriculum design rather than cohort creation based on the similar characteristics of students (Tosey & Gregory, 1998).

Boyer (1995b) saw value in a connected and coherent curriculum by citing education theorist Mark Van Doren, who wrote more than fifty years ago, "The connectedness of things is what the educator contemplates to the limit of his capacity. The student who can begin early in his life to think of things as connected... has begun a life of learning" (p. 26). Like most innovative curriculum ideas, an interdisciplinary approach requires careful planning and coordination among faculty and administrators in a deliberative effort to connect or cluster classes, across disciplines. Tinto and Russo (1993), in their research on coordinated studies programs at Seattle Central Community College, found that administrative support was vital "to promote student involvement and achievement in settings where such involvement is not easily attained" (p. 23).



Integral to an interdisciplinary curriculum are the pedagogical techniques associated with team-teaching. Team-teaching occurs when "teachers collaborate and jointly teach a group of students" (Cruickshank, Bainer, & Metcalf, 1999, p. 155). Levine & Shapiro (2000) characterized team-teaching as a "complex approach in terms of curricular integration and faculty role" (p. 15). Smith (1993) reported that the more effective the team-teaching in a learning community program is, "the higher the payoff in terms of student engagement and learning" (p. 34). In lieu of structured and formal team-teaching plans, informal learning communities among students can form if faculty simply cooperate and collaborate in scheduling assignments "that require or inspire group effort and mutual support, such as group assignments for research, community service, or field experiences" (Reynolds & Saltiel, 2003, p. 11).

Extracurricular activities, designed as part of a learning community program, can include components ranging from service learning opportunities to field trips. For example Bowling Green State University's *Chapman Learning Community* engages in extracurricular activities that include student debates, camping excursions, meetings with state legislators and community leaders, and field trips to films, plays, and museums (BGSU, 2004a). At Miami University of Ohio's Residential Service Learning Program, learning community members "engage in service projects and volunteer opportunities throughout the year" (MUOHIO, 2004, p. 1). Students are regular volunteers for service projects including working with local agencies that assist low-income families, local schools, and soup kitchens.

The residential element of a learning community is defined as a "residential education unit in a college or university that is organized on the basis of an academic

theme or approach and is intended to integrate academic learning and community living" (BGSU, 2004b). Here, students have the opportunity to live with other students who share similar majors and interests. Typically, this arrangement facilitates students making friends, taking classes together, forming study groups, interacting closely with faculty, attending and developing programs, and offering socializing opportunities. The University of North Carolina-Charlotte's *University Transition Opportunities Program Learning Community* combines most of the elements discussed here, "Students will reside in the same residence hall, take the same classes, and participate in various cultural activities together" (UNCC, 2004, p. 1).

In their meta-analysis of literature on learning communities, Reynolds and Saltiel (2003) identified a four-element framework that proves helpful for characterization and study. The four, which are typically present in all types of learning community programs, include curriculum elements, program design elements, interpersonal elements, and individual elements. Curricular elements are those structural ingredients, including a specially designed curriculum (i.e. thematic integration of courses, experiential learning activities). Program design elements encompass the efforts of faculty and administration to provide a setting and method for instructional delivery. For example, team-teaching initiatives come under the program design elements category. Interpersonal elements are vital to the creation of a community of learners. A consensus in the literature exists identifying that frequent and meaningful social contact, including professor/student and student/student interaction, provides the basis of a strong and successful learning community. Individual elements are those unique characteristics, including abilities, experiences, and goal, that each participant brings to the learning community.

The most widely acknowledged positive outcome of learning communities is that they have been shown to help ameliorate attrition and reduce drop out rates (Cross, 1998; Shapiro, 1998). Another indicator of program success is the presence of a social structure where student members have the authority to participate in issues related to maintenance and building of the community itself (Barnett, Basom, Yerkes, & Norris, 2000). For example, at a residential based learning community at the School of Management of Syracuse University, students meet "every week to build community on their floor and construct an arena to discuss floor problems, standards, and programs" (Rosch, 2001, p. 1).

Bielaczyc and Collins (1999) define a learning community as "a culture of learning in which everyone is involved in a collective effort of understanding" (p. 12). The authors go on to further delineate four fundamental characteristics of any learning community:

1. "Diversity of expertise among its members, who are valued for their contributions and given support to develop,"
2. "A shared objective of continually advancing the collective knowledge and skills,"
3. "An emphasis on learning how to learn, " and
4. "Mechanisms for sharing what is learned" (p. 12-13).

The idea of students sharing what is learned is perhaps the most intriguing characteristic of learning communities because it represents a fundamental change from the traditional paradigm of education. Rather than the customary emphasis on individual learning and performance, such as in a classroom setting where everyone is exposed to

the same lecture at the same time, members of learning communities work together and teach each other about their ideas, experiences, and insights.

In the twenty first century, the learning community movement has become a large-scale effort. Questions of quality maintenance and strengthening the collegiate experience are being raised during this period of expansion. Despite the challenges faced by learning communities in the contemporary period, these innovative programs, along with service learning and diversity efforts, continue to represent the best of what democratic principles have to offer the college campus.

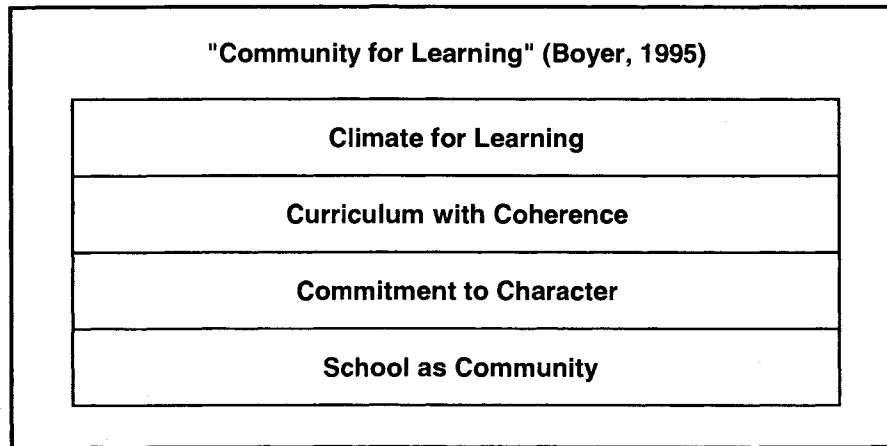
### *Community, Education, and Online Learning*

Literature defining the concept and describing the benefits of community and education provides an interesting starting point for developing a better understanding of teaching and learning via the Internet. During the past century, educational philosophers including Dewey (1916) and Meiklejohn (1932) provided the foundation material supporting pedagogical notions of student collaboration and democratic principles in education. Also on that list is Earnest Boyer (1987), who wrote about community in his work on educational administration, teaching, and learning:

And the goal of community... essentially related to the academic program... we urge, therefore, that students be asked to participate in collaborative projects, that they work together occasionally on group assignments, that special effort be made, through smaller seminar units... to create conditions that underscore the point that cooperation is as essential as competition in the classroom. (p. 151)

Boyer continued to further refine his concepts, encouraging educators to incorporate into their craft specific elements of what he characterized as a "community for learning" (1995, p. 17-18). Tenets of his learning community framework are shown in Figure 6.

Figure 6. Boyer's (1995) "Community for Learning."



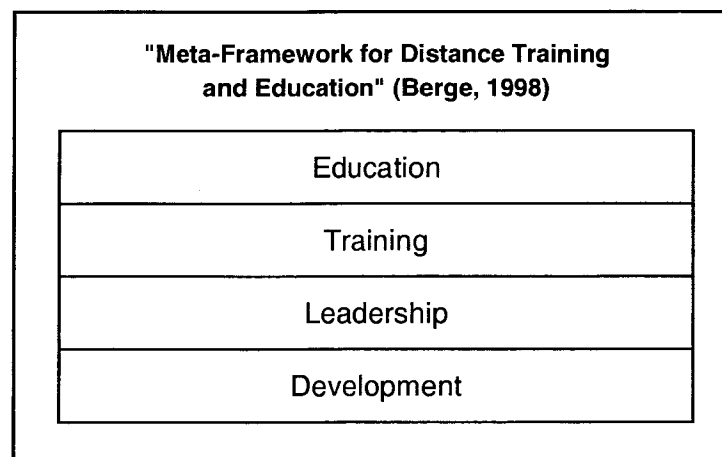
The four elements of Boyer's model, while originally intended for use in primary schools, have good application here for a study in higher education. Boyer describes a "climate for learning" in terms of small groups, with flexibility in scheduling, where students are emboldened to be creative, highly motivated and disciplined. His "school as community" dimension stresses that an institution should have a concise and clear mission that includes an emphasis on participants coming together to promote learning. Perhaps most intriguing is Boyer's reference to a "commitment to character" element, with its moral and ethical connotations. This character element certainly has powerful implications for application to the online learning environment with its emphasis on self-motivation and responsibility.

Obviously, ideas about group synergy and working collaboratively are not new. Some of the greatest painters of the French Impressionist era, most notably Renoir and Monet, worked in a "esprit de communauté" in the mid-nineteenth century (Farrell, 2001). Starting in the 1920's, literary giants J.R.R. Tolkien and C.S. Lewis met regularly and forged a collaborative friendship—frequently discussing literature and religion, thus

influencing each other (Carpenter, 1979). Nineteenth-century Norwegian playwright Henrik Ibsen wrote "A community is like a ship; everyone ought to be prepared to take the helm" (quoted in Ibsen, 1984, p. 139). Ibsen, whom many considered to be a modern Shakespeare, captured an essence of the constructivist approach to teaching and learning via the Internet: Students can take the helm. Can collaboration and learning online among students achieve similar synergies and rewards?

Zane Berge (1998) used a framework, depicted in Figure 7, with themes similar to Boyer's, but specifically for application in the study of distance education and online training courses. Professor Berge describes the "education" element of this model as a critical function used to broaden understanding by students to solve problems using methods outside the scope of existing models. In contrast, the element of "training" is focused on developing the skills students use to solve problems. Crucial to this framework is the element of "leadership," where the student learns to make judgments about whether to apply existing knowledge or search for (or possibly even create)

*Figure 7. Berge's (1998) "Meta-Framework for Distance Training and Education."*

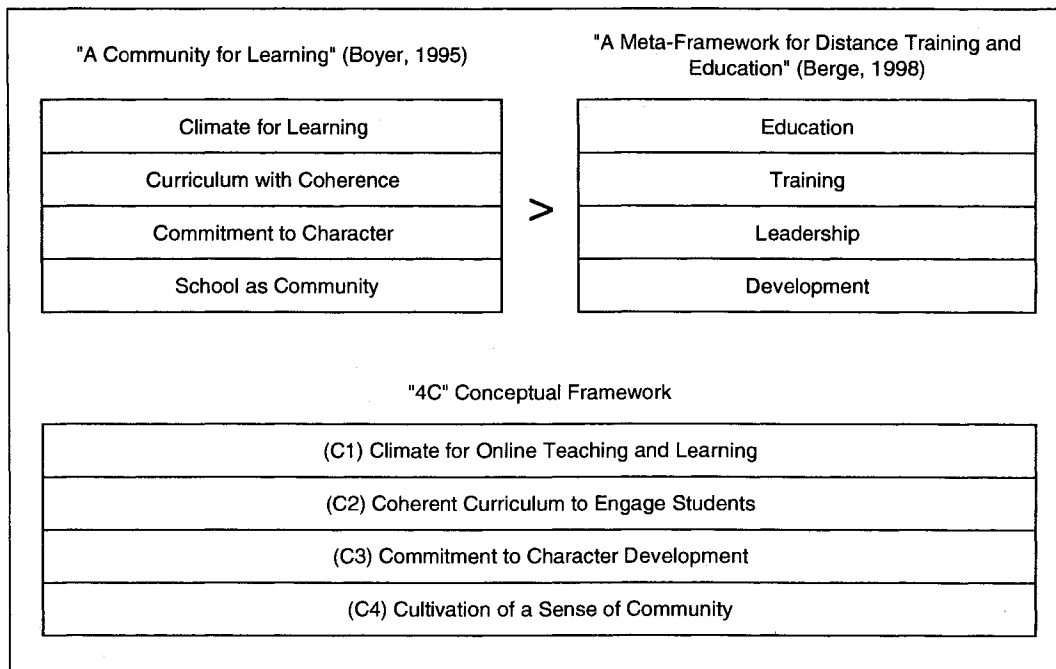


alternatives. Finally, the fourth element, "development," is used in the context of working collaboratively in problem solving.

Literature about communities of learners abounds. Learning community groups "provide opportunities for students to teach one another, to clarify course-related questions and assignments, to receive academic and social support, and to develop relationships" (Egan & Gibb, 1997, p. 33). Miami University of Ohio uses a learning community philosophy to "prepare students to use others' expertise, share one's own expertise, learn from multiple perspectives, make reasonable judgments about those perspectives, and engage in collaborative decision-making about educational practice that promotes holistic student development" (Miami University, 1994, p. 1).

Mitchell and Sackney (2000) observed that, in defining learning communities, two tenets are present: (a) communities entail some sort of "glue" that holds them together (perhaps shared vision, common understandings, or a common goal), and (b) members are in close contact and communication with one another. They go on to say: "A learning community consists of a group of people who take an active, reflective, collaborative, learning-oriented, and growth-promoting approach toward the mysteries, problems, and perplexities of teaching and learning" (p. 8). By distilling Boyer's model through Berge's meta-framework, the "4C" conceptual framework has been developed for studying online education, as shown in Figure 8.

*Figure 8.* Preceding frameworks supporting the creation of the "4C" conceptual framework for studying and evaluating online courses.



### *Investigation of a "4C" Conceptual Framework*

The purpose in exploring ideas about the "4C" conceptual framework is to capture possible salient factors associated with the content domain of an online learning community. This information will be used as a starting point for developing a pilot study (see Stage One in Chapter Three: Methodology). The context of the investigation is the four elements illustrated in Figure 8—climate, curriculum, character, and community. These elements are derived from the works of Boyer and Berge described previously.

### *The Four Elements*

*C1: Climate for Online Teaching and Learning.* A most common and traditional definition of a positive climate for learning is often delineated as a safe and nurturing climate, as well as one with high challenge and low threat (Gregory & Chapman, 2002).



Boyer (1995a) described the learning climate in terms of administrative dimensions such as class size, student grouping, teaching schedules, and available resources. Perhaps the best source for indicators to define the first "C," "C1: Climate for Online Teaching and Learning," which combine both student learning and administrative concerns, comes from the work of Wayson and Lasley (1984). They delineated five factors necessary to create a climate conducive to learning: (a) student belongingness and responsibility, (b) pursuit of superordinate goals, (c) symbols of identity and excellence, (d) sustaining positive values, and (e) clear formal and informal rules.

In theory, computer-mediated learning via the Internet should give self-directed students enhanced freedom to learn, thus improving the climate for learning with greater access to information, 24 hours per day, seven days per week. Additionally, it is quite possible that a Web-based learning medium lends itself to forcing those students who are not as self-directed to more actively engage in their own learning. Does freedom from many of the constraints present in the traditional classroom setting lead to greater student autonomy and, therefore, hint at the possibility of an improved climate for learning in the virtual classroom? The answer to this question is not yet entirely clear. So much of what the student controls in the online course setting appears to be superficial, such as when they log in to work and the social use of e-mail to other students. Again, is all this autonomy really superficial or does such freedom make a substantive contribution to the learning climate? If one subscribes to the idea that increased student autonomy makes a substantial contribution to the climate for learning, a review of the literature supports the view that students in a Web-based course likely have considerable freedom over the way

they learn versus their counterparts in the traditional classroom (Brookfield, 1993; Candy, 1994; Knowles, 1990).

With respect to deeper learning—that which goes beyond memorization—the situation is no different for the online learner than for those in a traditional classroom. As the student-learner interacts with others via the point-and-click environment of an online course, an organizing process is occurring which is useful in developing patterns for recall and use (Vygotsky, 1978). Therefore, to avoid the superficial in formulating indicators for the climate for learning element of the "4C" framework, deeper learning indicators should be included, such as: (a) going beyond just the acquiring of information, (b) students making sense of what is learned, and (c) a move toward the internalization of concepts and ideas (Monteith & Smith, 2001). In today's college classroom, whether online or traditional, in order to create a positive climate for learning, the instructor moves beyond the traditional lecture-style pedagogy and into a mode of encouraging critical, analytic, collaborative, and reflective skills. Elements of both Wayson-Lasley's (1984) and Monteith-Smith's (2001) ideas are listed in Table 2.1 as indices of the first element of the research framework, "C1: Climate for Online Teaching and Learning."

Notice that Table 2.1 includes a column denoting when an indicator will be used in the Stage One pilot. For example, the "Climate for Online Teaching and Learning" indicator "Clear formal and informal rules" will be used as question eight (Q8) in the pilot study presented in Stage One (see Chapter Three: Methodology, p. 59).

Table 2.1. Indices for "C1: Climate for Online Teaching and Learning."

Indicator	Evidence found in program or course	Used in Stage 1 Study
"Climate conducive for learning" (Wayson & Lasley, 1984)		
Sustaining positive values	<ul style="list-style-type: none"> <li>· sensitive to others</li> <li>· helping others in group</li> <li>· group ownership of purpose/clarity/scope</li> </ul>	
Clear formal and informal rules	<ul style="list-style-type: none"> <li>· purpose/clarity/scope exists</li> <li>· instructor posting of do's and don'ts</li> <li>· instructor modeling behavior and protocol</li> </ul>	X (Q8)
"Deeper learning" (Monteith & Smith, 2001)		
Going beyond just the acquiring of information	<ul style="list-style-type: none"> <li>· evidence of understanding concepts in writings</li> <li>· freedom to actively engage in own learning</li> </ul>	
Students making sense of what is learned	<ul style="list-style-type: none"> <li>· examples of understanding concepts in writings</li> </ul>	X (Q6)

*C2: Coherent Curriculum to Engage Students.* A simple and direct definition of a curriculum with coherence is "one that integrates the academic disciplines" (JMU, 2003, p. 1). Katz (2002) criticized higher education curricula for being too narrow and specialized:

Less and less effort goes into constructing intellectually comprehensive and coherent curriculums to help students make sense of the highly sophisticated knowledge they are taught... (faculty) contributions tend to be framed in technical jargon and sharply focused. More and more, specialists address other specialists. (p. B7)

In their book, *Creating Communities for Adult Learners*, Kasworm, et al. (2002) describe a critical linkage that must be present in a viable curriculum to address the needs of learners in this century. That linkage exists between what is taught and learned in the classroom and the real world of the adult student beyond campus environs. Beane (1995) considers a coherent curriculum to have "a sense of purpose, unity, relevance, and

pertinence" (p. 4). Erickson (2002) approaches this issue with a four-part "systems design for coherence" (p. 46) that includes (a) student outcomes; (b) knowledge base, critical content, key concepts, and essential understandings; (c) process and skill abilities to ensure quality performance; and (d) assessment for measuring performance. Pate, et al. (1997) describe a coherent curriculum as "meeting the needs of students and teachers, connecting the content, encouraging student voice, and relating schooling to real life, thereby ensuring that student learning is relevant and personally meaningful" (p. xiii).

From a programmatic perspective, curricular coherence is dependent on "the sequential organization of knowledge and techniques... (having ) a beginning, middle, and end. A core set of courses should establish an intellectual agenda... students need to know how each course contributes to their overall educational experience" (Stark & Lattuca, 1997, p. 159). Boyer (1996), one of the inspirations for the research framework, voiced ideas about a curriculum with coherence for primary schools that centers around the goal of "every child... develop(ing) a core of essential knowledge" (p. 26). He cites the writings of Mark Van Doren who said, "The connectedness of things is what the educator contemplates to the limit of his capacity. The student who can begin early in his life to think of things as connected... has begun a life of learning" (quoted in Boyer, 1995b, p. 1).

Moreover, a coherent curriculum should focus on "principles, not technologies (OUCL, 1999, p. 1)." As applied to learning via the Web, this would mean that teaching and learning should NOT be overly focused on the latest educational technologies, but on the principles that will allow a lifelong ability to assimilate new technologies because of

Table 2.2. Indices for "C2: Coherent Curriculum to Engage Students."

Indicator	Evidence found in program or course	Used in Stage 1 Study
"Coherent curriculum" (Pate, et al., 1997)		
Relating learning to real life	· reporting on-the-job experience of concepts and ideas	X (Q2)
Connecting the content	· examples of understanding concepts in writings and discussions	
"Systems design for coherence" (Erickson, 2002)		
Knowledge base, critical content, key concepts, and essential understandings	· examples of understanding concepts in writings and discussions · Students reflect on applicability to own lives	
Assessment for measuring performance	· feedback to instructor · instructor survey (online)	X (Q3)
"Deeper learning" (Monteith & Smith, 2001)		
Move toward the "internalization" of concepts and ideas	· share experiences, concepts, and ideas	X (Q2)

an understanding of global foundations and basic principles. Indicators drawn for the literature are used as the basis for the second element of the "4C" framework, "C2: Coherent Curriculum to Engage Students," are depicted in Table 2.2.

The absence of a coherent curriculum in an online course or program could lead not only to low achievement of students, but also to inflated attrition (Kauffman, et al., 2002) because students soon realize that what they are learning is not relevant.

*C3: Commitment to Character Development.* Boyer (1995) does not avoid character issues in his concept for an ideal community school, and neither do I in developing a framework for the study of an online class that may use learning community principles. Theodore Roosevelt (1904) once noted that educating the mind only, without teaching morals, is hazardous to our society. The emphasis here is on outlining the core

values all college students / future professionals should learn and practice. Interestingly, review of the literature reveals the conspicuous absence of character-building basics in conceptual frameworks used for the study of online teaching and learning.

Schwartz (2000) writes "although character education is arguably the fastest-growing movement in elementary and secondary education, many college and university educators seem to resist applying the same concept at their own institutions" (p. A68). However, character and moral leadership education is not foreign to higher education, especially in teacher preparation. A University of South Dakota study showed nearly all faculty surveyed believed it "important for college professors to address moral and character issues with their students" (Reetz & Jacobs, 2000, p.209). Berkowitz (2002) defines character as "an individual's set of psychological characteristics that affect that person's ability and inclination to function morally... to do the right thing or not" (p.48). He also offers some essential components for character education taught at the college level, including (a) teaching about character, morality, and ethics; (b) instructor displays character; (c) instructor demands character; (d) practice in character through service learning, apprenticeship, etc.; and (e) reflecting on character in writing (Berkowitz, 2002, p. 62).

The "C3" element of the framework draws on the idea that an online class should incorporate a holistic view of learning and development (King & Baxter Magolda, 1996). Moreover, an "Online Learning Community"—where students share ideas, experiences, and insights—is an ideal setting for such learning because "how individuals construct knowledge and use their knowledge is closely tied to their sense of self "(King & Baxter Magolda, 1996, p.166). This is further substantiated by the work of Colby (2002), who

writes, "(College) educators must recognize that cognitive or intellectual dimensions cannot be separated from the dimensions of personal meaning, affect, and motivation in moral and civic education" (p. 169). In one approach to leadership and character education, where students learn to make reflective judgments, "professors endorse two interrelated goals for students: (a) to evaluate knowledge claims more fully and (b) to explain and defend their points of view on controversial issues more convincingly (King, 2000, p. 16).

It is vital that professors "share the process as well as the product of their thinking" (McVicker Clinchy, 2000, p. 33) in order to contribute to the moral, character, and leadership development of students. Rusnak (1998) observed, "Character education is NOT a subject; it is part of every subject" (p. 4). Because of the autonomous nature of distance education, a list of character-building indicators should also include the concept that instructors view "students as capable participants in the journey to self-authorship" (Baxter Magolda, 2000, p. 94).

Wynne & Ryan (1993) suggest some of the following elements should be incorporated into specific lessons in the curriculum: (a) students focus on the ethical and moral dimensions, (b) instructor leads students in considering ethical and moral dimensions, (c) reflection on applicability to students' own lives, and (d) develop ethical and moral discourse skills. Table 2.3 lists indicators of the third element of the framework, "C3: Commitment to Character Development." Notice, again, Table 2.3 includes a column showing when an indicator will be used in the Stage One pilot. For example, the "C3: Commitment to Character" indicator "share the process" is used as question four (Q4) in the pilot study presented in Stage One.

Table 2.3. Indices for element "C3: Commitment to Character Development."

Indicator	Evidence found in program or course	Used in Stage 1 Study
"Holistic view" (King & Baxter Magolda, 1996)	<ul style="list-style-type: none"> <li>· Character and leadership taught throughout program</li> <li>· NOT a separate course only</li> </ul>	X (Q5)
"Share the process" (McVicker Clinchy, 2000)	<ul style="list-style-type: none"> <li>· Instructors share their own internal processes in thinking about character and leadership issues (mentoring approach)</li> </ul>	X (Q4)
Incorporate into specific lessons (Wynne & Ryan, 1993)	<ul style="list-style-type: none"> <li>· Instructor leads students in considering ethical and moral dimensions of specific issue in lesson</li> </ul>	
Self-authorship (Baxter Magolda, 2000)	<ul style="list-style-type: none"> <li>· Students reflect on applicability to own lives</li> <li>· Students develop ethical and moral discourse skills.</li> </ul>	
Essential components (Berkowitz, 2002)	<ul style="list-style-type: none"> <li>· Practice in character through service learning, apprenticeship, etc.</li> </ul>	
Pursuit of superordinate goals (Wayson & Lasley, 1984)	<ul style="list-style-type: none"> <li>· focus on ethics, leadership, and character development</li> <li>· instructor uses variety in pedagogy to accommodate different styles of learning</li> </ul>	

*C4: Cultivation of a Sense of Community.* Campbell and Smith (1997) suggest some ideas for incorporating community into collegiate teaching including: (a) viewing knowledge as jointly constructed by students and faculty; (b) faculty striving to develop student's talents and competencies, rather than classify-and-sort function; (c) cooperative teaching among faculty in program; (d) empowered students - power shared; (e) constructivist pedagogy; and (f) technology used for collaboration, problem-solving, communication, and information access. Communication technology available in most of today's online courseware augments the learning community approach by increasing the



frequency of interaction between participants. Students and instructor can regularly communicate using chat rooms, discussion threads, group projects, instant messaging, and e-mail. Figure 9 gives a humorous insight into how the Internet can empower students and inspire communication.

*Figure 9. "On the Internet, nobody knows you're a dog" (Steiner, 1993).*



Gabelnick, et al. (1990) have written extensively on learning communities and described this phenomenon as "students and faculty members (experiencing) courses or disciplines as complementary and connected" (p. 19). Their work shows that students value many aspects of learning communities including (a) friendship and a sense of belonging, (b) learning collaboratively, (c) intellectual energy and confidence, (d) appreciation of other students' perspectives, (e) discovering texts, (f) building of intellectual connections, (g) embracing complexity, and (h) new perspectives on their

own learning process. In the learning community approach to online teaching and learning, faculty and students often have the ability to read and review each others work (Johnson, 2003). Dufour and Eaker (1998) write on the importance of "collective inquiry" in a learning community, where participants challenge the status quo, seek and test new methods for performing their work, and reflect on the results of their efforts. Moreover, working collaboratively is both a fundamental principle and a requisite endeavor in the learning community. Fullan (1993) comments on the importance of collaboration suggesting that "the ability to collaborate... is one of the core requisites of post-modern society" (p. 17).

Learning community groups "provide opportunities for students to teach one another, to clarify course-related questions and assignments, to receive academic and social support, and to develop relationships" (Egan & Gibb, 1997, p. 33). Miami University of Ohio uses a learning community philosophy to "prepare students to use others' expertise, share one's own expertise, learn from multiple perspectives, make reasonable judgments about those perspectives, and engage in collaborative decision-making about educational practice that promotes holistic student development" (Miami University, 1994, p. 1).

Students today face different choices when balancing busy lives and the need for education. Perhaps many would prefer not to learn via the online classroom, but access and convenience outweigh those objections. The learning community approach to higher education, whether in the traditional classroom or online, builds stronger student-faculty-school ties, thus augmenting broader institutional goals of student satisfaction and

retention. As Vrasidas & Glass (2002) observed, "Information technologies used in higher education are transforming the nature of the traditional university" (p. xi).

Table 2.4 provides a final list of indicators, all associated with the fourth element of the framework, "C4: Cultivation of a Sense of Community." Question seven (Q7) and question one (Q1) of the pilot study presented in Stage One are used as indicators of "C4: Cultivation of a Sense of Community."

*Table 2.4.* Indices for element "C4: Cultivation of a Sense of Community."

Indicator	Evidence found in program or course	Used in Stage 1 Study
<b>"New paradigms" (Campbell and Smith, 1997)</b>		
Knowledge as jointly constructed by students and faculty	· student input in goals and expectations for course/program	X (Q7)
Empowered students - shared power	· freedom to actively engage in own learning	
Technology used for collaboration, problem solving, communication, and information access.	· email between all · effective use of library resources	X (Q7)
<b>"What students value" (Gabelnick, et al., 1990)</b>		
Friendship and a sense of belonging	· student introduction essay/bio · discussion groups · high morale · group size is reasonable	
Learning collaboratively	· group projects · group discussions	X (Q1)
<b>Others from the literature</b>		
Encouraging student voice (Pate, et al., 1997)	· freedom to actively engage in own learning	

### *Student Evaluations*

Because this study focuses on developing a student exit survey for use in evaluating online courses in the context of an "Online Learning Community," it is important to look at some of the characteristics of student evaluations. Student ratings of collegiate teaching serve as a critical component of course evaluation systems. Whether this is by design or default, college and university administrators traditionally place heavy emphasis on student rating data. This student data is used to guide decision-making that impacts career progress, faculty rewards, and professional development (Cohen, 1980). Unfortunately, Williams and Ceci (1997) concluded that most student evaluations "have more to do with style than substance" (p. 14). Perhaps this is because, as most educators and administrators admit, many college students possess marginal reading, writing, communication, and reasoning skills, and their uninformed student opinion, expressed through the student evaluations, is inaccurate as a basis for evaluating of collegiate teaching (Wilson, 1998).

Despite concerns about the credibility of students and their responses, it is the survey instruments themselves that receive much of the criticism of student evaluations. Scriven (1967) discriminated between two types of student evaluations, summative and formative. Summative evaluations, normally administered at the end of a course, attempt to measure overall student satisfaction and are often used to evaluate faculty for the purpose of establishing salary, rank, and tenure. This type of evaluation typically solicits student responses to global questions such as: "Overall, how do you rate this instructor's knowledge of the subject matter" or "How do you rate this class as an overall learning experience?"

Criticisms of the use of summative evaluations abound. Most criticism had been about the validity of summative evaluations, but the latest, most contemporary criticism of is that these are out of step with current trends in accreditation, assessment, and accountability. Assessment of student learning, not faculty ratings, has become the outcome that most accreditors and evaluators seek. As Nuhfer (2004) notes, "If student learning is as important as student satisfaction, then we should use direct learning measures even more often than we use global satisfaction ratings to deduce 'good teaching'" (p. 1). Part of the criticism stems from the notion that too many college administrators are more interested in rating professors than in evaluating and improving student learning.

Formative evaluations typically use a Likert-type scale to gain student feedback about various aspects of the class and instructor. Answering on a scale from "strongly agree" to "strongly disagree," students respond to questions such as "Objectives of each class session were stated," "The instructor encouraged class discussion/participation," and "The instructor was well prepared." Indices used to create questions used in formative evaluations are normally based on research in college teaching and learning (Chickering & Gamson, 1987; Feldman, 1998). Today, most agree that formative evaluations are a better vehicle for evaluating professors than summative evaluations (Trout, 1997; Williams & Ceci, 1997). The survey developed in this study is of the formative variety.

### *Conclusion*

Online education shows promise for setting the collegiate learning experience free from the confines of the lecture hall. However, along with this new found freedom

comes requisite growing pains and problems. For example, as discussed earlier in Chapter One, attrition rates for courses delivered via the Internet are higher than average (Carr, 2000; Diaz, 2002). In an era of declining resources and renewed interest in accountability of higher education, high attrition rates are troublesome (Banta, 1993; Burke, 2002; Ewell, 1990). Moreover, many colleges and universities today have a growth strategy that puts a priority on the use of information technology to deliver instruction.

This deliberative emphasis on meeting the challenge of growth through technological advances is in response to changes in how, when, and where people learn. Despite the obvious paradox between the technological and traditional, there is little doubt that advances in computing and communications have the potential to change higher education in new ways that we are only beginning to understand. While the literature did not produce a specific measure or instrument for studying the phenomenon of community building in an online course, elements from the literature on learning communities and constructivist pedagogy were useful as a starting point for developing the "4C" framework. The next step is to use the framework as a starting point for developing a measure to detect the presence of a community of learners in an online class.

## CHAPTER THREE

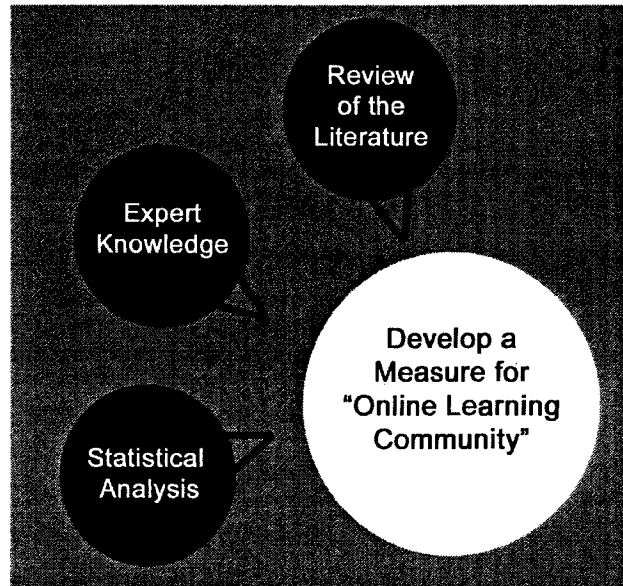
### METHODOLOGY

#### *Introduction*

Much of this research project entails an eighteen-month data gathering effort aimed at designing a valid and reliable measure for detecting the presence of an “Online Learning Community.” Creating community in the virtual classroom should strengthen the student-instructor relationship, increase bonding among students taking the course, and make the course material more interesting. However, as noted in the literature review, measures to gauge whether or not important elements of community are present in an online course were not found.

Figure 10 depicts the three-fold, general methodological approach used for this study to develop a survey instrument to detect and measure an “Online Learning Community.” The first component of this approach, the literature review, presented as Chapter Two, provided an overview about online teaching and learning via the Internet, as well as identifying some knowledge gaps. The procedure used for conducting the literature review was inspired by the “nomological network” concept, a framework first developed by Cronbach & Meehl (1955) for use in psychological testing and scale development. As depicted in Appendix G, the nomological network results from a systematic and comprehensive approach for developing an exhaustive list of concepts,

*Figure 10.* Methodological approach used to develop the "Online Learning Community" framework and measure.



ideas, and sub-themes. This framework provides a net, a visual representation that captures the interrelations among variables for the construct of interest (John & Benet-Martinez, 2000).

The second component to the general approach for this study, expert and practitioner knowledge, provides an update for the literature review. This type of knowledge helps ensure that key contemporary ideas, perhaps not yet in the literature, are considered when developing the measure. Moreover, as delineated later in this chapter, expert review is an important ingredient for addressing concerns about the validity of a measure (DeVellis, 2003).

Statistical analysis, the third and final component of the approach, includes exploratory factor analysis, checks for validity, and reliability measures. These computer-based quantitative procedures help to further refine and perfect the survey



instrument (Fink, 2003). These same procedures help to translate survey data into useful information for later discussion (Behling & Law, 2000).

While each component of the three-fold methodological approach makes its own individual contribution to the final product, taken together they provide reasonable surety of accuracy. Ever mindful of survey instrument assessment and later scrutiny/testing by other researchers, the study is strengthened by both the diversity of sources and the synergy achieved from a three-fold approach to develop the measure. The goal is to contribute to the newly emerging body of knowledge about teaching and learning via the Internet. Ultimately, data from the survey instrument developed for this study, as well as from the discussion that follows, should make a valuable contribution to a small, but growing, body of knowledge about pedagogy in online courses. Survey results likely will prove useful to faculty teaching online courses, as well as college administrators charged with managing academic programs offered via the Web.

The effort to develop a survey instrument includes several stages. A timeline map, detailing key stages of the study, is available in Appendix A. Multi-stage efforts, taking months or years to develop a scale or index for accurately measuring a latent construct, are the norm (Salant & Dillman, 1994). For example, both the *College Student Experiences Questionnaire - Fourth Edition* (Pace & Kuh, 2003) and the *Multifactor Leadership Questionnaire - Second Edition* (Bass & Avolio, 2001) are survey instruments used in the study of higher education that have undergone years of assessment, testing, and revision. A latent construct is an abstract concept, such as "intelligence," that cannot be measured directly, but can only be measured using multiple

variables or indicators (Cohen & Manion, 1989). The learning community concept captured by the framework developed in this study is an example of a latent construct.

### *Concerns for Validity, Reliability, and Factor Analysis*

The process used to design this survey is in accord with general methodological principles delineated by Babbie (1998), Dillman (2000), Kerlinger (1986), and Thompson (2004), including those of validity, reliability, and factor analysis. Several stages in this study were devoted to piloting and testing the survey instrument in order to develop a better understanding of both content and construct validity of the measure. Questions of validity are of paramount importance. Sommer and Sommer (2001) wrote, "Not even the most experienced survey researcher can compose a perfect questionnaire on the first try. Survey research firms test out their questions in a pilot study before beginning formal data collection" (p. 9). Moreover, the *Standards for Educational and Psychological Testing* (AERA, 1999), developed jointly by the American Educational Research Association (AERA), American Psychological Association (APA), and National Council on Measurement in Education (NCME), recommends confirming both content and construct validity for any measure.

Content validity refers to the accuracy of an instrument in capturing all the main ideas for the theoretical idea of interest (Cook & Campbell, 1979). Typically, this is a subjective measure of how items within a content domain appear to a group of knowledgeable reviewers. In the three-fold methodological approach used for this study, content validity was checked via an expert/practitioner pilot study described later in this chapter.

Construct validity is concerned with the extent to which legitimate inferences can be made from the variables used in a study when applied to the theory on which those variables are based (Babbie, 1998). This is perhaps the most difficult, yet valuable, type of validity for evaluating a survey instrument (Litwin, 1995). Construct validity is considered elusive to quantify because there is no single direct statistical procedure yielding an indicator. This is also a subjective assessment, typically analyzed only after years of instrument performance in different settings and across different populations. Reasonable efforts were expended in this study to assess construct validity. For example, the final stages of data collection were used primarily to address construct validity concerns. The goal was to reasonably prove that the elements and indices of the measure presented in this study were both meaningful and practical.

While assessing validity is vital, it is not solely sufficient for measuring all the properties of a survey instrument. Reliability is a statistical measure of reproducibility (Cook and Campbell, 1979). One form of reliability assessment, internal consistency, indicates how well the different items in a survey measure the same issue (Creswell, 2002). Obviously, internal consistency was vital to this study because groups of variables from the survey, which are purported to be related to one of the elements of the conceptual framework, must, in fact, measure that element. When several items point to a single element, the data set is richer and more reliable (Thompson, 2002).

Internal consistency was measured using Chronbach's coefficient alpha, which reflects homogeneity of a scale or how well different items complement each other in measuring aspects of the same element of a conceptual framework (Litwin, 1995). If an

internal consistency reliability score is low, for example, adding more items or clarifying existing items is indicated (Thompson, 2002).

Finally, exploratory factor analysis was used to develop theory regarding the nature of the construct or conceptual framework (Thompson, 2004). More specifically, social scientists use exploratory factor analysis to help establish correlative connections between complex sets of data (Kline, 1994). The correlative results of the analysis show how groups of questions from the survey cluster together. Using exploratory factor analysis, a construct or framework for an "Online Learning Community" emerges from the data and a one-word indicator is selected that best characterizes a common theme for each element in the construct (i.e. each group of clustered variables-indicators-items).

Factor analysis is an "interdependence technique" in which interdependent relationships are examined (Kim & Mueller, 1978). Interestingly, unlike traditional statistical procedures, there is no need to specify dependent variables, independent variables, or causality. This statistical procedure operates from the assumption that all scale rating data on different variables can be reduced to a few important dimensions. Reduction is possible because the variables are interdependently related, an important feature in the construction of this measurement tool.

The statistical algorithm used in factor analysis deconstructs the raw score into various components including the underlying factor score (Thompson, 2004). The statistical correlation between raw score and factor score yields the required factor loading (Thompson, 2004). Factor loadings reveal the underlying dimensions of a construct, such as those described later for the measure developed in this study.

Kerlinger (1979) characterized factor analysis as “one of the most powerful methods yet for reducing variable complexity to greater simplicity” (p. 180). Perhaps the most powerful feature of exploratory factor analysis is that the researcher is not required to declare the relationships between and among factor items prior to data collection because the analysis is not influenced by *a priori* expectations. In this study, particular attention will be paid to the value of factor structure coefficients, communality coefficients, and total variance explained. Factor structure coefficients give numerical “weight” (in the range of –1 to +1) to the correlative relationship between an individual factor or item and its corresponding element. The communality coefficient for an individual factor shows how useful the contribution of that individual factor was in explaining the variance for a set of factors (Thompson, 2004). Communalities of 0.60 or higher are desired (MacCallum, Widaman, Zhang, & Hong, 1999).

The final version of the measure developed in this study also reported a “total common variance explained” score. Typically, researchers want 50 percent or more of the total variance to be explained by the elements of the latent construct under study (Leik, 1997). The total variance score is normally also used to contribute to the assessment of an instrument’s overall construct validity (Miller & Salkind, 2002).

### *Research Design*

*Participants.* The unit of analysis for this study was students completing an online course at a university. During the last week of the online course, students were asked to participate in the survey. While each of the stages of survey instrument

development and measure refinement was slightly different, sample criteria generally included the following characteristics:

1. Participants were students completing an online course at a Research University - Extensive or Intensive, as designated by Carnegie classification (Carnegie, 2000). An exception to this standard occurred in Stage Two, when four surveys from a liberal arts college were used, and Stage Three, when survey data from ten students in one community college class were collected.
2. Participants were upper-division undergraduate or graduate-level students whenever possible to control for and ensure highest possible level of maturity related to building community and student collaboration in an online class. The only exception occurred in Stage Three, when ten surveys from lower-division undergraduate students were used.
3. For the final stages, institutions had sufficient online courses across three academic subject categories/disciplines to meet sample size requirements for factor analysis, reliability criteria, and validity concerns.

*Data Description.* Survey items in this study yielded Likert scale data. The Likert scale uses equal-sized units of measurement in which a survey respondent specifies a level of agreement or disagreement with statements, thus expressing an attitude about the concept under study. This scale is typically used in surveys to ascertain degrees of response to a statement (Fowler, 2001).

For the purposes of this study, Likert-scale data were considered to be of the interval type. Anderson (1961) showed that equal interval rating scales, such as the Likert scale, often produced highly regular results and demonstrated similar nominal characteristics as both interval and scale data types. Later work by Labovitz (1967) supported the treatment of numerically coded category scales as if they conform to interval-type scales. Today, the "Likert scale is considered by many to be interval" (Weinberg, 2002, p. 9) because it utilizes equal-sized units of measurement. However, a serious limitation arises from the fact that the scale is open to interpretation by each individual respondent. Students participating in the survey were asked to rate their agreement with each statement on a one-to-four Likert scale, with one representing "Strongly Disagree" and four representing "Strongly Agree." Participants also had the option of answering "No Opinion," a survey design consideration suggested by Dillman (2000).

In addition to quantitative Likert-scale data, qualitative data, in the form of comments from students, were also collected at each stage. Here, the students had an opportunity to share perceptions about the online course just completed. These qualitative data were analyzed later and used for the discussion in Chapter 5.

*Instrumentation.* An electronic survey instrument was used to collect data for this study. Along with revolutionary changes in instructional technology and digital learning, the emergence of the Internet as an unprecedented communication tool has inspired new ways to conduct research, including surveys conducted via the World Wide Web (Kraut, Olson, Banaji, Bruckman, Cohen, & Couper, 2004). A Web-based survey is hosted at a unique Internet address where a Web site resides. Respondents participate by clicking on

a line of text located within the body of an invitation e-mail (known as a hyperlink), which subsequently links to the Web-based survey. Conducting surveys on the Internet has become commonplace; the process has come to be accepted as a distinct survey mode, alongside the other traditional survey methods such as postal mail, telephone, and face-to-face surveying (Couper, Traugott, & Lamias 2001).

Research on the use of Internet surveys is limited and there is little empirical evidence of either the benefits or detriments of this mode of data collection (Schonlau, Fricker, & Elliott 2002). However, there exists a consensus that using the Web as a method for conducting surveys has the advantage of nearly instantaneous collection of response data at little or no cost (Dillman, 2000; Schonlau, et al., 2002). Additionally, a survey designer can take advantage of several characteristics available in the digital medium including: (a) user-friendly survey design, (b) interactive features based upon unique responses, and (c) innovative use of video and audio in the body of the survey.

The question of response rates is still being researched. For example, a University of Michigan study on response rates showed better rates for the Web-based version of a survey (62%) versus regular postal mail (41%) among the 3,500 university students asked to complete a survey about drug and alcohol use (Crawford, McCabe, Couper, & Boyd, 2002).

### *Research Stages and Pilot Testing*

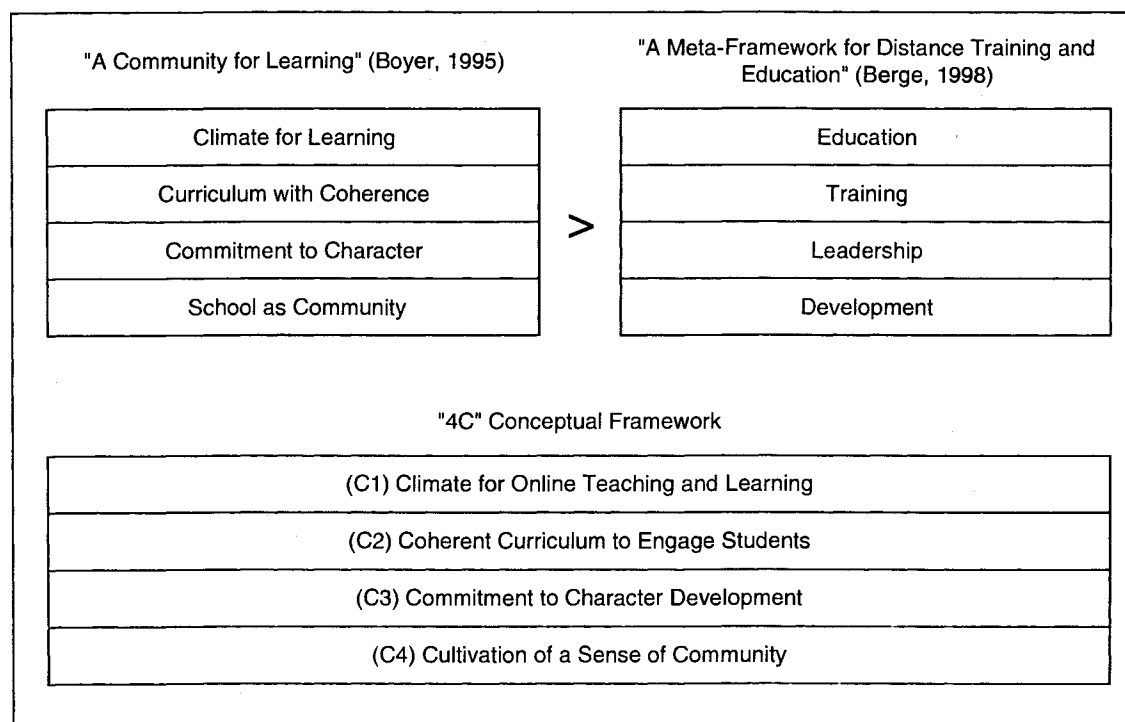
*Stage One.* The preliminary investigation conducted in Stage One was an important step in the process of developing the instrument because data gathered from this pilot, including comments from participants, influenced the content of the first



version of the survey used for the study. The pilot study was administered via email link and Web site during the summer of 2003. Institutions were randomly selected from a list of more than 2,500 colleges and universities in the United States. One hundred twenty college and university faculty who taught online, three each from 40 institutions, were identified using Web-based course catalogs. Ultimately, forty-seven (47) instructors who taught online courses participated in the first stage pilot, representing a 39 percent response rate.

They were asked to rate the importance to their online instructional efforts of key concepts taken from a review of the literature described in Chapter Two. This first pilot study used a framework with four elements: "Climate," "Curriculum," "Character," and "Community." Figure 11 shows where main ideas for the "4C" conceptual framework

*Figure 11.* Preceding frameworks supporting the creation of the "4C" conceptual framework for studying and evaluating online courses.



were derived: Primarily from the works of Boyer (1995) and Berge (1998).

There were two purposes for the first stage pilot study: to establish content validity for future survey questions-variables and to obtain open-ended, qualitative feedback from participants to help develop the survey. Questions for the pilot study were developed for each of the elements of the “4C” framework. Results were presented, along with a paper entitled *Community at a Distance: A New Framework for Studying Online Education*, at the 8th Annual Conference on Learning Communities and Collaboration: Student Learning and Engagement (November 6-7, 2003. Indianapolis, IN). Feedback from conference attendees also assisted in ensuring the best possible indicators would be used for the next version of the “Online Learning Community” measure. A copy of the survey used in Stage One is available in Appendix B1.

Surveying those knowledgeable about the subject of this study (i.e. online courses and Internet learning) provides a good base from which to build a rigorous and methodologically sound assessment of survey instrument validity. In this study, such efforts were undertaken to carefully prepare evidence for the scrutiny typically given by future researchers to survey instruments that purport to be reliable and valid. Further details of the Stage One pilot study, including data and results, are given in Chapter Four.

*Stage Two.* In Stage Two, building on the results from the aforementioned pilot study, a completely new and different survey was developed. This new survey represented the first prototype version of the survey that was used for the rest of the study. At the end of the fall 2003 academic semester, 67 students from six courses at five different institutions completed the twenty-four question Web-based survey. The

students had completed online classes in education, business, and theater. An example of the Stage Two survey is shown in Appendix B2.

The purpose of Stage Two was to gather sufficient Likert data to develop a theoretical construct for the purpose of defining a learning community. Exploratory factor analysis results for the survey questions used in Stage Two are given in Chapter Four - Results. The correlative analysis showed how groups of questions from the survey cluster together. A one-word indicator was selected that best characterized a common theme for each group of clustered questions. Each group of clustered questions represented a discreet factor in the construct. Unlike the four-factor, "4C" framework developed from the literature, factor analysis from the Stage Two survey yielded three factors: "Structure," "Communication," and "Responsibility."

"Structure," the first factor, refers to the organization of the online class, including expectations, do's-and-don'ts, and pedagogy. "Communication" is related to participation and familiarity: students regularly e-mail each other and the professor, they share insights and express ideas using discussion postings, and there exists a general sense that students are known by the professor and the other students. "Responsibility," the third factor of the construct, refers to motivation and maturity, with students being accountable for their own learning and empowered to learn in a manner that is best for them.

Figure 12. Three factors of the Stage Two construct.

----- "Online Learning Community" -----

Factor 1 <b>STRUCTURE</b>	Factor 2 <b>COMMUNICATION</b>	Factor 3 <b>RESPONSIBILITY</b>
<p>How the online course is organized, including: expectations, "do's-and-don'ts," and pedagogy.</p> <p><b>EXAMPLE SURVEY STATEMENT:</b> · Q1. Expectations for the class were clearly stated.</p>	<p>Participation and familiarity: frequent e-mailing, sharing insights, express ideas, discussion postings, student participation.</p> <p><b>EXAMPLE SURVEY STATEMENT:</b> · Q8. We used discussion threads and posted messages.</p>	<p>Motivation and maturity: students accountable for own learning, empowered to learn in a manner that works best for them.</p> <p><b>EXAMPLE SURVEY STATEMENT:</b> · Q3. It was important to be self-motivated.</p>

*Stage Three.* Based upon the results from the Stage Two student exit survey, the new construct was established with three elements as shown in Figure 12. This was the theoretical construct used as a basis for all future stages of the study. The purpose of Stage Three was to gather additional survey responses for use in statistical analysis to further define and strengthen the construct. The survey was conducted at the end of the spring academic semester in 2004. Total sample size for Stage Three was 125 students. Students were from education and business courses at four different institutions.

The continued use of factor analysis and reliability statistical procedures provided additional opportunities to check both the validity and reliability of the survey in anticipation of each next stage in the study. Results for factor analysis and reliability are detailed in Chapter Four. A copy of survey used in Stage Three is depicted in Appendix B3.

*Stage Four.* At the end of the summer semester of 2004 a different group of students were asked to participate in the Web-based survey. Total sample size for Stage Four was 836 students. Students were all from a single institution, the University of

Nevada, Las Vegas, but represented 27 online courses including education, business, and social sciences. The research design was a basic “one by three” (“1 x 3”) matrix (Creswell, 2002) as shown in Table 3.1. In addition to the ongoing goal of further strengthening and refining the three-factor construct, the purpose of the Stage Four “1 x 3” design was to gather sufficient data to check for reliability and validity across the three academic discipline groups. A copy of the survey used in Stage Four is available in Appendix B4.

*Table 3.1. Sample information for the Stage Four research design (“1 x 3”).*

<u>Discipline (courses)</u>	<u>Grad/UG</u>	<u>est. N</u>
Education Ten (10) courses including: Educational Leadership Educational Technology Physical Education Special Education	Grad	227
Business/Professional Ten (10) courses including: Organizational Development Operations Management Hospitality Management	both UG & Grad	332
Social Science/Other Seven (7) courses including: Political Science Criminal Justice History Anthropology	both UG & Grad	277
	Subtotal:	836
	(Estimated 50% response rate) Total:	418

Sample sizes of 100 or more in each of the cells of the “1 x 3” matrix is important for achieving statistical significance for exploratory factor analysis, although sample sizes of as little as  $N = 60$  per cell are permissible if communalities of 0.60 are achieved for the construct factors (MacCallum, et al., 1999). Statistical consistency across the three academic disciplines—education, business/professional, and social science/other—adds another confirmatory layer of evidence for later assessing overall content validity for the construct. Additionally, disaggregating the data by academic discipline should also provide interesting information for both the results and discussion sections of the study.

*Stage Five.* At the end of the Fall 2004 semester, the final sample of students was asked to participate in the survey. This final survey data collections stage represented the largest and most diverse sample in the study. An estimated 1,125 students, representing more than 70 online courses at three different higher education institutions, were asked to participate. Students again represented three academic disciplines: education, business/professional, and social science/other. Therefore, the research design for Stage Five was a basic “three by three” (“3 x 3”) matrix as shown in Table 3.2.

In addition to a final refining of the three-factor construct, the purpose of the Stage Five “3 x 3” design was to gather sufficient data to check for reliability and validity across the three institutions, as well as across the three academic disciplines. Similarly to the previous stage, statistical consistency across three institutions (University of Nevada, Las Vegas, University of Nebraska-Lincoln, and Florida State University) adds yet more confirmatory evidence for assessing overall construct validity for the measure. Moreover, disaggregating the data by institution provides interesting information for both the results

and discussion sections of the study. A copy of the survey used in Stage Five is available in Appendix B5. Protection of human subjects review board letters granting permission to conduct survey research at the three universities appear in Appendix C.

*Table 3.2. Sample information for the Stage Five research design ("3 x 3").*

<u>Institution</u>	<u>Education</u>	<u>Business/ Professional</u>	<u>Social Sci. /Other</u>	<u>Total</u>
University of Nevada, Las Vegas	125*	125	125	375
University of Nebraska-Lincoln	125	125	125	375
Florida State University	125	125	125	375
TOTAL:	375	375	375	1,125

\*All samples are estimates using 50% response rate.

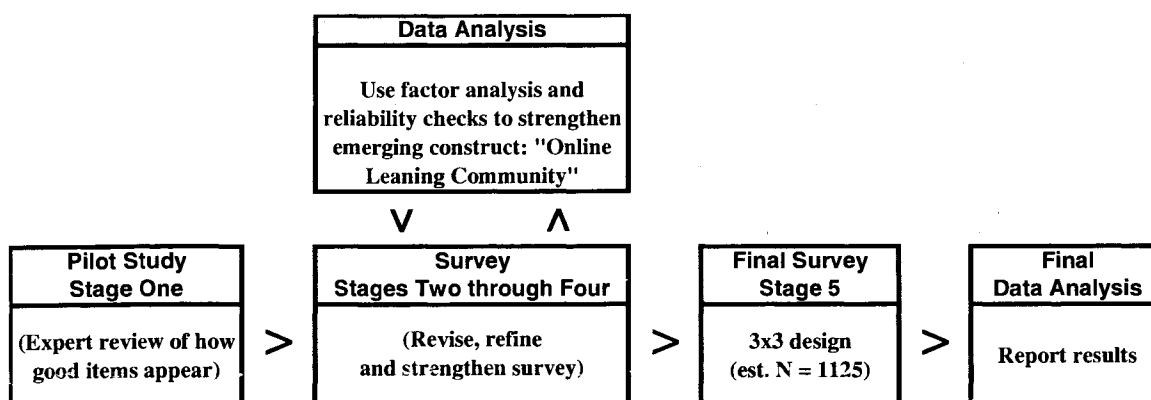
### *Data Analysis*

Using both the literature review and pilot study conducted in Stage One, salient attributes associated with forming community in an online course were identified. Based upon the results of the Stage One pilot study, an initial survey was developed with main concepts from a three-factor construct. Survey data from each of the subsequent stages (Stages Two through Five) were analyzed using *Statistical Package for the Social Sciences* (SPSS), a computer-based statistical program.

Exploratory factor analysis procedures included in SPSS yielded a set of underlying attributes, or factors, for the dataset. This analysis isolates the underlying factors that explain the data. For example, variables such as "Do's-and-don'ts," "Expectations for the class," and "Course calendar" clustered together statistically to

form the “Structure” element of the construct. Factor analysis was performed on each dataset for Stages Two through Five in an attempt to refine a factor construct for an “Online Learning Community” measure depicted in Figure 13. The goal was to improve the scores for factor analysis and reliability at each stage of the study, thus strengthening the survey.

*Figure 13. Data analysis "flow" for the study.*



One advantage in using factor analysis for analyzing survey data is that both subjective and objective variables, drawn from both the literature and expert opinion, can be used. Moreover, this technique has the advantage of flexibility in naming and characterizing construct factors, such as the three associated with the “Online Learning Community” construct: “Structure,” “Communication,” and “Responsibility.”

Qualitative comments from students participating in the survey were also gathered. Content analysis was performed on the qualitative student responses (Manning & Cullum-Swan, 1994). Pattern-coded responses were categorized into themes for later discussion and some of these comments support ideas found in the emerging “Online Learning Community” construct (Miles & Huberman, 1984).



### *Report for Faculty*

Following each stage of the study, a report detailing the results for each individual class was provided to the professor. The average score for the class for each of the three factors in the learning community construct was provided and compared with the average for all courses in a stage. For example, each instructor saw how his/her own score in the “Structure” factor compared with the total sample for that stage. Factors were broken down to show scores for each individual question. In some cases, an aggregate report for all classes in a department was provided to the department chair. Offering to provide aggregate data to the department chair helped in gaining permission to conduct the study. An example report is provided in Chapter Four.

### *Limitations of the Methodology*

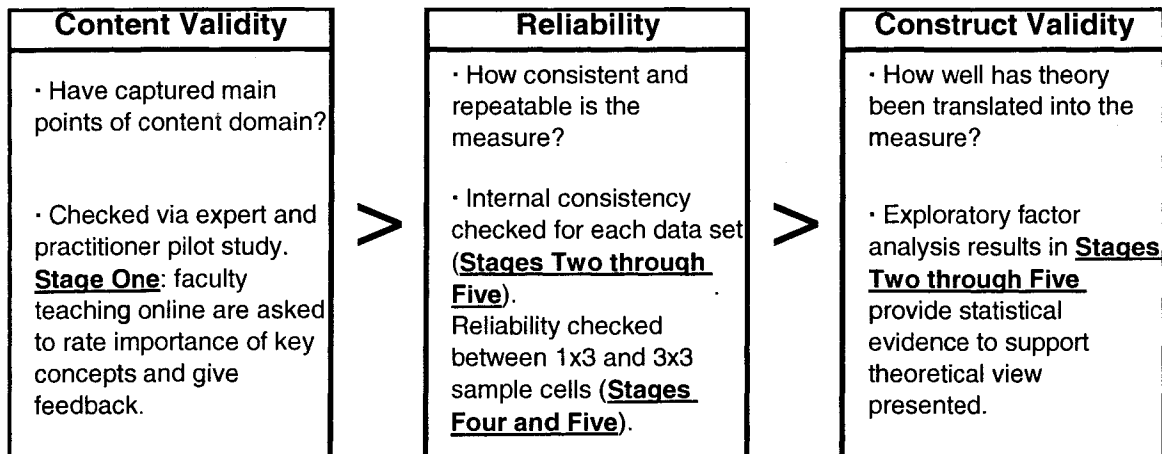
Factor analysis depends heavily upon the researcher being able to develop a complete and accurate set of variables from the overall content domain of the construct (Basilevsky, 1994). Salient issues of the topic of interest, in this case an “Online Learning Community,” must be clearly defined in order to gather the information necessary to ensure a valid survey instrument is developed. If important variables or indicators from the content domain are missing, factor analysis loses its value.

Complicating matters further is the fact that the dimension naming, such as naming the three dimensions (“Structure,” “Communication,” and “Responsibility”) of the construct, can be difficult because multiple variables may appear highly correlated for no intuitive reason. Studies show that factor analysis can almost always produce some sort of pattern between a set of variables, even if the variables are completely random (De

Vaus, 2002). These are problems inherent with any research study that use correlations, not just those employing factor analysis procedures.

In anticipation of these limitations associated with factor analysis, the assumption exists that reasonable efforts were made in this study to capture the complete content domain using an exhaustive literature review and expert/practitioner review. Moreover, statistical checks to address concerns of both validity and reliability were regularly performed. After repeated data collection in Stages One through Four, surveying more than 400 students who had completed an online course, the final version of the survey used in Stage Five represents the best group of variables-indicators for the three-dimension construct. Figure 14 illustrates the approach used to address concerns of the validity and reliability limitations of the study.

Figure 14. Addressing validity and reliability limitations for the study.



The Likert-scale format options to the survey questions, based upon the traditional “Agree” and “Disagree” scale, may be subject to various interpretations as a result of their non-numerical nature, and, thus, could be a limitation. Additionally, survey

participants may or may not share common understandings of the various terms used in the survey questions. Where confusion exists about the precise meaning of a survey question, there is a higher likelihood of poor quality data. The “1x3” and “3x3” design approaches used in this study, including across academic disciplines and institutions, provided the basis for assessing the consistency of the data. Moreover, sample sizes used in this study allowed for disaggregation of the data into more detailed sub-groups.

### *Conclusion*

This study chronicles a multi-stage effort to design a valid and reliable measure of an “Online Learning Community.” A comprehensive, three-fold methodological approach—literature review, expert/practitioner review, and statistical analysis—was used to ensure that the survey instrument has good reliability and validity. The synergy realized from a combination of the three approaches provided a practical level of surety that the measure is reasonably accurate. Notwithstanding this surety, assumptions and limitations of the study have been acknowledged.

This study focuses on the ingredients present in the formation of a learning community in an Internet-delivered college course. Detecting and measuring the level of community and student engagement in an online course should help administrators and faculty leaders evaluate online courses and programs. The next section details the results of the data gathering effort of 1,295 surveys over multiple stages, including 709 collected from students completing online courses at the University of Nevada, Las Vegas, the University of Nebraska-Lincoln, and Florida State University in the fall of 2004.

## CHAPTER FOUR

### RESULTS

#### *Introduction*

Using the "4C" framework developed from the literature as a starting point and detailed in Chapter Three, data were collected in a multi-stage project, with the goal of developing a student exit survey for detecting and measuring a learning community in an online course. The elements of the "4C" framework are: "C1: Climate for online teaching and learning," "C2: Cohérent curriculum to engage students," "C3: Commitment to character development," and "C4: Cultivation of a sense of community."

#### *Stage One: Faculty Pilot Study*

The results from the Stage One pilot, including comments from participants, were an important first step in influencing the remaining stages of the study. The pilot survey was intended to pretest and validate concepts for the larger Web-based student exit survey administered at semester's end. In September of 2003, 47 out of 120 instructors, a 39 percent response rate, who had experience teaching online classes participated in the first stage pilot. Participants were from all sectors of higher education, including two-year institutions, four-year colleges, and research universities. A copy of the survey used for Stage One is provided in Appendix B1.

The instructors were asked to rate the importance of each survey statement to their approach to online teaching. Table 4.1 shows that the statements that rated highest in importance were "Encourage students to share," "Inspect writings for evidence of learning," and "Clearly state the do's-and-don'ts." Next, the statement "Course has a learning community structure" scored a mean of 4.00 ( $SD = 1.29$ ,  $n = 47$ ), followed by "Method to assess curriculum," "Share your internal processes," and "Incorporate ideas about ethics and character." Note that "Use group projects" scored lowest among all statements and had the most variability, indicating disagreement among respondents.

*Table 4.1.* Importance scores for factors from the pilot study using the "4C" framework.

<u>Survey Statement / Factor</u>	<u>Mean Score</u>	<u>Standard Deviation</u>	<u>( N )</u>
Encourage students to share their own experiences and ideas in online discussions and/or postings.	4.43	0.93	47
Inspect student writings and posting for evidence of Learning, such as presence of course concepts, etc.	4.41	0.96	46
Clearly state the purpose, scope, and "do's-and-don'ts" for the class.	4.40	0.85	47
Course has a "learning community" structure, Emphasizing interaction between students, etc.	4.00	1.29	47
Utilize some method to assess if curriculum is Relevant to students.	3.76	1.08	46
Share your own internal processes (ways of thinking) with students.	3.74	1.17	47
Incorporate ideas about ethics, character, and leadership into the course.	3.51	1.27	47
Use group projects to promote collaborative learning.	3.02	1.38	47

Note. Likert scale (1-5) used from Unimportant (1) to Very Important (5).

To present a clearer picture of the importance of both indicators and elements, faculty responding to the survey were also asked to rank the three most important indicators from the list of eight. Table 4.2 shows the results of these rankings. "Encourage students to share" was the most frequently reported indicator ( $f = 30$ ) in the survey respondent's "top three," which appears to confirm its top score in mean importance discussed earlier. "Course has a learning community structure" ( $f = 25$ ) and "Inspect writings for evidence of learning" ( $f = 24$ ) ranked second and third in importance by faculty teaching online, which was consistent with their mean importance scores.

*Table 4.2. Rankings of survey statements as "most important" by faculty who teach online classes, Stage One pilot.*

<u>Rank</u>	<u>Statement</u>	<u>f (freq)</u>
1	Encourage students to share... in discussions and/or postings.	30
2	Course has a "learning community" structure...	25
3	Inspect student writings and postings for evidence of learning...	24
4	Clearly state the purpose, scope, and "do's-and-don'ts" for the class.	18
5	Utilize some method to assess if curriculum is relevant to students.	13
6	Share your own internal processes (ways of thinking) with students.	10
6	Incorporate ideas about ethics, character, and leadership into the course.	10
8	Use group projects to promote collaborative learning.	5

"Use group projects" scored last in the rankings ( $f = 5$ ), which coincides with its last place score in mean importance. The overall results of the rankings were reasonably consistent with the mean importance scores reported previously in Table 4.1.

Next, the data set was inspected for correlations. Specifically, based on groupings using the "4C" framework, statistically significant correlations were found with grouped statements for two of the four elements, "C1: Climate for online teaching and learning," and "C4: Cultivation of a sense of community," as shown in Table 4.3. The two statements related to "C1: Climate," "Inspect student writings" and "Clearly state the do's-and-don'ts," were correlated ( $r = .450$ ,  $\text{sig.} = .002$ ), as were the two "C4: Community" statements, "Use group projects" and "Course has a learning community structure" ( $r = .652$ ,  $\text{sig.} < .001$ ). The grouped statements for the 4C framework elements

*Table 4.3. Correlations between eight statements used in Stage One pilot study.*

Statement	1Group	2Discuss	3Assess	4Internal	5Ethic	6Inspect	7LearnC	8Do-Don't
1Group	1.0	.402**	.313**	.098	.456**	.353*	<b>.652**</b>	-.045
2Discuss	-	1.0	<b>.127</b>	.102	.441**	.079	.657**	-.002
3Assess	-	-	1.0	.492**	.238	.391**	.412**	.325*
4Internal	-	-	-	1.0	<b>.178</b>	.366*	.289*	.237
5Ethic	-	-	-	-	1.0	.518**	.481**	.127
6Inspect	-	-	-	-	-	1.0	.421**	<b>.450**</b>
7LearnC	-	-	-	-	-	-	1.0	.139
8Do-Don't	-	-	-	-	-	-	-	1.0

Note. Shaded scores indicate paired statements from the 4C framework (e.g. "6Inspect" and "8Do-Don't" are paired to measure the 4C element "(C1) Climate for online teaching and learning").

\*\* Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

"C2: Coherent curriculum to engage students" and "C3: Commitment to character development" were not significantly related, perhaps due to the way in which the questions were worded or to small sample size.

Scores in Table 4.3 also reveal that some statements were significantly related to several others in addition to their intended paired partner, albeit quite low. For example, the statement "Use group projects" (labeled as "1Group" in Table 4.3) was correlated with four other statements in addition to its intended paired statement "Course has a learning community structure" (labeled as "7LearnC" in Table 4.3) from the "C4: Community" element of the "4C" framework. The inter-relatedness of the statements at the pilot stage makes sense since these indicators were drawn from the same literature review and content domain for an "Online Learning Community."

Because simple paired correlative analysis, depicted in Table 4.3, does not supply enough multi-dimensional information to form an accurate understanding of the inter-relatedness of all statements, exploratory factor analysis was used. Factor analysis determined how survey statements grouped or clustered together around factor components, leading to possible themes (Thompson, 2004). Interestingly, two distinct factors were revealed from the Stage One data as shown in Table 4.4. Four statements, "Use group projects," "Encourage students to share," "Course has a learning community structure," and "Incorporate ideas about ethics and character," all grouped together around a single factor. Similarly, four other statements, "Utilize method to assess curriculum," "Share your internal processes," "Inspect writings for evidence of learning," and "Clearly state the do's-and-don'ts," grouped together around a second distinct factor. Sixty percent (60.7%) of total variance in the survey was explained by the two-factor



configuration depicted in Table 4.4. Because sample size was less than 100 ( $N = 47$ ), the results of exploratory factor analysis presented here should be considered preliminary (Thompson, 2004).

*Table 4.4.* Factor analysis component matrix, Stage One (Varimax rotation).

<u>Statement</u>	<u>Factor 1</u>	<u>Factor 2</u>
Use group projects to promote collaborative learning.	<b>.801</b>	.083
Encourage students to share... in discussions and/or postings.	<b>.797</b>	-.088
Course has a "learning community" structure...	<b>.847</b>	.273
Incorporate ideas about ethics, character... into the course.	<b>.683</b>	.284
Utilize some method to assess if curriculum is relevant to students.	.243	<b>.698</b>
Share your own internal processes (ways of thinking) with students.	.091	<b>.685</b>
Inspect student writings and postings for evidence of learning...	.331	<b>.729</b>
Clearly state the purpose, scope, and "do's-and-don'ts" for the class.	-.124	<b>.736</b>

Note. Shaded scores show statement's factor grouping.

Factor analysis results shown in Table 4.4 yielded two factors. Careful consideration of the nature of the statements grouped within each factor assists the researcher in labeling the factor. This labeling process, normally selecting a one-word

label or short phrase for describing a factor, represents an attempt to capture the essence of the underlying concept of the factor.

After considering the factor analysis results, Factor One—associated with "Use group projects," "Encourage students to share," "Course has a learning community structure," and "Incorporate ideas about ethics and character"—was labeled "Communication." Similarly, Factor Two—associated with "Utilize method to assess curriculum," "Share your internal processes," "Inspect writings for evidence of learning," and "Clearly state the do's-and-don'ts"—was labeled "Structure."

While not perfectly accurate in capturing the essence of each factor, the selection of the one-word theme or simple phrase allows for developing additional questions or statements per theme for the survey presented in Stage Two. The step-by-step procedure used in this pilot, culminating in factor analysis results, provided a statistically grounded starting point for achieving both validity and reliability for future survey design.

Reliability measures for the two factors, "Communication" and "Structure," were .803 and .701 respectively (Cronbach's alpha). These scores demonstrated that the two elements performed reasonably for their part in measuring the latent construct.

This was only a pilot study and Figure 15 shows an additional factor reserved for future survey questions drawn from the literature review. Typically, three or more factors are used to capture the complexities of a latent construct (Fabrigar, Wegener, MacCallum, & Strahan, 1999). In this way, three broad concepts or factors, each containing up to eight questions used to capture the factor's meaning, will be available for the Stage Two Student Exit Survey. An additional summary figure showing results for the Stage One pilot study is available in Appendix D.

Figure 15. Three factors from pilot study, to be used in Stage Two survey development.

Factor 1 <b>COMMUNICATION</b>	Factor 2 <b>STRUCTURE</b>	Factor 3 <b>(UNNAMED)</b>
<ul style="list-style-type: none"> <li>• Use group projects to promote collaborative learning.</li> <li>• Encourage students to share... in discussions and/or postings.</li> <li>• Course has a "learning community" structure...</li> <li>• (future indicator/survey question) Freedom to engage in own learning?</li> <li>• (future indicator/survey question) Applicability in own life?</li> <li>• (future indicator/survey question) Student input into goals/expectations?</li> <li>• (future indicator/survey question)</li> </ul>	<ul style="list-style-type: none"> <li>• Utilize some method to assess if curriculum is relevant to students.</li> <li>• Share your own internal processes (ways of thinking) with students.</li> <li>• Inspect student writings and postings for evidence of learning...</li> <li>• Clearly state the purpose, scope, and "do's-and-don'ts" for the class.</li> <li>• (future indicator/survey question) Instructor modeling behavior/protocols?</li> <li>• (future indicator/survey question) Effective use of library resources?</li> <li>• (future indicator/survey question) Group size reasonable?</li> </ul>	<ul style="list-style-type: none"> <li>• (future indicator/survey question) Related to leadership development?</li> <li>• (future indicator/survey question) Discourse skills?</li> <li>• (future indicator/survey question) Capstone experience?</li> <li>• (future indicator/survey question) Ethical/moral dimensions of issue?</li> <li>• (future indicator/survey question)</li> <li>• (future indicator/survey question)</li> <li>• (future indicator/survey question)</li> </ul>

*Qualitative Responses from the Pilot Study.* Comments from faculty members who participated in the pilot study were also used to help shape the Stage Two survey. A content analysis of the responses was conducted using respondent's comments (Manning & Cullum-Swan, 1994). The qualitative data were then pattern-coded and categorized into themes to both support and help operationalize the three elements of the "Online Learning Community" framework depicted in Figure 15 from the pilot study (Miles & Huberman, 1984).

Pattern coding yielded two distinct categories: obstacles to online learning and advantages for online learning. For example, several respondents commented on obstacles or limitations, giving rise to concerns about the quality of online distance courses; the implication is that online courses are not comparable to traditional classes. At least one faculty member would prefer to place limits on online courses:

Although I believe online courses have a place in higher education, I believe their place should be limited (for example, students should be

able to earn no more than 20% of course credits from online courses).  
[P30]

Other survey respondents voiced concerns with attempting to create community in an Internet-based course. For them, attempts at establishing a healthy learning community environment online may be stunted, as one professor describes, because:

Face-to-face interaction, and the sense of belonging to a group, that occurs in the traditional classroom is difficult (if not impossible) to replicate in online courses. [P26]

Another obstacle identified as a source of frustration for professors was the computer software platform for teaching online known as courseware. In fact, deficiencies in design are encouraging some computer-savvy faculty to create their own complimentary courseware features for encouraging community and collaboration among students, as described by the following email response from a professor who teaches online at a large public university:

While I believe [collaboration is] extremely important, I don't believe there is a technological toolkit that adequately facilitates real collaboration (chat, threaded discussion are primitive). As a result, I have developed my own collaborative software which allows students to see and edit each other's work (in real time if desired). It is now just emerging from beta form into production form. [P06]

One survey respondent in the Stage One pilot study hinted at a process of shifting faculty attitudes toward online distance education in an email response as follows:

This is an excellent first-time survey. Distance learning involves a learning curve for faculty, too. It would be interesting to assay in a longitudinal study the change attitudes of faculty as s/he 'learns the ropes' and becomes more confident and knowledgeable about distance learning as a medium of education delivery. You are on to something important. Keep those surveys coming. [P03]

Conversely, two professors gave feedback about the advantages of Internet learning:

Properly designed online classes are an excellent way to increase student involvement in course materials, class discussion, and written work, increase level of analytical thinking about course, increase rigorous dialogue among students and professor. [P25]

Online courses tend to engage students with the material more-at least when writing is emphasized. In many cases, the number of students enrolled in traditional, on-campus courses makes it difficult to require a great deal of writing into a course's requirements. [P40]

Further discussion of the qualitative comments from all survey stages is presented in the next chapter.

#### *Stage Two: Student Exit Survey*

Data from the Stage One pilot study were used to shape and inform questions for a completely new and different survey designed to collect student responses about the presence of an "Online Learning Community." At the end of the fall 2003 semester, 67 out 134 students, a 50 percent response rate, from six online classes completed the twenty-four question Web-based survey. As shown in Table 4.5, student taking online courses in education, business, and theater from five different colleges and universities were represented. A copy of the Stage Two survey is available in Appendix B2.

Factor analysis was used to determine how questions from the Stage Two Student Exit Survey grouped together, revealing possible themes for each grouping. Three distinct factors were revealed using the exploratory factor analysis technique with Varimax rotation. This added another factor to the two factors extracted from the pilot

*Table 4.5. Information about the Stage Two sample.*

<u>Course</u>	<u>Institution</u>	<u>Grad/UG</u>	<u>Enrolled</u>	<u>Responses</u>
Education	University of Nevada, Las Vegas	Grad	16	11
Education	University of Nevada, Las Vegas	Grad	17	9
Business	Community Coll. Southern Nevada	UG	25	14
Humanities	Skagit Valley College (WA)	UG	30	4
Education	U. South Dakota	Grad	30	20
Education	U. Alaska Fairbanks	Grad	16	9
TOTAL:			134	67

study conducted in Stage One. Results in Table 4.6, show ten survey questions also known as "indicators" (Pett, 2003), factored together as Factor One. The ten survey questions that comprised Factor One were: "Expectations for course were clearly stated," "Communicated regularly with instructor," "Instructor incorporated ethics/character in course," "Instructor inspected writings for evidence of learning," "Had opportunity to help other students," "Material covered applicable in (student's) life," "Instructor knew me as unique individual," "Do's-and-don'ts for class were clearly stated," "Student challenged to defend position on issue," and "Instructor gave tips for best course experience." The reliability measure of internal consistency for Factor One, using the ten questions, was .919 (Cronbach's alpha).

Table 4.6. Factor analysis component matrix for Stage Two (N = 67).

<u>Survey Question</u>	<u>Factor 1</u>	<u>Factor 2</u>	<u>Factor 3</u>
Q1. Expectations for course were clearly stated.	<b>.867</b>	.179	-.015
Q2. Communicated regularly with instructor.	<b>.624</b>	.589	-.045
Q4. Instructor incorporated ethics/character in course.	<b>.689</b>	.146	.286
Q5. Instructor inspected writings for evidence of learning.	<b>.814</b>	.167	.206
Q6. Had opportunity to help other students.	<b>.712</b>	.108	.180
Q7. Material covered applicable in (student's) life.	<b>.822</b>	.231	.187
Q10. Instructor knew me as unique individual.	<b>.636</b>	.414	.309
Q11. Do's-and-don'ts for class were clearly stated.	<b>.824</b>	.022	.070
Q12. (Student) challenged to defend position on issue.	<b>.848</b>	.297	.169
Q23. Instructor gave tips for best course experience.	<b>.659</b>	.459	.084
Q8. Used discussion threads and postings.	.039	<b>.843</b>	.001
Q13. (Student) was encouraged to share ideas and experiences.	.294	<b>.770</b>	.206
Q14. Instructor shared ways of thinking about problems.	.079	<b>.854</b>	.266
Q15. Reasonable level of trust and confidentiality.	.513	<b>.653</b>	.318
Q16. Interaction between students was important.	.217	<b>.875</b>	.036
Q21. Back and forth e-mailing was important.	.096	<b>.845</b>	.172
Q24. Had opportunity to introduce self to class.	.391	<b>.689</b>	-.091
Q3. Had opportunity to work in a group.	.477	-.063	<b>.616</b>
Q9. Had opportunity to take leadership role.	.211	.084	<b>.827</b>
Q20. Had input into goals / expectations for course.	.069	.323	<b>.773</b>

Note. Shaded scores show indicator's component grouping.

Seven survey questions factored together as Factor Two, as depicted in Table 4.6. The seven questions grouped to form Factor Two were: "Used discussion threads and postings," "Student was encouraged to share ideas and experiences," "Instructor shared ways of thinking about problems," "Reasonable level of trust and confidentiality," "Interaction between students was important," "Back and forth e-mailing was important," and "Had opportunity to introduce self to class." Reliability for Factor Two was .898 (Cronbach's alpha). Finally, as shown in Table 4.6, three survey questions/indicators clustered together to form Factor Three. These three were: "Had opportunity to work in a group," "Had opportunity to take leadership role," and "Had input into goals / expectations for course." Reliability for the Factor Three, using the three survey questions, was .694 (Cronbach's alpha). Seventy one percent (71.4%) of total variance in the survey was explained by the three-factor configuration depicted in Table 4.6.

Building on the process used in the previous stage, a one-word label was again chosen to characterize a common theme for each group of clustered questions. Figure 16 shows the three factors: "Structure," "Communication," and "Responsibility." "Structure," the first factor, refers to the organization of the online class, including expectations, "do's-and-don'ts," and pedagogy. "Communication" is related to participation and familiarity: Students regularly e-mail each other and the professor, they share insights and express ideas using discussion postings, and a there exists a general sense that students are active participants in the course. "Responsibility," the third factor refers to students having self-motivation and maturity, as well as being accountable for their own learning. In order to prepare for a more concise survey for Stage Three, "Structure" was pared down to seven questions from ten. The seven questions were



selected because they had both the highest factor coefficient scores (refer to Table 4.6) and best face validity in the "Structure" grouping. Similarly, "Communication" was pared down to six questions in an effort to strengthen the measure.

*Figure 16.* Three factors from Stage Two, used in Stage Three survey development.

Factor 1 <b>STRUCTURE</b>	Factor 2 <b>COMMUNICATION</b>	Factor 3 <b>RESPONSIBILITY</b>
<ul style="list-style-type: none"> <li>• Q1. Expectations for the class were clearly stated.</li> <li>• Q4. The instructor incorporated ideas about ethics and ethical situations.</li> <li>• Q5. The instructor looked for course concepts and course-specific vocabulary when grading my writing assignments.</li> <li>• Q6. I had the opportunity to help other students.</li> <li>• Q7. Material covered was applicable in my own life.</li> <li>• Q11. "Do's-and-don'ts" for the class were clearly stated.</li> <li>• Q12. I was challenged to defend my position on an issue.</li> </ul>	<ul style="list-style-type: none"> <li>• Q8. We used discussion threads and posted messages.</li> <li>• Q13. (Student) was encouraged to share ideas and experiences.</li> <li>• Q14. The instructor shared with me his/her own ways of thinking about problems and problem solving.</li> <li>• Q16. Interaction between students was important.</li> <li>• Q21. Back-and-forth emailing was important.</li> <li>• Q24. I had the opportunity to introduce myself to the other students.</li> <li>• future question (Spring 2004)</li> </ul>	<ul style="list-style-type: none"> <li>• Q3. I had the opportunity to work in a group on a project or task.</li> <li>• Q9. I had the opportunity to take a leadership role in some event or task related to the course.</li> <li>• Q20. I had input into the goals and expectations for the course.</li> <li>• future question (Spring 2004)</li> <li>• future question (Spring 2004)</li> <li>• future question (Spring 2004)</li> <li>• future question (Spring 2004)</li> </ul>

Originally, 20 of 24 questions (83%) were included in the factor analysis results shown in Table 4.6; four survey questions did not factor into the construct. Survey question 17, "The material covered was relevant to the real world," question 18, "I had the freedom to learn the material in my own way," question 19, "We were encouraged to use Internet and library resources," and question 22, "I've been applying some of what I've learned to my life," were variables not salient to the interpretation of any of the three factors presented in Figure 16. Non-salience of variables, such as in questions 17, 18, 19,

and 22, is not unusual in exploratory factor analysis (Thompson, 2004). These questions were omitted from the survey in the next stage.

### *Report for Faculty*

As discussed in Chapter Three, following each stage of the study, a detailed report showing survey results for student responses was provided to the instructor. The average score for each of the three factors in the “Online Learning Community” construct was provided for each class and compared with the average for all courses. To illustrate, Figure 17 is an example of the first page of a report. The instructor can use the report to see how the "Structure" score compares with the total sample.

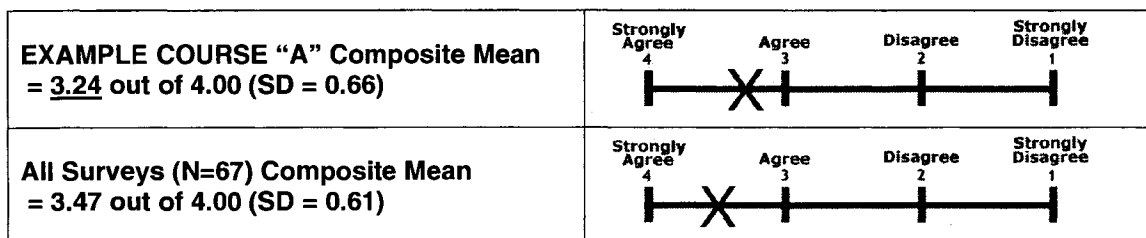
In the example, the course scored a 3.24 for the "Structure" factor compared to 3.47 on the factor for all courses in Stage Two. The survey uses a one-to-four Likert scale, with one representing "Strongly Disagree" and four representing "Strongly Agree." Factors were further broken down to show scores for each individual question. In some cases, an aggregate report for all classes in a department was provided to the department chair. The aggregate report provides a programmatic perspective of the online courses and is a nice alternative to the traditional student evaluation of individual professors. Examples of complete Stage Two reports for faculty are provided in Appendices D1 and D2.

Figure 17. Example faculty report, page 1.

**Online Learning Community Survey**  
**Example Course "A" (N=20)**

DiRamio 12/29/03

**Factor 1: "Structure"**



**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	20	3	4	3.55	.510
Q4	20	2	4	3.15	.587
Q5	16	3	4	3.44	.512
Q6	18	1	4	2.94	.639
Q7	20	2	4	3.50	.607
Q11	18	1	4	3.17	.857
Q12	20	1	4	2.95	.887
Valid N (listwise)	15				

**Outstanding "Structure" Elements**

(Scored above 0.50 SD of the All Surveys Composite Mean = >3.78)

\* None \*

**Room-for-Improvement? "Structure" Elements**

(Scored below 0.50 SD of the All Surveys Composite Mean = <3.17)

**Q4. The instructor incorporated ideas about ethics and ethical situations. (3.15)**

**Q6. I had the opportunity to help other students. (2.94)**

**Q12. I was challenged to defend my position on an issue. (2.95)**

Note: Survey uses a 1 to 4 (SD-D-A-SA) Likert Scale with a "No Opinion" option. "No Opinion" answers are disregarded in statistical computations.

### *Stage Three: Student Exit Survey*

Based on the results from the Stage Two Student Exit Survey, the "Online Learning Community" construct was established with three elements: "Structure," "Communication," and "Responsibility." At the end of the spring 2004 semester, 125 out of 225 originally enrolled students from eight online classes completed the eighteen question Web-based survey (55.6% response rate). As shown in Table 4.7, students were from education and business courses from three different institutions. An example of the Stage Three survey is available in Appendix B3.

*Table 4.7. Information about the Stage Three sample.*

<u>Course</u>	<u>Institution</u>	<u>Grad/UG</u>	<u>Enrolled</u>	<u>Responses</u>
Education	University of Nevada, Las Vegas	Grad	24	17
Education	University of Nevada, Las Vegas	Grad	16	7
Education	University of Nevada, Las Vegas	Grad	13	6
Business	University of Nevada, Las Vegas	UG	29	19
Business	University of Nevada, Las Vegas	UG	28	18
Business	University of Nevada, Las Vegas	UG	57	31
Education	U. South Dakota	Grad	33	17
Business	Community Coll. Southern Nevada	UG	25	10
TOTAL:			225	125

Factor analysis was used to determine how indicators from the Stage Three survey grouped together. Again, using the exploratory factor analysis technique, three distinct factors were revealed. Results in Table 4.8, show five survey questions factored together as Factor One. The five survey questions that comprised Factor One were: "Had opportunity to work in a group," "Had opportunity to help other students,"

*Table 4.8. Factor analysis component matrix for Stage Three (N = 125).*

<u>Survey Question</u>	<u>Factor 1</u>	<u>Factor 2</u>	<u>Factor 3</u>
Q2. Had opportunity to work in a group.	<b>.856</b>	.149	.175
Q4. Had opportunity to help other students.	<b>.784</b>	.131	.307
Q7. Had opportunity to take leadership role.	<b>.756</b>	.386	.173
Q12. Interaction between students was important.	<b>.737</b>	.435	-.063
Q18. Had opportunity to introduce self to class.	<b>.550</b>	.310	.113
Q14. Instructor inspected writings for evidence of learning.	.281	<b>.837</b>	.128
Q11. Instructor shared ways of thinking about problems.	.305	<b>.827</b>	.200
Q9. Was empowered to study topics of interest.	.347	<b>.656</b>	.217
Q10. (Student) was encouraged to share ideas and experiences.	.517	<b>.642</b>	.032
Q3. It was important to be self-motivated.	.171	.066	<b>.773</b>
Q1. Expectations for course were clearly stated.	.275	.035	<b>.725</b>
Q13. (Student) responsible for own learning.	-.301	.506	<b>.635</b>
Q8. Do's-and-don'ts for class were clearly stated.	.158	.458	<b>.574</b>

Note. Shaded scores show survey question's factor grouping.

"Had opportunity to take leadership role," "Interaction between students was important," and "Had opportunity to introduce self to class." The reliability measure of internal consistency for Factor One, using the five survey questions, was .880 (Cronbach's alpha). The one word label selected to represent Factor One was "Communication."

The four questions grouped to form Factor Two were (Table 4.8): "Instructor inspected writings for evidence of learning," "Instructor shared ways of thinking about problems," "Was empowered to study topics of interest," and "(Student) was encouraged to share ideas and experiences." Reliability for Factor Two was .851 (Cronbach's alpha). Factor Two was named "Structure."

Finally, Table 4.8 shows that four survey questions from Stage Three clustered together to form Factor Three. These four were: "It was important to be self-motivated," "Expectations for course were clearly stated," "(Student) responsible for own learning," and "Do's-and-don'ts for class were clearly stated." Reliability for the Factor Three was .700. Factor Three was labeled "Responsibility." Figure 18 shows the three indicators: "Communication," "Structure," and "Responsibility." Sixty eight percent (68.1%) of total variance in the Stage Three survey was explained by the three-factor configuration depicted in Figure 18.

Figure 18. Three factors from Stage Three, used in Stage Four survey development.

Factor 1 <b>COMMUNICATION</b>	Factor 2 <b>STRUCTURE</b>	Factor 3 <b>RESPONSIBILITY</b>
<ul style="list-style-type: none"> <li>• Q2. Had opportunity to work in a group.</li> <li>• Q4. Had opportunity to help other students.</li> <li>• Q7. Had opportunity to take leadership role.</li> <li>• Q12. Interaction between students was important.</li> <li>• Q18. Had opportunity to introduce self to class.</li> <li>• future question (Summer 2004)</li> <li>• future question (Summer 2004)</li> </ul>	<ul style="list-style-type: none"> <li>• Q14. Instructor inspected writings for evidence of learning.</li> <li>• Q11. Instructor shared ways of thinking about problems.</li> <li>• Q9. Was empowered to study topics of interest.</li> <li>• Q10. (Student) was encouraged to share ideas and experiences.</li> <li>• future question (Summer 2004)</li> <li>• future question (Summer 2004)</li> <li>• future question (Summer 2004)</li> </ul>	<ul style="list-style-type: none"> <li>• Q3. It was important to be self-motivated.</li> <li>• Q1. Expectations for course were clearly stated.</li> <li>• Q13. (Student) responsible for own learning.</li> <li>• Q8. Do's-and-don'ts for class were clearly stated.</li> <li>• future question Summer 2004)</li> <li>• future question Summer 2004)</li> <li>• future question Summer 2004)</li> </ul>

Results from the factor analysis in Stage Three were mixed with regard to the effort to strengthen the measure. Several indicators moved from one factor to another. For example, both survey questions "Expectations for course were clearly stated" and "Do's-and-don'ts for class were clearly stated" moved from the Structure factor in Stage Two to the Responsibility factor in Stage Three. Moreover, five of eighteen questions (27%) did not factor into the three factors. These were "Material covered applicable in (student's) life," "Used discussion threads and postings," "(Student) challenged to defend position on issue," "Had input into goals / expectations for course," and "Back and forth e-mailing was important." These questions were omitted from the survey in the next stage in order to strengthen the measure.

#### *Stage Four: Student Exit Survey*

At the end of the summer semester of 2004, a different population of students was asked to participate in the Web-based, 21-question “Online Learning Community” survey. Three hundred forty seven students out of a total sample of 833 participated in the Stage Four survey (41.7% response rate). Students were all from a single institution—the University of Nevada, Las Vegas—and represented 19 online courses including education, business, and social sciences. As shown in Table 4.9, courses were grouped into three categories: Education, Business/Professional, and Social Science/Other. One goal of Stage Four's “1 x 3” design was to gather sufficient data to

*Table 4.9.* Information about the Stage Four sample.

<u>Discipline (courses)</u>	<u>Grad/UG</u>	<u>Enrolled</u>	<u>Responses</u>
Education Eight (8) courses including: Educational Leadership Educational Technology Physical Education	Grad	203	98
Business/Professional Nine (9) courses including: Organizational Development Operations Management Hospitality Management	both UG & Grad	353	119
Social Science/Other Seven (7) courses including: Political Science Criminal Justice History Anthropology	both UG & Grad	277	130
	TOTAL:	833	347



check for reliability across the three academic discipline groups. A copy of the survey used for Stage Four is provided in Appendix B4.

Factor analysis was again used to determine how survey questions from the Stage Four Student Exit Survey grouped together. Using exploratory factor analysis, three distinct factors were revealed. Results in Table 4.10 show four survey questions factored together as Factor One. Factor analysis results for Factor One in Stage Four were nearly identical to those previously obtained in Stage Three. The four survey questions that comprised Factor One were: "Had opportunity to work in a group," "Had opportunity to help other students," "Had opportunity to take leadership role," and "Interaction between students was important." The reliability measure of internal consistency for Factor One, using the four survey questions, was .819 (Cronbach's alpha). The one-word label or simple phrase selected to represent Factor One changed slightly from Stage Three in order to better capture the meaning of the grouped questions. The new name for Factor One is "Connections."

Five questions factored together as Factor Two in the Stage Four survey, as shown in Table 4.10 results. The five questions that grouped to form Factor Two were: "Expectations for course were clearly stated," "Do's-and-don'ts for class were clearly stated," "Instructor shared ways of thinking about problems," "Schedule or calendar (of key dates) provided," and "Instructor took role of mentor / guiding student." Cronbach's alpha internal reliability score was .821 for Factor Two. Factor Two's name was changed to "Instructor's Role."

Table 4.10 also shows that four survey questions from Stage Four clustered together to form Factor Three. These four were: "It was important to be self-motivated,"

"Being able to work independently was vital," "(Student) needed to manage time effectively," and "(Student) ability to organize/prioritize important." The reliability or internal consistency score was .703 for Stage Four's Factor Three. Factor Three was also labeled a bit more precisely as "Student's Responsibility."

*Table 4.10. Factor analysis component matrix for Stage Four (N = 347).*

<u>Survey Question</u>	<u>Connections</u>	<u>Instructor's Role</u>	<u>Student's Respons.</u>
Q2. Had opportunity to work in a group.	<b>.791</b>	.153	.083
Q4. Had opportunity to help other students.	<b>.746</b>	.203	.097
Q7. (Student) took leadership role in task/event.	<b>.839</b>	.048	.123
Q12. Interaction between students was important.	<b>.803</b>	.223	.096
Q1. Expectations for course were clearly stated.	.034	<b>.756</b>	.324
Q8. Do's-and-don'ts for class were clearly stated.	.347	<b>.692</b>	.090
Q11. Instructor shared ways of thinking about problems.	.159	<b>.744</b>	.073
Q15. Schedule or calendar (of key dates) provided.	.023	<b>.683</b>	.388
Q16. Instructor took role of mentor / guiding student.	.282	<b>.736</b>	.115
Q3. It was important to be self-motivated.	.080	.113	<b>.753</b>
Q5. Being able to work independently was vital.	-.098	.293	<b>.632</b>
Q18. (Student) needed to manage time effectively.	.198	.122	<b>.782</b>
Q21. (Student) ability to organize/prioritize important.	.265	.171	<b>.760</b>

Note. Shaded scores show indicator's factor grouping.

Figure 19 shows the three factors as labeled: "Connections," "Instructor's Role," and "Student's Responsibility." Sixty three percent (63.3%) of total variance in the Stage

Four survey was explained by the three-factor configuration depicted in Figure 19. Eight of 21 survey questions (38%) did not factor into the three-factor construct from Stage Four.

Figure 19. Three factors from Stage Four, used in Stage Five survey development.

----- "Online Learning Community" -----

Factor 1 <b>CONNECTIONS</b>	Factor 2 <b>INSTRUCTOR'S ROLE</b>	Factor 3 <b>STUDENT'S RESPONSIBILITY</b>
Participation and familiarity: helping other students, group work, taking the lead, student interaction.	How the online course is organized, including: expectations, "do's-and-don'ts," and instructor duties.	Motivation and maturity: students accountable for own learning, empowered to learn in a manner that works best for them.
Q2. I had the opportunity to work in a group on a project or task.	Q1. Expectations for the class were clearly stated.	Q3. It was important to be self-motivated.
Q4. I had the chance to help other students.	Q8. "Do's-and-don'ts" for the class were provided.	Q5. Being able to work independently was vital.
Q7. I took a leadership role in some task or event related to the course.	Q11. The instructor shared with me his/her own ways of thinking about	Q18. I needed to manage my time effectively.
Q12. Interaction between students was important.	Q15. A schedule or calendar was provided showing dates for assignments, tests, etc.	Q21. The ability to organize/prioritize was vital.
· future question (Fall 2004)	Q16. The instructor often took the role of mentor, guiding me through the course.	· future question (Fall 2004)

Table 4.11 shows the Stage Four construct factor scores for each survey question across the three academic disciplines: Education, Business/Professional, and Social Science/Other. There are thirteen survey questions in the construct and a total of 39 possible scores across the three disciplines (3 x 13 = 39).

Table 4.11. Reliability and factor consistency across disciplines for Stage Four.

Question	All Surveys (N = 347)	Education (n = 98)	Bus./Prof. (n = 119)	Soc. Sci./Other (n = 130)
Factor One "Connections"				
Q2	<b>.791</b>	<b>.776</b>	<b>.871</b>	<b>.593</b>
Q4	<b>.746</b>	<b>.714</b>	<b>.672</b>	<b>.844</b>
Q7	<b>.839</b>	<b>.785</b>	<b>.846</b>	<b>.788</b>
Q12	<b>.803</b>	<b>.815</b>	<b>.706</b>	<b>.861</b>
Rel. $\alpha$	.819	.780	.812	.797
Comm. Var.	22.2%	23.7%	27.9%	26.7%
Factor Two "Instructor's Role"				
Q1	<b>.756</b>	<b>.708</b>	<b>.817</b>	<b>.785</b>
Q8	<b>.692</b>	No (.467)	<b>.835</b>	<b>.562</b>
Q11	<b>.744</b>	<b>.862</b>	<b>.746</b>	No (.436)
Q15	<b>.683</b>	<b>.518</b>	<b>.821</b>	<b>.783</b>
Q16	<b>.736</b>	<b>.788</b>	<b>.598</b>	<b>.659</b>
Rel. $\alpha$	.821	.791	.895	.761
Comm. Var.	22.1%	19.7%	22.1%	22.6%
Factor Three "Student's Responsibility"				
Q3	<b>.753</b>	<b>.759</b>	<b>.724</b>	No (.429)
Q5	<b>.632</b>	<b>.515</b>	<b>.687</b>	<b>.774</b>
Q18	<b>.782</b>	<b>.498</b>	<b>.865</b>	<b>.836</b>
Q21	<b>.760</b>	No (.281)	<b>.771</b>	<b>.810</b>
Rel. $\alpha$	.703	.496	.799	.672
Comm. Var.	19.0%	14.2%	21.8%	14.4%
Total Comm. Var. Explained	63.3%	57.6%	71.8%	68.7%

Note. Shaded score shows survey question's inclusion in factor grouping.

Table 4.11 shows that factor scores held in 35 of 39 positions (89.7%) across the disciplines. Reliability scores, using Cronbach's alpha, were greater than .700 in seven of nine factors. "Total common variance explained" scores were greater than 50 percent in all cases.

The Stage Four construct demonstrated factor consistency in the Business/Professional discipline category, with all factor coefficients reporting at .500 or greater. While the Social Science/Other category did not hold with perfect consistency, reliability scores for the three factors were near or exceeded .700 and the "total common variance explained" was 68.7 percent. Of the three academic disciplines, the Education category was the least consistent, with problems in all three measures: Factor consistency, reliability, and "total variance explained." A discussion of the interpretation of the overall consistency and reliability of the measure will be presented in the next chapter.

#### *Stage Five: Student Exit Survey*

At the end of the Fall 2004 semester, a final sample of students was asked to participate in the survey. Students were from three institutions—University of Nevada, Las Vegas, University of Nebraska-Lincoln, and Florida State University—and represented 63 different courses including education, business, social sciences, and others. Seven hundred nine students out of a total sample of 1,623 participated in the Stage Five survey (43.7% response rate).

The planned participating sample of 1,125 students set forth in Chapter Three was not achieved, likely due to both the higher than expected drop rates in many classes and

the unanticipated non-response from eleven classes where the instructor initially agreed to participate. All but one of the non-response classes were from the two "remote" universities, University of Nebraska-Lincoln and Florida State University. Since there was better buy-in locally at the University of Nevada, Las Vegas, it appears that participation would have benefited from a face-to-face meeting with each professor at the University of Nebraska-Lincoln and Florida State University. A copy of the survey used for Stage Five is provided in Appendix B5.

*Table 4.12.* Breakdown of the Stage Five sample by institution and discipline.

<u>Institution</u>	<u>Education</u>	<u>Business/ Professional</u>	<u>Social Sci. /Other</u>	<u>Total</u>
University of Nevada, Las Vegas	66	76	151	293
University of Nebraska-Lincoln	96	82	39	217
Florida State University	77	62	60	199
	<hr/>	<hr/>	<hr/>	<hr/>
TOTAL:	239	220	250	709

Factor analysis was again used to determine how responses to survey questions from the Stage Five Student Exit Survey grouped together. Three distinct factors were revealed using the exploratory factor analysis. Results in Table 4.13 shows five survey questions factored together as Factor One. The first factor to load explains the most common variance in the data and is the most reliable (Thompson, 2004). The five survey questions that comprised Factor One were: "Do's-and-don'ts for class were clearly stated," "Student was encouraged to communicate ideas and experiences," "Instructor

Table 4.13. Factor analysis component matrix for Stage Five (N = 709).

<u>Survey Question</u>	<u>Instructor's Role</u>	<u>Connections</u>	<u>Student's Respons.</u>
Q8. Do's-and-don'ts for class were clearly stated.	<b>.696</b>	.055	.157
Q10. Student was encouraged to communicate ideas and experiences.	<b>.575</b>	.380	.165
Q11. Instructor shared ways of thinking about problems.	<b>.770</b>	.159	.081
Q14. Instructor inspected writings for evidence of learning.	<b>.676</b>	.185	.141
Q16. Instructor took role of mentor / guiding student.	<b>.781</b>	.181	.076
Q2. Had opportunity to work in a group.	.079	<b>.830</b>	.026
Q4. Had opportunity to help other students.	.183	<b>.753</b>	.132
Q7. Student took leadership role in task/event.	.174	<b>.751</b>	-.028
Q12. Interaction between students was important.	.259	<b>.742</b>	.106
Q3. It was important to be self-motivated.	-.014	.107	<b>.789</b>
Q9. Student ability to organize/prioritize important.	.254	.116	<b>.730</b>
Q13. Student responsible for their own learning.	.058	-.056	<b>.715</b>
Q18. Student needed to manage time effectively.	.274	.087	<b>.717</b>

Note. Shaded scores show question's factor grouping.

shared ways of thinking about problems," "Instructor inspected writings for evidence of learning," and "Instructor took role of mentor / guiding student." The reliability measure of internal consistency for Factor One, using the five survey questions, was .794 (Cronbach's alpha). The one-word label or simple phrase selected to represent the group of questions that captured the meaning of Factor One remains "Instructor's Role."

Four questions factored together as Factor Two in the Stage Five survey, as shown in Table 4.13 results. The four indicators that grouped to form Factor Two were: "Had opportunity to work in a group," "Had opportunity to help other students," "(Student) took leadership role in task/event," and "Interaction between students was important." Cronbach's alpha internal reliability score was .804 for Factor Two. The label provided for the questions that comprised Factor Two remained "Connections." Table 4.13 also shows that four survey questions from Stage Five clustered together to form Factor Three. These four were: "It was important to be self-motivated," "Student ability to organize/prioritize important," "Student responsible for their own learning," and "Student needed to manage time effectively." The reliability or internal consistency score was .738 for Stage Five's Factor Three. The Factor Three label remained "Student's Responsibility." The "total common variance explained" score for this construct, including all three factors, was nearly 60 percent (59.2%).

Table 4.14 shows the Stage Five construct factor scores for each survey question across the three institutions: University of Nevada, Las Vegas, University of Nebraska-Lincoln, and Florida State University. Similar to Stage Four, there were thirteen survey questions in the construct and a total of 39 possible scores across the three disciplines ( $3 \times 13 = 39$ ). Table 4.14 shows that factor scores held in 37 of 39 positions (94.9%) across the institutions. Reliability scores, using Cronbach's alpha, were acceptable at .700 or greater for seven of the nine factors. "Total common variance explained" scores were 50 percent or greater in all cases.



Table 4.14. Reliability and factor consistency across institutions for Stage Five.

<u>Question</u>	<u>All Surveys (N = 709)</u>	<u>UNLV (n = 293)</u>	<u>U Nebraska (n = 217)</u>	<u>Florida State (n = 199)</u>
Factor One " Instructor's Role "				
Q8	<b>.696</b>	<b>.755</b>	<b>.572</b>	<b>.719</b>
Q10	<b>.575</b>	<b>.704</b>	no (.455)	<b>.702</b>
Q11	<b>.770</b>	<b>.681</b>	<b>.813</b>	<b>.790</b>
Q14	<b>.676</b>	<b>.575</b>	<b>.685</b>	<b>.702</b>
Q16	<b>.781</b>	<b>.714</b>	<b>.754</b>	<b>.822</b>
Rel. $\alpha$	.794	.815	.736	.820
Comm. Var.	21.2%	22.1%	18.4%	23.7%
Factor Two "Connections"				
Q2	<b>.830</b>	<b>.780</b>	<b>.835</b>	<b>.747</b>
Q4	<b>.753</b>	<b>.742</b>	<b>.730</b>	<b>.738</b>
Q7	<b>.751</b>	<b>.732</b>	<b>.803</b>	<b>.745</b>
Q12	<b>.742</b>	<b>.682</b>	<b>.829</b>	no (.433)
Rel. $\alpha$	.804	.788	.833	.632
Comm. Var.	20.4%	20.3%	21.9%	14.8%
Factor Three "Student's Responsibility"				
Q3	<b>.789</b>	<b>.799</b>	<b>.769</b>	<b>.766</b>
Q9	<b>.730</b>	<b>.739</b>	<b>.733</b>	<b>.721</b>
Q13	<b>.715</b>	<b>.798</b>	<b>.510</b>	<b>.689</b>
Q18	<b>.717</b>	<b>.683</b>	<b>.752</b>	<b>.741</b>
Rel. $\alpha$	.738	.782	.643	.703
Comm. Var.	17.6%	18.7%	16.0%	18.1%
Total Comm. Var. Explained	59.2%	61.1%	56.3%	56.6%

Note. Shaded score shows survey question's inclusion in factor grouping.

The construct demonstrated factor consistency for the University of Nevada, Las Vegas sample ( $n = 292$ ), with all factor scores reporting acceptably, at .500 or greater. While one of the factors of the University of Nebraska-Lincoln sample ( $n = 214$ ) had a coefficient that scored poorly ( $Q10 < .500$ ), both reliability and "total common variance explained" scores were acceptable, at greater than .700 and greater than 50 percent respectively. Similarly, the Florida State University sample had one factor coefficient score poorly ( $Q12 < .500$ ), with both reliability and "total common variance explained" scoring greater than .700 and greater than 50 percent respectively. A discussion and interpretation of the consistency and reliability of the measure, including the across-institutions analysis, is presented in the next chapter.

Table 4.15 depicts how the Stage Five construct scored for each of the survey questions across three academic disciplines: Education, Business/Professional, and Social Science/Other. Out of the total of 39 possible factor scores across the three disciplines, Table 4.15 shows that 38 of 39 factors (97.4%) scored acceptably, with coefficients greater than .500, across the disciplines. Reliability scores, using Cronbach's alpha, were acceptable at greater than .700 across all disciplines. In addition, "total common variance explained" scores were greater than 50 percent in all cases.

Factor consistency was demonstrated in both the Education ( $n = 237$ ) and the Social Science/Other ( $n = 248$ ) categories, with all factor scores reporting acceptably with coefficients greater than .500. One factor (Q10) in the Business/Professional sample ( $n = 217$ ) scored poorly with a coefficient less than .500, but both reliability and "total common variance explained" scores were acceptable, at greater than .700 and greater than 50

Table 4.15. Reliability and factor consistency across disciplines for Stage Five.

Question	All Surveys (N = 709)	Education (n = 239)	Bus./Prof. (n = 220)	Soc. Sci./Other (n = 250)
Factor One " Instructor's Role "				
Q8	.696	.606	.711	.718
Q10	.575	.633	no (.407)	.709
Q11	.770	.822	.637	.783
Q14	.676	.673	.690	.639
Q16	.781	.821	.802	.753
Rel. $\alpha$	.794	.801	.760	.815
Comm. Var.	21.2%	22.6%	19.5%	22.3%
Factor Two "Connections"				
Q2	.830	.768	.879	.798
Q4	.753	.812	.612	.765
Q7	.751	.722	.783	.693
Q12	.742	.670	.684	.734
Rel. $\alpha$	.804	.767	.779	.777
Comm. Var.	20.4%	18.8%	20.8%	19.2%
Factor Three "Student's Responsibility"				
Q3	.789	.774	.844	.743
Q9	.730	.673	.790	.721
Q13	.715	.717	.680	.725
Q18	.717	.655	.734	.753
Rel. $\alpha$	.738	.710	.760	.741
Comm. Var.	17.6%	16.9%	18.8%	17.6%
Total Comm. Var. Explained	59.2%	58.3%	59.1%	59.1%

Note. Shaded score shows survey question's inclusion in factor grouping.

percent respectively. Discussion of the across-discipline consistency and reliability of the measure will be presented in the next chapter.

Consistent with the project scope, the three largest sub-samples were checked for construct reliability and consistency. As shown in Table 4.16, the three sub-samples were: University of Nevada, Las Vegas-Social Science/Other ( $n = 151$ ), University of Nebraska-Education ( $n = 96$ ), and University of Nebraska-Business/Professional ( $n = 82$ ). Because only one of these sub-samples has a size of 100 or more, both the University of Nebraska-Education and University of Nebraska-Business/Professional sub-samples were checked for communalities of 0.60, with scores reported in Table 4.15. Eighteen out of 26 communalities scored 0.60 or greater.

Table 4.16 shows that, out of the total of 39 possible factor scores across the three sub-samples, 36 (92.3%) scored acceptably, with coefficients greater than .500. The construct showed factor consistency across the University of Nevada, Las Vegas-Social Science/Other classes with all reporting all factor coefficients at greater than .500. Reliability was acceptable at greater than .700 for all but one of the nine possible factor scores. "Total common variance explained" scores were greater than 50 percent in all cases. Tables reporting factor consistency, reliability, "total variance explained," and communalities scores for all nine sub-samples in the study are available in Appendix E. Discussion of sub-sample results and their implications for the overall assessment of consistency and reliability for the measure will be presented in the next chapter.

Table 4.16. Reliability and factor consistency across three sub-samples, Stage Five.

Question	All Surveys (N = 709)	UNLV Soc. Sci./Other (n = 151)	Nebraska Education (n = 96)	Nebraska Bus./Prof. (n = 82)
Factor One "Instructor's Role "				
Q8	<b>.696</b>	<b>.780</b>	no (.246) [.42]	<b>.693</b> [.51]
Q10	<b>.575</b>	<b>.688</b>	<b>.541</b> [.41]	no (.231) [.55]
Q11	<b>.770</b>	<b>.838</b>	<b>.829</b> [.71]	<b>.632</b> [.66]
Q14	<b>.676</b>	<b>.634</b>	<b>.626</b> [.49]	<b>.718</b> [.65]
Q16	<b>.781</b>	<b>.793</b>	<b>.829</b> [.69]	<b>.780</b> [.64]
Rel. $\alpha$	.794	.792	.747	.747
Comm. Var.	21.2%	24.2%	19.3%	18.9%
Factor Two "Connections"				
Q2	<b>.830</b>	<b>.811</b>	<b>.771</b> [.69]	<b>.905</b> [.83]
Q4	<b>.753</b>	<b>.749</b>	<b>.818</b> [.71]	<b>.498</b> [.40]
Q7	<b>.751</b>	<b>.815</b>	<b>.734</b> [.65]	<b>.845</b> [.75]
Q12	<b>.742</b>	<b>.751</b>	<b>.750</b> [.63]	<b>.824</b> [.78]
Rel. $\alpha$	.804	.751	.793	.826
Comm. Var.	20.4%	15.8%	20.2%	20.4%
Factor Three "Student's Responsibility"				
Q3	<b>.789</b>	<b>.821</b>	<b>.776</b> [.65]	<b>.814</b> [.69]
Q9	<b>.730</b>	<b>.771</b>	<b>.721</b> [.56]	<b>.871</b> [.78]
Q13	<b>.715</b>	<b>.905</b>	<b>.543</b> [.43]	DNF [.67]
Q18	<b>.717</b>	<b>.837</b>	<b>.814</b> [.71]	<b>.816</b> [.75]
Rel. $\alpha$	.738	.759	.725	.635
Comm. Var.	17.6%	17.0%	20.2%	18.7%
Total Comm. Var. Explained	59.2%	57.0%	59.7%	58.0%

Notes. Communalities scores for sub-samples <100 shown bracketed beneath associated score.  
(DNF) Indicates "Did not factor" / question was not included in analysis.

*Qualitative Responses from Students.* The Stage Five survey invited student comments. Students were asked, "If you have any comments about this online course, please feel free to submit your comments below," and a text box was provided to collect the information off the Web page. One hundred thirty two (132) qualitative responses were recorded. The student feedback was coded based on whether the tone was generally "Positive" (n = 64), generally "Negative" (n = 40), or "Neutral or Mixed" (n = 28). For example, one of the student comments, coded as "Positive," read:

Excellent use of the 'lecturettes' to tie the subject matter together. Those were invaluable! Liked the way the course was set up (three papers, tests each week, and discussions). Enjoyed the course and learned quite a bit about myself and those I interact with. [286]

In a response coded as "Negative," a student offered this observation:

I was incredibly disappointed with this course. My e-mails went unanswered and many times I needed help that I was unable to get. The tests were far too nitpicky and many times the group discussion postings were irrelevant to the course. By far my biggest disappointment with the course was the lack of feedback I received from the teacher. I really needed some help. [253]

In a "Neutral or Mixed" response, the student typically included both positive and negative comments about the course or offered general feedback about online courses and Internet learning, such as "student interaction is important in a online course."

Mean scores for the survey questions were compared between the two groups, "Positive" and "Negative," using a t-test. Differences between the two groups are given in Table 4.17. The importance of the results presented in Table 4.17 is that they give clues to differences between positive or negative student experiences in an online class. Significant differences were found for 16 of the 18 survey questions used in Stage Five.

As shown in Table 4.17, the top five largest differences between the "Positive" and "Negative" groups occurred in questions associated with the "Instructor's Role"

*Table 4.17.* Survey questions showing differences between Likert scores for students with positive (n = 64) versus negative (n = 40) comments about the online course, rank ordered by largest differences.

Rank	Survey Question (abbreviated)	Mean Likert Score Student Comment		Score Diff.	Sig.
		Positive	Negative		
1	Q16. Instructor took role of mentor-guide	3.30 (.66)	1.89 (.86)	1.41	<.001
2	Q11. Instructor shared ways of thinking	3.44 (.74)	2.35 (.95)	1.08	<.001
3	Q8. Do's-and-don'ts for class clearly stated	3.45 (.62)	2.46 (.84)	0.99	<.001
4	Q10. (Student) encouraged to communicate	3.62 (.52)	2.65 (.92)	0.97	<.001
5	Q1. Expectations for the class clearly stated	3.67 (.51)	2.73 (.91)	0.95	<.001
6	Q2. Had opportunity to work in a group	3.32 (.89)	2.38 (1.14)	0.94	<.001
7	Q14. Instructor inspected writings for learning	3.54 (.50)	2.73 (.96)	0.81	<.001
8	Q6. (Student) had input into goals / expectations	2.68 (.89)	1.89 (.71)	0.79	<.001
9	Q12. Interaction between students was important	3.23 (.78)	2.45 (1.03)	0.78	<.001
10	Q4. Had opportunity to help other students	3.30 (.54)	2.58 (.97)	0.72	<.001
11	Q15. (Course) schedule / calendar provided	3.78 (.52)	3.10 (.98)	0.68	<.001
12	Q7. (Student) took leadership role in task/event	3.05 (.91)	2.55 (.87)	0.50	.018
13	Q17. Introduced self to the other students	3.58 (.59)	3.18 (.73)	0.40	.004
14	Q9. (Student) ability to organize / prioritize	3.73 (.45)	3.35 (.74)	0.38	.001
15	Q5. Ability to work independently was vital	3.73 (.52)	3.41 (.98)	0.32	.017
16	Q18. (Student) needed to manage time	3.78 (.42)	3.53 (.64)	0.26	.015

Notes. Standard deviation score shown in parentheses beneath associated mean score.  
Likert scale (1-4) used: Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1).  
Q3 and Q13 did not show significant differences between mean Likert scores (Sig. > .05).  
Significance level (Sig.) is two-tailed.

factors of the "Online Learning Community" measure. For example, as indicated in Table 4.17, survey question 16, "The instructor often took the role of mentor, guiding me through the course," showed the largest difference in mean scores (1.41) between students who commented positively versus negatively. Other important differences of note, all associated with the "Instructor's Role" factor, were found in question 11, "Instructor shared ways of thinking" (1.01), question 8, "Do's-and-don'ts for class clearly stated" (0.99), question 10, "(Student) encouraged to communicate" (0.97), and question 1, "Expectations for the class clearly stated" (0.95). Another significant difference between the "Positive" and "Negative" groups occurred in a question 2, "Had opportunity to work in a group" (0.94), associated with the "Connections" factor of the "Online Learning Community" measure. Question 2 also had the largest standard deviation scores ( $SD_{pos} = .89$ ,  $SD_{neg} = 1.14$ ) in the survey, indicating differing views and least agreement among students about group work in an online class.

*Revised Report for Faculty.* Based on feedback from professors who received a faculty report during the earlier stages, a revised and improved faculty report was developed for Stage Five. Once again, the score for each of the thirteen factor in the "Online Learning Community" measure was provided for each class and compared with the average for all courses, however, in this new report, the results were presented in a more concise manner as recommended. Figure 20 gives an example of the Stage Five faculty report. In the example, the course scored a 1.64 for the "group work" factor compared to 3.04 for all courses in Stage Five. Comments were provided for the instructor to provide more explanation of the factors of interest.



Figure 20. Example of the Stage Five faculty report.

## Online Learning Community Survey

2/23/2005

Example course(n = 36)

		All Surveys (N=709)			All Surveys (N=709)			Note if 0.5 SD above or below the mean for all surveys
Survey Statement		Factor Structure Coefficients	Reliability $\alpha$	Variance Explained	Mean Scores	SD	Your Course	
Instructor's Role	Q8. Do's-and-don'ts for class were clearly stated.	0.696	0.794	21.2%	3.20	0.73	3.24	*
	Q10. Student encouraged to communicate ideas / experiences	0.575			3.46	0.72	2.86	
	Q11. Instructor shared ways of thinking about problems.	0.770			3.18	0.84	2.90	
	Q14. Instructor inspected writings for evidence of learning.	0.676			3.36	0.89	3.05	
	Q16. Instructor took role of mentor / guiding student.	0.781			2.91	0.86	2.56	
Connections	Q2. I had the opportunity to work in a group on a project or task.	0.930	0.804	20.4%	3.04	1.06	1.65	*
	Q4. I had the chance to help other students	0.753			2.98	0.83	1.94	*
	Q7. I took a leadership role in some task or event related to the course.	0.751			2.84	0.93	2.13	*
	Q12. Interaction between students was important.	0.742			3.06	0.92	1.85	*
Student's Responsibility	Q3. It was important to be self-motivated.	0.789	0.738	17.6%	3.84	0.39	3.78	*
	Q9. The ability to organize/prioritize was vital.	0.730			3.66	0.54	3.37	
	Q13. Student responsible for their own learning.	0.715			3.67	0.53	3.63	
	Q18. I needed to manage my time effectively.	0.717			3.73	0.51	3.56	
Total:				59.2%				
Comments								
Q10. Instructor encouraging students to share ideas and experiences builds community in an online course!								
Scored a bit low on the "Connections" factors								
Q2. My study shows that group work might be a hassle... but WORTH IT in terms of community building/engagement.								
Q4. Students helping other students builds community and increases engagement.								
Q7. Study shows opportunity for leadership role part of building community...merits further research.								
Q12. Student interaction... my study and others show VERY IMPORTANT for building community online.								
Q9. Important for instructor to emphasize student responsibility... merits further research.								

## Conclusion

The "Online Learning Community" framework depicted in Figure 21 represents the culmination of an analysis of 1,295 surveys, collected in five stages, from 96 online classes at seven colleges and universities. In some form, the three-factor framework—"Instructor's Role," "Connections," and "Student's Responsibility"—has been tested repeatedly as a survey measure, checking for validity, reliability, and consistency

*Figure 21.* "Online Learning Community" construct, with three factors and associated indicators.

Factor 1 <b>INSTRUCTOR'S ROLE</b>	Factor 2 <b>CONNECTIONS</b>	Factor 3 <b>STUDENT'S RESPONSIBILITY</b>
How the online course is organized, including: course expectations, virtual classroom rules, and instructor duties.	Participation and familiarity: helping other students, group work, taking the lead, student interaction.	Motivation and maturity: students accountable for own learning, empowered to learn in a manner that works best for them.
<p>1. Instructor took the role of mentor, guiding students through the course.</p> <p>2. Instructor shared ways of thinking about problems and problem-solving with students.</p> <p>3. "Do's-and-don'ts" for the class were provided.</p> <p>4. Instructor looked for course concepts and course-specific vocabulary when grading student writing assignments.</p> <p>5. Instructor encouraged students to share their ideas and experiences.</p>	<p>1. Student had the opportunity to work in a group on a project or task.</p> <p>2. Student had the chance to help other students.</p> <p>3. Student took a leadership role in some task or event related to the course.</p> <p>4. Interaction between students was important.</p>	<p>1. It was important to be self-motivated.</p> <p>2. The ability to organize and prioritize was vital.</p> <p>3. Student needed to manage time effectively.</p> <p>4. Student was responsible for own learning.</p>

at each stage of development. The construct includes thirteen indicators across the three factors. The "total common variance explained" score for the final version of the construct as depicted in Figure 21 is nearly 60 percent (59.2%).

The study produced a framework for studying and evaluating online teaching and learning in the context of principles associated with learning community principles. The framework has been tested repeatedly for suitability as a survey measure. The emergence of a construct defining a community of learners in an online class, both the qualitative framework and the quantitative measure, is the main finding of the study. Moreover, results from the data analysis also revealed interesting new insights into teaching and learning via the Internet. For example, data about the factors leading to a negative or positive experience for students, provided in Table 4.17, should prove useful for online course design and will be discussed in the next chapter. The three factors of the "Online Learning Community" framework depicted in Figure 21, along with their associated indicators, form the basis for the discussion in the next chapter. While discussing the framework, emphasis will be placed on connecting these findings to those of previous studies, revisiting the original research questions, putting the research into perspective, and considering the implications for practice and future research.

## CHAPTER FIVE

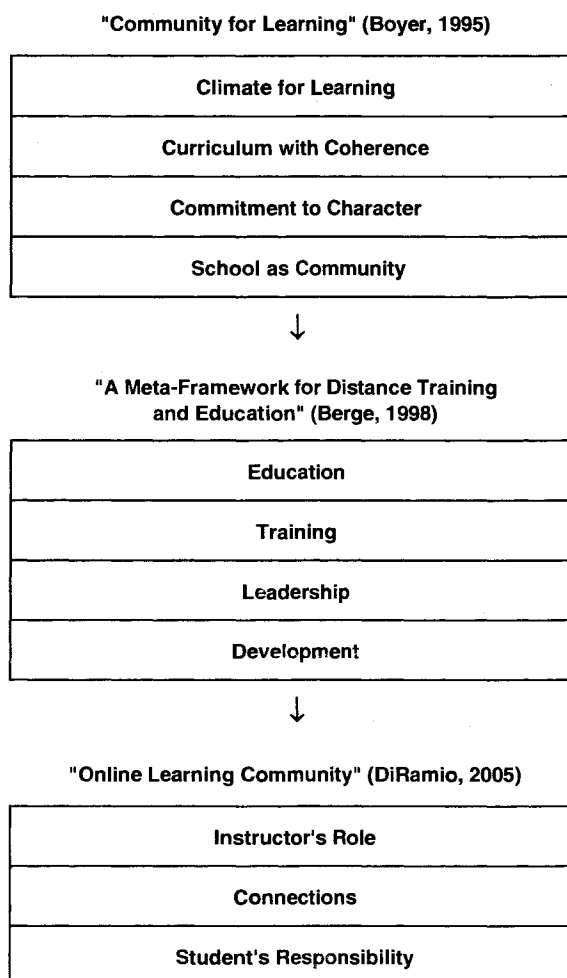
### DISCUSSION AND ANALYSIS

#### *Introduction*

The efforts of the five-stage study produced a three-factor "Online Learning Community" construct, a tool designed to detect and measure the presence of community in an Internet-based course. The construct is both a qualitative framework and a quantitative measure. It is a qualitative framework because it seeks to explain complex human phenomena by providing insights into the process of building community in an online course (Creswell, 2002). Moreover, its factors and indicators can be used to support an engaging educational paradigm for online teaching and learning. The quantitative measure is suitable for use as a student exit survey; an instrument resulting from a statistical analysis of data collected from 1,295 participants, including students and faculty members.

The "Online Learning Community" framework is grounded in qualitative principles drawn from the literature on learning communities and online pedagogy. As depicted in Figure 22, starting with Boyer's (1995) "Community for Learning" and Berge's (1998) "Meta-Framework for Distance Training and Education," the "Online Learning Community" framework emerged in three factors: "Instructor's Role," "Connections," and "Student's Responsibility." Ideas associated with the "Online

*Figure 22.* Preceding ideas supporting the creation of the "Online Learning Community" conceptual framework for evaluating and improving online courses.



"Learning Community" framework point toward the creation of a community of learners in Internet classrooms. Boyer's writings provided an appropriate starting point for identifying ingredients necessary for developing a sense of community in a learning environment. He recognized that in order to achieve an educationally purposeful atmosphere, students need to be engaged and supported. Moreover, Boyer called for "connected learning," where perspectives are synthesized and integrated (1987, p. 26). In this setting, students are encouraged to share their own varied and diverse experiences

and ideas. Using Boyer's principles, the instructor helps students achieve a synergy in the classroom; the classroom community becomes more than the sum of its parts. The basics of Boyer's "Community for Learning" provide a solid basis for studying online teaching and learning.

Berge used some of the same ideas and applied them to distance and asynchronous education, including correspondence courses, instruction via television, and online learning. This led him to describe a difference between "distance education" and "distance learning," with the latter encompassing a set of pedagogical principles that acknowledges both differences in student learning styles and Deweyian notions that students create their own meaning when learning. Berge described an important basis for learning at a distance: "What makes a difference in content retention and transfer is not so much what is done by teachers, but what students as learners can be encouraged to do themselves" (Berge & Collins, 1995, p. 6). Unfortunately, an absence of pedagogical principles described by both Boyer and Berge lead to decreased student engagement, reduced community, and a negative learning experience, as described by this undergraduate student's response to a survey used in this study:

It was too easy. I started putting in less and less work into it because a minimal amount of work would guarantee a high B or low A. As a result, I started caring about the class much less, and I don't think I learned nearly as much as I should have (I quit reading the book about halfway through the semester). Granted, those are choices I made and I could have chosen differently. I'm just saying that there was very little external motivation.  
[075]

This comment hints at a type of cognitive dissonance in learning where the student knows she should try harder and participate more, but an atmosphere of engagement is missing from the course. As hypothesized in Chapter One, lack of student

engagement contributes greatly to the higher than average attrition rate for college courses offered via the Internet. In an era of renewed interest in assessment and accountability in higher education, this study is dedicated to both discovering what is missing from some online courses and developing suggestions for improving community through course design based on the "Online Learning Community" framework. For example, in one highly rated online course, a student participating in the study found his own high level of engagement surprising and satisfying:

On a personal level, this course was far more practical than I had expected and in that regard it surprised me. I assumed that this course was going to be more painful than it was, but it was presented in such an understandable fashion that my prior apprehensions were removed. Throughout this program I have struggled with competing demands for my time, yet this course managed to spark my interest and I often found myself pursuing some tangent from the class discussions and outside readings in what little spare time I have found. Grades and assignments aside, I actually learned more in this course than many others I have taken in the program. [523]

The framework presented in this study builds upon the work of Boyer and Berge to present a set of factors and indicators specifically for the context of teaching and learning via the Internet. The major finding of this study is the "Online Learning Community" framework itself, with its associated three factors and thirteen indicators. In the following sections, each of the factors—"Instructor's Role," "Connections," and "Student's Responsibility"—along with their associated indicators, are discussed in light of the quantitative and qualitative data collected in the study.

### *Instructor's Role*

The instructor's role in the success of a college class, including student achievement and retention, is well documented (Angelo & Cross, 1993; Weimer, 2002;

Bain, 2004). Despite the increased and varied challenges associated with distance education, faculty who teach online have essentially the same responsibilities as those teaching traditional classes. This includes guiding students through the course content, supplying consistent and fair feedback on assignments, and apprising students of the latest developments and current events related to subject.

Yet, results from this study show that certain elements of an instructor's normal pedagogical duties are even more important in the online classroom. Students in this study reported that the preeminent factors producing a significant difference between a "positive" or "negative" experience in an online class were associated with the role and duties of the instructor. Perhaps one reason why the instructor's role is so significant in online teaching and learning is that, as designers of an educational experience, they must overcome technological barriers and restrictions on time and place in order to create an optimal educational setting for accomplishing educational goals. If an online course is to be successful, faculty should be willing to reconsider their own role in the process and adopt strategies for maximizing the advantages of technology-mediated pedagogy.

Like any venture, teaching an online class can be done well or poorly, and this has implications for student engagement and building community. Results from this study confirm the research of both Gunawardena and Zittle (1997) and Haythornthwaite, Kazmer, Robins, and Shoemaker (2000) who found that the most important factor for online education is interaction among participants, including both instructor-student and student-student interaction. Moreover, findings from this study show that the instructor, acting as facilitator, should use strategies to ensure regular interaction occurs in the course. For example, students may complete weekly assignments, perhaps answering



questions or problems posted by the instructor on a discussion board. Typically, the responses are publicly posted, thus providing a basis for sharing of ideas and sparking discussion and debate among students. These findings concur with literature pointing to the sharing of ideas as an important element of teaching and learning in an online course (Egan & Gibb, 1997; Monteith & Smith, 2001).

An ironic aspect of online education is that it can succeed despite the presence of an ineffective instructor (Kearsley, 1999). Because education via the Internet is inherently student-centered, it can be a very powerful form of learning and somewhat immune to teaching deficiencies, especially with a group of highly motivated students. Some of the student comments in this study confirm this. If students form ad hoc groups using the communication capabilities of the courseware—the computer software platform for teaching online—there can be an excellent level of interaction regardless of what the instructor does or does not do.

Motivated students share useful information for the course, such as Web sites of interest. Obviously, an online class will be made more enjoyable and worthwhile for students with a first-rate teacher who facilitates well and ensures frequent and meaningful interaction among participants. In the following subsections, each of the individual indicators that comprise the "Instructor's Role" factor of the "Online Learning Community" framework presented here and shown in Figure 26 are discussed.

Figure 23. "Instructor's Role" factor of the "Online Learning Community" framework.

Factor 1 <b><i>INSTRUCTOR'S ROLE</i></b>
1. Instructor took the role of mentor, guiding students through the course.
2. Instructor shared ways of thinking about problems and problem-solving with students.
3. "Do's-and-don'ts" for the class were provided.
4. Instructor looked for course concepts and course-specific vocabulary when grading student writing assignments.
5. Instructor encouraged students to share their ideas and experiences.

*Instructor as mentor-guide.* In contrast to the traditional classroom, where the lecturer's role is sometimes construed as that of distributor of information, the online instructor is viewed much more as a resource or guide for students. In this arrangement, the students are explorers undertaking a Mount Everest of knowledge with the instructor acting as *sherpa*-mentor. Results from this study are congruent with work by Chickering and Ehrmann (1996) who reported that contact between instructor and student was the top factor in student motivation and engagement. The instructor's mentor-guide function was reported by students in this study to make a significant difference between a "positive" and "negative" experience in an online course. The difference was the most of all factors in the study (see Table 4.17) at nearly one and a half times a Likert scale unit,

with one scalar unit representing, for example, the distance between "Agree" and "Disagree" in the survey.

The good news is that instructors may actually find that computer-mediated communication with students offers an advantage when performing their mentor duties. One student [413] in this study commented that he thought it was actually easier to communicate with the professor in an online course compared with his experience in some campus-based classes, which is not unreasonable considering the demands on faculty time and a general preference by some for efficient communication using e-mail. One student reported a successful mentor relationship with the professor this way:

This course was very interesting and informative. I learned so much. However, I did find some of the concepts hard to grasp when studying on my own. I felt more at ease when I would e-mail the professor for help with a particular problem. [462]

One useful course design idea that came from student feedback in the study was regularly scheduled availability of the instructor online, something akin to virtual office hours. This type of regular access, whether weekly or bi-weekly, could go a long way toward meeting student expectations for the professor's mentor-guide role. Results from this study revealed that the instructor's mentor disposition had impact on satisfaction, both good and bad. Here, two students reported high satisfaction:

The instructor was extremely helpful and encouraging, which made the course a pleasant experience. [194]

I think that when taking an online course it is not only important for the students to be self-disciplined, but to have a professor who is knowledgeable, can keep the class interesting, and is concerned about the students. Fortunately for me in this online course, I had a professor with all these qualities. [The professor] was extremely helpful and always responded in a timely manner when I needed assistance. [458]

Unfortunately, reports of an absence of interaction between student and instructor also arose numerous times in the data. The absence of frequent and meaningful contact from the instructor-mentor lead students to a general sense of dissatisfaction with the course, possibly even resentment and suspicion, as noted in these student response examples:

While the material in this course was interesting, my overall experience was unsatisfactory for one big reason - lack of feedback and communication from the instructor and mentor. [579]

The instructor was very absent during the course. None of the work we did as groups ever got graded. We went into the final without really knowing where we stand. A bit disappointing. [144]

I got the feeling this course was an experiment for the instructor and the students were test subjects. There was no interaction with the instructor and what information he provided was so vague that it was difficult to decipher. [574]

Despite an instructor's best intentions or mentor-guide investment, sometimes an online course simply does not match the learning style of a student, as described in this comment from a survey participant who is a graduate student and education major:

The course itself was informative as was the instructor, however, online classes aren't for me. I am more visual and auditory and needed more input than reading independently. [607]

Data from this study concerning the instructor's duties as a mentor-guide are similar to those identified by Goodyear, et al. (2001), including that of the "process facilitator," who supports student learning through a range of activities, and the "adviser/counselor," who offers counseling and advice for learners to ensure they are engaged in the course. Developing a mentoring rapport with students is essential for establishing a quality online learning environment.

*Instructor sharing experience.* Whether in the traditional lecture hall or the virtual classroom, students want the professor to share their professional and personal experiences, according to McVicker Clinchy (2000). This includes ways of thinking about problems and problem solving. Self-disclosure as a pedagogical design consideration works well in an online course to develop and nurture an egalitarian disposition in students (Brookfield & Preskill, 1999). The findings of this study confirm some of the ideas that Pallof & Pratt (2003) espoused in their book, *The Virtual Student*. They suggest that instructor sharing has the positive effect of democratizing the discussion habits of students, thereby helping to build community in the virtual classroom. In the present study, one student confirmed these notions in this way:

This [instructor sharing professional experience] affords the distance students the opportunity to get to know the instructor on a more direct level and encourages the learning process. [528]

"Instructor sharing" was also reported in this study as a significant factor when comparing student comments about a favorable or unfavorable experience with an online course, with greater than one Likert scale difference. Interestingly, in the Stage One pilot study, when faculty were queried, this factor ranked sixth in importance from a list of eight factors (Table 4.2). Therefore, this study revealed differences in perspective between students and faculty regarding key elements of community building in an online course. This discrepancy could be a topic for future research.

Course designs that rely heavily on having only students share with each other may not be sufficient to maximize learning opportunities and student satisfaction. One student respondent voiced his opinion this way:

I enjoy hearing other students' experience in online courses, but never had the faculty provide any personal insights or share their own professional

experiences. Isn't there a way the expertise of the faculty can be infused into these online courses better? Perhaps after the students have finished a module, [the professor] could provide a posting that summarizes the key points and expands on several - providing examples from [her] own experiences, observations, or research at that point? [487]

Whether online or in the lecture hall, students expect discussion of professional experiences and personal insights from the instructor:

I loved the course, but wish the instructor would have given us more input based on personal experience. [589]

I guess my expectation of a class is to have a professor teach me the subject matter and ideas that reading a book cannot provide. If one could learn everything from a book there would be no need for universities. I was looking for a little more insight from this class. [687]

Two others also wanted more input and opinion from the instructor:

The professor never helped us understand the why's and how's of what we were doing. Most other classes have much more interaction with the students and professor. That interaction helps tremendously. [533]

The instructor for this class was MIA most of the time. We had weekly discussions for every chapter and I think [the professor] made her opinion known once. [326]

Because online classes can become isolative and sterile, data from this study shows that appropriate disclosure of personal and professional experiences by the instructor can go a long way in enhancing the virtual learning experience. This pedagogical technique inspires social and emotional learning in students, while also promoting community, authenticity, and engagement. Data from this study suggests that, for some of the faculty teaching online courses, the distance medium may produce a form of detachment from students and the learning process.

*"Do's-and-don'ts" for the class.* A well-organized course, with clearly stated goals, comprehensible objectives, and guidelines for assignments (including due dates), is

vital for success when building community via the Internet. When compared with the traditional classroom where immediate feedback and queries from students are possible, professors who teach online must be extremely diligent, concise, and specific about details of the course. In fact, this was one of the top-rated factors differentiating a "positive" versus "negative" online course experience according to students, with one full Likert scale unit difference. Faculty scores from the pilot study (see Table 4.1) supported the findings from the student data about the importance of this factor. Students appreciate a well-designed online course because it makes their academic responsibilities easier to manage, as one consumer science graduate student noted in the survey:

Online classes are important to me since I work fulltime and have two children under three. All my schoolwork happens after 9pm and I could not do a master's in the traditional college system. This class was well laid out with a syllabus and weekly assignments. [498]

However, comments critical of disorganized professors were frequent:

The only suggestion I would have for an online instructor is be more specific in the assignments and dates. The instructor opened up weekly assignments each Monday and allowed one week for the discussion, reading, etc. Sometimes I wanted more information on what would be happening the next week or two and had only sketchy course information to go by. I wasn't specific enough for me. [689]

This particular course could use some organization, updating of text selection with actual [video] lectures, a syllabus that was accurate and gave dates of examinations. [475]

Here is an example of a student who reported mixed results with respect to online course organization and lucidity:

Instructor's lectures were clear and interesting, but the course needs a much better organized syllabus! [504]

With little else available to represent the professor, students were critical of spelling errors and typos, with survey responses hinting that the inaccuracies were evidence that the professor's time was perhaps spread too thin and the online class suffered as a result.

Results from this study corroborate the findings Pallof & Pratt (2001) reported in *Lessons from the Cyberspace Classroom* that the more specific and structured the online class the better, especially for those students who's learning style is complimentary to a linear, concrete, and step-by-step course format. Findings from this study suggest that among a professor's duties is the task of conveying to students how the online course is structured and what the participant's responsibilities are.

*Writing assignments.* One way for instructors to engage students in an Internet course is through writing exercises, including journaling and reflective writing. By incorporating writing assignments as a course design strategy, students have the opportunity to make sense of what is learned and move toward the internalization of concepts and ideas (Monteith & Smith, 2001). This ensures deeper learning is achieved because the students going beyond simply acquiring information. Faculty respondents in the pilot study rated this third in a list of eight important indicators for an online course. One faculty respondent from the pilot study commented on the pedagogical value of reflective writing online:

Reflection will not be diminished online and as the online context is written, it should enhance written reflection if students guided to understand reflections vs. response in the online mode. [P32]

The professor has an excellent opportunity to communicate with the student when grading writing assignments. Several students in the study commented favorably about



receiving comments from the professor on each assignment. Based on the findings in this study it is clear that getting feedback from the instructor on writings and discussion postings is quite important to students in an online class. Lack of feedback was also found to be a problem in a study by Hara and Kling (2000). Without instructor comments and feedback, students may become disengaged. As a result, they likely will stop posting messages on a discussion board. Moreover, the absence of feedback in course writing assignments and other work can cause disappointment and dissatisfaction, as one student noted:

We were given weekly assignments that were graded, but no feedback other than the number of points were given. The instructor rarely, and in some cases never, responded to questions posted on the class discussion board for this purpose. I cannot stress enough what a negative impact this lack of communication had on my view of this class. I have taken four online courses, and this one gave me the least satisfaction. [029]

Another student also wanted more from the writing assignments:

Little or no interaction from the instructor other than posting assignments. Feedback on writing would have been nice. [328]

While one of the primary duties of the professor is to provide feedback, it is also possible to use peer evaluation, in which students review and comment on each other's work. Peer evaluation works well if students are first instructed on how to properly critique, then grouped or paired, and alternate evaluating each other's work in a sequence of assignments. Nevertheless, students consider detailed feedback on writing assignments as an opportunity to both interact with the instructor and gauge their progress in the course:

There was not enough feedback from the instructor. I never knew if I was doing a good job or not. The only comment I ever received was about a paper saying it was 'clear and concise.' I would like more interaction along the way during the discussions postings perhaps. [497]

I feel the professor should have given feedback on the essays and critiques. This would have been very helpful. [522]

Another student commented on the value of personal reflection exercises and the importance of grading rubrics:

The personal reflection assignment was a good assignment. It was related to the information in the course. However, getting the rubric for the personal reflection on the day it was due was not acceptable. [218]

An interesting complimentary advantage for using reflective writing in an online learning community is that it qualifies nicely as an alternative assessment method. Such alternative methods for assessing outcomes are gaining favor in higher education (Banta, 2002). In Comeaux's (2005) *Assessing Online Learning*, reflective writing was identified as an effective strategy for assessing critical thinking and writing skills. Data from this study also revealed an additional advantage to the asynchronous online format: It provides students with the opportunity to reflect before responding to discussion postings. Moreover, reflective writing exercises give students an excellent forum to process what they have learned.

*Encouraging students to share.* One difference between traditional teaching and creating a learning experience in the virtual classroom includes the principle of students contributing to the process by sharing their own insights, ideas, and experiences (Fink, 2003). There is evidence in the data from this study that students yearn to share information with their peers and the instructor. Conversely, when student sharing is stifled, dissatisfaction increases. One student said it this way:

I feel that the instructor in this class was not as open to student comments or as encouraging in exploring student ideas as other instructors have

been. [The instructor] was not easy to communicate with and not always clear on expectations. [291]

The "Encourage students to share" factor showed statistical differences across institutions. The implication is that at some universities, online courses and programs deemphasize student input and sharing of ideas as a course design strategy. For example, the factor did not correlate satisfactorily for the business/professional discipline category at one school (see Table 4.14 and Table 4.15). Perhaps business courses, such as accounting, have too much independent study-type bookwork to make room for this factor in the curriculum. In any event, the absence of the "Encourage students to share" factor in online course design has disturbing implications for decreasing student engagement and increasing attrition.

Some professors surveyed in this study used strategies to compel students to contribute regularly in the class. One student said:

Course required weekly participation on the discussion board. This forced each student to interact, [versus] in a traditional classroom a student can sit and listen and never have a question. In this way, I think you learn more in a virtual classroom. [052]

However, caution should be used when designing an online course because students may feel that required or "forced" discussion can be over managed:

I would recommend less emphasis on forcing discussion board dialogue through number of postings. [It would be better to] require everyone to post and let the dialogue unravel. [592]

Instructors should be prepared to defend their challenging class agenda against the complaints of students who probably misunderstand the rigorousness of an online course. For example, one student argued that requiring participation too frequently backfired. However, the student's motives were suspect:

I felt that there were too many class postings required for an Internet course. If I would have known I was going to have to be on the computer to post a note almost every night, I probably would not have taken the course. I took the course because of such a busy schedule and so that I would have leniency in turning my assignments in. [434]

The "Encourage students to share" factor was cited by students in the study as making a statistically significant difference between a "positive" and "negative" online course experience. The difference was nearly a full Likert scale, a scalar distance analogous to the difference between the survey answers "Agree" and "Disagree." This concurs with work by Egan & Gibb (1997), who see students sharing knowledge as a form of teaching each other and creating a nurturing environment of academic support. A well-designed online course, with an emphasis on student participation, makes for a demanding and worthwhile experience, as described by this MBA student:

The course was challenging and rewarding. I spent an average of 10 - 15 hours per week studying and needed every minute of the time. [The professor] used the [course management] tool very effectively for class participation, which was a large part of my grade, and course-specific participation was encouraged, not just sharing our own experiences. Very good course. The online experience was very effective. [615]

Real-time, synchronous interaction can be important for some students in order to feel a sense of engagement, as noted in this revealing survey response:

100% online study feels extremely alienating to me, in the absence of any synchronous interaction (chat - with or without speakers/microphones, phone, etc.). I do not particularly care for this isolating experience, and am transferring to a face-to-face graduate program for my next semester. And, yes, I am a highly-motivated, full-time professional, non-traditional student. [622]

While some students may feel the medium is isolating, others feel empowered by the privacy of the virtual classroom. They view computer-mediated interactivity as positive when compared to the lecture hall. In fact, because online classes are not

geographically restricted, students have a good chance of interacting with others having diverse backgrounds.

### *Connections*

The second element of the "Online Learning Community" framework, "Connections," measures how students communicate, exchange ideas, and interact with their peers in an online class. There exists ample literature suggesting that classmates who have frequent and meaningful contact with one another benefit from the engagement (Angelo & Cross, 1993; Astin, 1984; Astin, 1993; Campbell & Smith, 1997; Gabelnick, et al., 1990). Student-student interaction associated with "Connections" helps cultivate learning communities and aids students in experiencing the richness of learning. Results from this study are consistent with elements of the "engagement framework" authored by Conrad and Donaldson in *Engaging the Online Learner* (2004, p. 34). In this study and the study by Conrad and Donaldson, frequent and meaningful communication in an online course was found to be more important than in the traditional classroom. Therefore, "Connections" variables should be seriously considered as a course design strategy for classes taught using the Internet.

"Connections" are an essential ingredient for achieving synergy in the virtual classroom. People with little or no experience in teaching and learning via the Internet likely have the misconception that online classes are impersonal and sterile. This myth is normally dispelled once a student starts communicating with others in the class and discovers that an online learning environment can foster rich and personal interaction.

Students typically find they are more engaged in the subject matter than in a traditional course because of the depth of discussion and interaction. While student passivity in the lecture hall is commonplace, more active participation is critical in the online classroom. Each of the "Connections" indicators, shown in Figure 24, are discussed in the following subsections.

*Figure 24.* "Connections" factor of the "Online Learning Community" framework.

Factor 2 <b>CONNECTIONS</b>
<p><b>1. Student had the opportunity to work in a group on a project or task.</b></p> <p><b>2. Student had the chance to help other students.</b></p> <p><b>3. Student took a leadership role in some task or event related to the course.</b></p> <p><b>4. Interaction between students was important.</b></p>

*Group Work.* This is the first of the "Connections" variables and represents an important element of interaction in an online course. For most online courses in this study, students were divided into small groups based upon common interests or complementary skills. Some groups lasted for the entire semester, others for a shorter term, such as for a particular assignment, a unique problem or issue related to a class

subtopic, or a single module. Typically, the professor assigns students to groups, but data from this study suggests it may be preferable to have the students themselves determine group membership. However structured, online group activities, according to both student and faculty comments, were quite deliberative and required much effort to organize and manage.

Dividing an online class into project or work groups gives students more opportunity to participate because interaction is not as heavily dependent on one-to-one communication with the professor. Using small groups may actually help an instructor manage a semester workload by ensuring more student-to-student interaction. Most importantly, group work, as a course design strategy, provides students with the opportunity to gain team-building competencies, build management and leadership skills, and experience collaborative scenarios such as those that exist in the real world. When working in groups in an online class, students learn to negotiate roles for group members, develop priorities and agendas, and cooperate with each other when managing the workload, accomplishing group tasks, and solving problems. This student considers online group work a challenge worthy of a television script from a popular reality series:

Teamwork takes on a whole new meaning in an online environment. Kind of like [the television show] 'Survivor' you form alliances and exchange problems, challenges, and online 'maps' for lack of a better word. [230]

When done well, group projects can be a student favorite, but the professor needs to monitor the process and provide clear guidelines and structure. Several students in the survey responded favorably to group work and group projects. For example:

Being able to work in small groups and interact with other students is vital to the success in any online class. [417]

"Group work" was important when comparing student comments about a "positive" versus "negative" experience with an online course, with nearly one Likert scale difference (see Table 4.16). Ironically, in the Stage One pilot study, instructors ranked this factor last in importance from a list of eight factors (see Table 4.1). Throughout the study, "Group work" had the highest variability scores, indicating the least agreement among study participants about the efficacy of this factor.

The key to engaging students in group activities is to make it clear that each individual's contribution is integral to the course. Obviously, students will want to know what the instructor's expectations are for participation, at both the group level and the whole-class level. Providing clear expectations for group work was important for this student survey respondent:

I enjoy the group projects, but found the expectations were not very clear. I thought we were graded fairly, but expectations should be clarified for next term. [537]

In order to ensure the most satisfying learning experience for students, the instructor may elect to provide a mix of activities in an online class (in addition to group work), including whole-class discussion, other peer activities, and individual assignments. Moreover, the professor should make it clear that group work will be graded. Instructors have a variety of strategies available for evaluating students' group activities, such as participation credit, self-assessment, using grading rubrics, and peer assessment. A professor from the pilot study offered this warning about group projects in an online class:

Group work is always a tricky strategy since it depends on good cooperation and engagement by all parties. Distance learning seems [to make it] a bit too easy to escape, if projects get behind or don't appeal, or group members can't carry their weight. [P44]



Of course, data from this study also shows a variety of student opinions about the value of group work in an online class. One student sees incongruence between the idea of group participation and online learning:

I've run into problems with online courses before, primarily in that they require 'group participation.' In the past this has been my biggest challenge. I take online classes because my work schedule does not permit me to attend classes at the university. Group projects are difficult, particularly because others have similar scheduling conflicts and are not available to meeting in person or at predisposed meeting times. [234]

Despite varied instructor and student dispositions toward this factor, results from the study suggest that online courses designed without group work-type interaction between participants have implications for student satisfaction and academic rigor, as one student noted:

I feel that taking an online course makes it much easier to do the minimum amount required to pass because there is no personal interaction with classmates or the teacher. [089]

Despite disagreement about group projects, results from the study show this to be an important component for learning via the Internet. While methods for conducting group work in the online classroom vary, careful planning and communication of expectations are necessary for success. Regular feedback from the instructor helps groups stay on task. By employing group work as a course design strategy, students gain exposure to what is sure to be a useful skill in the global economy: The ability to collaborate with others via the Internet.

*Students helping students.* The idea of students helping other students is not new; it can be traced all the way back to Aristotle's use of student leaders to guide younger pupils (Wagner, 1982). Data from this study indicates that students' helping roles in an online course are frequently enacted informally, although formal structures created by the

professor may work well also. Typically, helping occurs naturally, perhaps spontaneously, within the online class, such as when students help explain an assignment or task to a peer. Lee Grenci, a meteorology instructor at Penn State, in his award-winning online distance education course, *Meteo 101*, describes the phenomenon of helping this way: "The learning community populated by your fellow classmates (some from all over the world) will be surprisingly social, with students helping other students on the discussion boards" (Grenci, 2004, p. 1). Peer-instruction is a technique used to increase student learning, involvement, and satisfaction with the classroom experience. By design or default, students end up helping each other. For example, one student from the survey described it this way:

Many students found themselves asking questions on the BB [bulletin board] and waiting for responses that usually came from other students.  
[078]

In more formal structures, mentors may be assigned by the instructor to assist students. These types of peer-mentor arrangements, and other "Students helping students" scenarios in an online course, merit further investigation because, while not rated as one of the top factors differentiating between a "positive" and "negative" experience in an online course, there was a statistically significant difference of nearly three-quarters of a Likert scale unit according to students.

*Taking a lead role in a class task or event.* This factor consistently correlated with the others to comprise the "Connections" factor, but none of the student survey comments mentioned leadership specifically. However, data from the study did suggest that taking the lead is part of a student's duty when initiating contact with other students and the instructor, as well as being persistent and "vocal" when offering ideas and

opinions. King (2002) suggests, with a hint of facetiousness, that instructors enroll a fictitious student into an online course to model important student behaviors such as taking the initiative to post discussion comments, etc. Although more research is needed to assess the importance of students taking the lead in an online course, the presence of this factor in the "Online Learning Community" framework is consistent with the constructivist pedagogical theories found in Campbell and Smith's (1997) new paradigms for teaching and learning.

Moreover, "Taking the lead" was one of the factors listed when comparing student comments about a "positive" versus "negative" experience with an online course, with one-half Likert scale difference (see Table 4.16). The strategic use of elements of student leadership in online course design also encourages what Pate, et al. (1997) calls "student voice" (p. xiii) and what Baxter-Magolda (2000) calls "self-authorship" (p. 94). Clearly, incorporating opportunities for students to take a leadership role in the online course leads to increased student engagement and augments the learning experience.

*Other interactions between students.* Results from this study indicate that instructors will likely give more weight to class participation requirements in an online class than in a face-to-face class. Realistically, there are few ways to effectively counter disengagement and attrition in an online course, other than through participation in discussion forums and chats. For example, student contributions to a discussion forum are often the primary indicator of active participation in an online course. Some students view this type of interaction as a highlight in the course, as these examples show:

The only redeeming quality of the course was the student interaction on the discussion boards. [129]

I like to have discussions with other students and get input... it's necessary for me to understand the topics. I believe that the professor makes sure of this. [605]

Strangely, and interestingly to me, even though the I think the quality of an online class will never match a traditional setting, I experienced some genuine social bonding with my group. [126]

Conversely, lack of interaction can be somewhat alienating for students as characterized by one student survey response:

Absolutely no communication between class members. I guess this is so you can work ahead on your own. Don't know the answer.... it does feel lonely. [535]

Typically, in an online course, students are asked to do more than simply post their own ideas; they must also read and respond to the postings of others. This includes the use of "private" correspondence via e-mail, the public forum (discussion or bulletin boards), or the synchronous and public chat room. Perhaps this is why the factor "Interaction between students" was cited by students as significant, accounting for more than three-quarters of a Likert scale when comparing "positive" and "negative" survey respondent comments.

Interestingly, some students view interaction as an imposition, seeing little value in contact with other students. This survey respondent felt strongly that student interaction was a waste of time:

I think it's lame when they try to get us to interact with all the other students in chat rooms and message boards. I feel like I am in graduate school to learn the subject matter, not to make friends. I am a professional who can effectively network without being required to respond to chat room garbage and random e-mails. [319]

Other connotations of this factor merit further investigation. One student [576] mentioned that peer communication via online group discussions "proved beneficial

when studying for the exams." Another student cited deficient computer skills as an obstacle to interaction:

I have enjoyed the online class. I have a bit of difficulty using the computer... opportunities to have class interaction for me might be difficult because of computer skills, but I really don't find that a necessity. But I do need to have good communication with the instructor. [702]

In yet another twist to the "Interaction between students" factor, communicating with others in a graduate course can be challenging for some with less experience, as this student enrolled in online MBA course found out:

Being in a class where the students were all either executives or world travelers was very intimidating. I found it very difficult to converse on the discussion threads because I had nothing of value to add to the conversation and I also could not relate to what they were talking about. I did enjoy reading their comments, however. [616]

This factor has ties to the "Instructor's Role" factor of the "Online Learning Community" framework as well. The data showed that students feel a sense of inequity or bitterness if the instructor does not join in on the interaction as illustrated by the following comments from students participating in the study:

The instructor's involvement in this course was minimal. Online participation by students was required, yet the professor rarely participated himself. [518]

This course was characterized by the lack of meaningful interaction among students. My interaction with the professor was limited to listening to his scarce explanations of the problems and reading the comments on the exam. [558]

While the level or intensity of online group communications varies, at least it offers the student an opportunity to hear other points of view. For example:

I did not feel that communicating with members of my group developed into deeply penetrating conversations (the medium was stiff), but what they had to say was thought provoking and led me to consider issues from various points of view. [455]

This study also revealed that some curricula tend to require less participant interaction.

For example, in one accounting course from the study, a student commented:

This class required a large amount of independent learning with hardly any class/instructor interaction. When posting questions, quick short answers were provided opposed to some open discussion to ensure the concept had been learned. This was my third online class and was by far the most independent. [562]

Learning is a social process and interaction with other students in an online course is vital. Because interaction may not happen automatically, comments from the study suggest that one important duty for the professor is to encourage, endorse, and support communication between students.

### *Student's Responsibility*

Online courses provide a convenient and practical option for students seeking more access to educational opportunities; access that perhaps their local community cannot provide. However, learning via the Internet also requires students to assume an active role in the learning process. At the core of the "Student's Responsibility" factor is motivation, maturity, and students being accountable for their own learning. This requires an additional level of student accountability not normally associated with a traditional lecture hall class, with particular emphasis on the associated factors identified in this section including self-motivation, organization skills, and time management.

The emergence of this factor in the "Online Learning Community" framework represents one of the more interesting findings from the study because there is little scholarly literature exploring the relationship between Internet learning and student responsibility. Research by Bender (2003), Rudestam and Schoenholtz-Read (2002), and

others (Maeroff, 2003; Paloff & Pratt, 2003) confirm the importance of student responsibility in an online course. Astin (1993) wrote that collaborative learning, with its many similarities to an "Online Learning Community," enhances students' responsibility for learning and individual accountability.

This study's findings are also related to Saba and Shearer's (1994) research on academic "transactional distance," the educational and psychological distance between instructor and student (Moore, 1980). Results from this study confirm that the transactional gap is reduced in an online class when students assume more responsibility for their own learning. Each of the factors associated with the "Student's Responsibility" factor, depicted in Figure 25, are discussed in the following subsections.

*Figure 25. "Student's Responsibility" factor of framework.*

Factor 3 <b><i>STUDENT'S RESPONSIBILITY</i></b>
<p><b>1. It was important to be self-motivated.</b></p> <p><b>2. The ability to organize and prioritize was vital.</b></p> <p><b>3. Student needed to manage time effectively.</b></p> <p><b>4. Student was responsible for own learning.</b></p>

*Self-motivation.* Data from this study suggests that online learners are quite determined and motivated. They take these types of courses for convenience, not because they are easy. In exchange for motivation and responsibility, students in an online course experience greater autonomy in the learning process than they may find seated in a lecture hall, as this library studies student noted:

This course provided me with the opportunity to explore the world of data networks in an organized manner. The ability to work at my own pace allowed me to learn more than I would if I were in a regular classroom.  
[262]

Results from this study confirm the findings of Phipps and Merisotis's (2000), who, in their report *Quality On the Line*, listed one benchmark for ensuring quality in Internet-based education as advising students "to determine if they possess the self-motivation and commitment to learn at a distance" (p. 3). Findings support the notion that one of the most challenging aspects of learning via the Internet is the level of self-motivation and self-discipline required.

A common misconception about online classes is they are less rigorous than traditional courses. However, most participants in this study reported that online classes were more work, and in some case more rewarding, than conventional classes. Student comments show this is related to the amount of work and writing about course subject matter resulting from online postings and discussions. This also requires the self-discipline necessary to prepare for online activities and participation. This student from the study commented on motivation and effort:

Many people are mistaken in believing that an online course is less challenging and requires less discipline and effort. I have found that in order to do well you need to be extra motivated and participate all that you can. [060]



This upper division undergraduate student completing an anthropology course offered sage advice on the same theme:

I enjoyed this class very much. Anyone taking this class online must be self-disciplined and self-motivated to learn. Students needing constant supervision should not take this class. [025]

Results from this study point to one common feature of online students: they exhibit a high level of commitment to learning. This disposition towards self-motivation works as an advantage for instructors when designing an online course that is challenging and engaging. Some students live in rural areas and must be self-starters in order to pursue their academic aspirations. One student considered online courses critical to her participation in postsecondary education:

Because of the very rural nature of my area, online classes let me finish my education and remain home with my family. Without online courses, finishing my education would not have been possible. [273]

*The ability to organize/prioritize.* While perhaps not as important with regard to practical significance, this factor did show statistical significance when comparing student comments about a "positive" versus "negative" experience in an online course, at 0.38 of a Likert scale unit difference (see Table 4.17). Results from this study imply that organized students who possess the ability to prioritize their academic duties and outside responsibilities are more likely to enjoy learning via the Internet. Conversely, with all this emphasis on student responsibility and organization, it is likely easier for students taking online classes to fall behind and get into trouble, as one undergraduate hospitality management student noted:

I did not have a routine for the [online] class throughout the semester, like having [traditional, on-campus] classes on Mondays and Wednesdays. I did not look at the material regularly and that led to my missing the deadlines for assignments and quizzes. [142]

A graduate education student had a similar experience when trying to balance work and school duties:

The problem was me being overextended between different jobs and then getting behind on assignments. The instructor was understanding and during the course very prompt in responding to e-mails which was quite beneficial. [378]

Students in this study also reported using the semester class calendar, a top factor and important course design element for instructors to consider, as a tool for organizing and prioritizing deadlines.

*Time management.* This study confirms the value of a student's individual responsibility to plan necessary time during the week to devote to online course activities. This is another factor that, while perhaps not rising to the level of practical significance, did show statistical significance when comparing "positive" versus "negative" student experiences in an online course. As a general rule, successful students report spending at least two to three hours each week for each hour of credit for a online class (Gilbert, 2000). When well planned and managed, this graduate student from the study viewed the time element as a distinct advantage in online learning:

I took two online courses and enjoyed them both very much. The workload is definitely hard, but the ability to manage that myself without time/place pressures made it manageable" [008]

Similarly, both dedication and time/place flexibility were keys for another graduate student:

It's just a little tougher on some assignments to get the whole concept [versus] being in a class and getting immediate give-and-take feedback, but overall I loved it because it was all on my own time without having to do any travel. I feel I learned just about as much as I would have in the classroom. [111]

Other than the time-convenience factor, this upper-division undergraduate student does not see much difference in the online versus traditional classroom learning experience:

It is highly beneficial to have the freedom to take the class when the individual's time permits. It is also nice to see that lectures were not extremely long and did not permit for distractions. It seemed as though the same guidelines for a face-to-face class and online were the same: Watch/listen to lecture, read the material, and take the exam. [546]

Asynchronous computer-mediated communication, such as e-mail, Web forums, bulletin boards, and newsgroups, afford distance education students an opportunity to interact in their own time. These modes of communication are an important ingredient in the educational convenience offered online. This convenience has been politically reinforced in the Learning Anytime Anywhere section of the 1998 reauthorization of the Higher Education Act, enacted October 7, 1998 (Burd, 1998). The emphasis of the policy in this section of the federal legislation is quite clear: The asynchronous nature of online learning allows students to study anytime or anywhere, day or night. This includes while the kids are sleeping, during lunch break, or early in the morning before breakfast.

Some of the students in the study still clung to the idea that online courses are really opportunities for totally independent learning or an electronic correspondence course. They view the absence of group requirements as integral to their own time management and scheduling needs. However, a well-designed online course, which minimizes the isolative and unengaged independent learning experience, while emphasizing interaction among participants, need not overburden students with time/place concerns. For example, clever course design that takes into consideration the

time concerns of students was an important issue, as illustrated by this respondent's characterization of an exemplary online course:

This class is the epitome of what an online course should be. The problem with most online classes is that the professors believe you have every day to be involved with their site. [This professor] presents the class in a form that students can use around their busy schedules. After all, there is a reason why students attend online as opposed to the classroom. [348]

In an Internet class, time is a unique factor. For busy students with inflexible schedules, the notion that they need not be in class at a certain time is a distinct advantage. However, it is essential that students realize they still must find time to regularly "attend" class. Data from this study suggests that engaging online courses typically require regular and frequent participation on a weekly basis. Students must invest at least a weekly level of participation in order to stay engaged in an online course and maximize their learning opportunities.

*Student responsibility for own learning.* This is the last of the thirteen indicators associated with the "Online Learning Community" framework and represents a finding meriting further research. While there are plenty of tips about student responsibility available on college Web sites supporting online classes and programs, there is not much in the scholarly literature on distance education that specifically explores the notion of personal responsibility for learning online. One student respondent from the survey had this comment about online learning and responsibility:

I think online courses are a great alternative especially for people who can't find the time to actually sit down on a regular class. With this, I think it teaches students independence, responsibility, and motivation. [227]

Western Governors University (WGU), a virtual institution founded by the governors of 19 western states, emphasizes taking personal responsibility for one's own learning (Young, 1999). Like the students who attend WGU, this student from the study was willing to take on the responsibility in order to move forward in her academic goals:

I feel that online courses at this university are vital. When there are many 'non-traditional' students who work full time, it gives them and other students an opportunity to take classes that they may otherwise have to wait for a long time to take. [617]

As suggested previously in the "Instructor's Role" factor of the "Online Learning Community" framework, course designs that include clear structure, guidelines, and "do's-and don'ts" were important. Careful design creates a supporting arrangement within which students can take responsibility for their own learning. Students will take on more responsibility when they recognize what is expected of them and the standards they are expected to attain are identified. One student survey respondent commented about this arrangement:

While it was important to be able to manage time effectively and be self-motivated, the instructor provided guidelines such as due dates and facilitated self-learning by providing us with lecture slides that helped us prepare for the exams and discussions. [298]

Another student, who completed an online statistics course, commented in the survey about the responsibility factor:

I learned a lot from this course. It forced me to read the materials and keep up with the online lectures. You couldn't afford to relax on the material. I think this format helped me retain the material better. I liked the fact I could re-listen to a lecture, etc. if needed. [191]

Critics of online distance education say that learning via the Internet cannot be equal in quality to traditional, on-campus classes. While this criticism has its merits for some poorly organized and mismanaged courses, it is certainly possible to learn more in

the online context. One business student characterized the online learning experience this way:

This class greatly exceeded my expectations regarding quality as well as the quantity of work required. If anything, I have learned more in this online format than a traditional classroom. [082]

Just as the professor is responsible for designing an engaging and challenging online course, students must assume a majority of the accountability for their own learning. For most classes in this study, it was the student's responsibility to initiate contact with the instructor, especially for questions about assignments and clarification about course concepts.

### *Revisiting the Research Questions*

In Chapter One, two research questions were posited. The first question asked: What are the identifiable factors that best describe a learning community that have application for online teaching and learning? Using the results of an extensive literature review and survey results from 1,295 respondents, each of the factors and indicators included in the "Online Learning Community" framework are associated with building community in the virtual classroom. For example, the instructor's mentor-guide duties, closely associated with constructivist pedagogy and successful learning community design, confirmed its merit in the Internet classroom when it was reported by students in this study as the top factor differentiating between a "positive" and "negative" experience.

The "Connections" factor that emerged in the "Online Learning Community" framework has factors congruent with learning community elements. For example, the "Students helping students" factor associated with the "Connections" factor, and

discussed in the preceding section, is considered a requisite for building community in any academic setting. Moreover, the emergence of the "Student's Responsibility" factor as part of the framework marks an important new twist for emerging theories of Internet learning. It serves as a contribution to the literature about distance education and raises new issues for further investigation about the role students play in supporting their own online learning experience in the virtual classroom.

The second research question asked: In what ways would a valid and reliable student exit survey designed to detect the presence of an online learning community prove useful to faculty leaders and administrators in evaluating online courses and programs? This study yielded both quantitative results and qualitative insights, including several salient factors for online teaching and learning. Each of these findings should be considered for online course design and evaluation.

Table 5.1 gives a summary analysis of the performance of the quantitative measure as a survey tool. Although the framework did not perform perfectly as a metric or tool when data was disaggregated across institutions and disciplines (Tables 4.14 to 4.16), it performed reasonably well by achieving overall consistency scores in the high-80 to mid-90 percent range. Moreover, scores for reliability and "total common variance explained" were generally acceptable for most samples and sub-samples.

*Table 5.1. Combined analysis of the consistency, reliability, and variance performance for the "Online Learning Community" measure. (Figures in parentheses represent how many times desired result was achieved out of total possible scores for the category)*

<u>Analysis</u>	<u>Factor Consistency</u>	<u>Reliability <math>\alpha &gt; .700</math></u>	<u>Total Var. Explained &gt; 50%</u>
Across institutions (Table 4.14)	94.9% (37/39)	77.8% (7/9)	100% (3/3)
Across disciplines (Table 4.15)	97.4% (38/39)	100% (9/9)	100% (3/3)
Across three largest sub-samples (Table 4.16)	92.3% (36/39)	88.9% (8/9)	100% (3/3)
Across all sub-samples (Appendix F)	88.0% (103/117)	66.7% (6/9)	88.9% (8/9)
	<hr/>	<hr/>	<hr/>
TOTAL	91.5% (214/234)	83.3% (30/36)	94.4% (17/18)

The "Online Learning Community" framework presented in this study is ready to use as a tool. A review of the literature reveals little scholarly work in this area and few, if any, frameworks or measures ready to be used as a Web-based exit survey for students. Using the literature on learning communities as a starting point, the purpose of this study, to develop and validate a survey instrument for measuring the presence of an online learning community, was reasonably achieved as a result of the five-stage data collection and analysis regimen. In light of the criticisms of traditional student evaluations (Williams & Ceci, 1997; Wilson, 1998), the measure presented in this study can be useful for faculty leaders and higher education administrators as an alternative assessment tool for evaluating student satisfaction and online course design.



### *Implications for Practice and Future Research*

In his book, *A Classroom of One*, Maeroff (2003) profoundly observed, "[Online courses] are revolutionary because they represent a fundamentally different delivery system that breaks the monopoly of the classroom, forcing an examination of habits of teaching and learning that for too long have defied scrutiny" (p. 19). The emergence of the "Online Learning Community" framework from this study, with its associated factors and indicators, also has implications for the way professors approach teaching and learning via the Internet. Data from the study suggest that many of the courses surveyed did not use the factors identified in this study for building community in an online course. Course designs that attempt to simply replicate traditional lectures, quizzes, and assignments for use in the virtual classroom are not sufficient for creating a satisfying or engaging learning environment. Incorporating "Instructor's Role," "Connections," and "Student's Responsibility" factors, identified in this study as important for building a community of online learners, will assist instructors greatly in the design of a successful course using computer-mediated communication technology.

Data from the study suggests that many instructors have not changed their pedagogical approach to match the strengths of online learning. Mixing new technologies with old pedagogies simply will not do for building a community of learners; but that is exactly what faculty appear to be doing for many courses in this study. The opportunities presented to higher education by advances in computing and communication are both exciting and challenging, but, as suggested by Privateer (1999), "Meaningful change (will occur) by redesigning instructional technology in terms of being both a strategic and cognitive tool" (p. 67). This requires a thoughtful intertwining

of old and new pedagogical ideas, producing an online class that is far more than lecture notes delivered via the Internet.

Most of the hesitancy, on the part of faculty teaching online, discovered in this study was related to worries about pedagogical restrictions, technological limitations, the need for training and support, and the quality of distance education. Several instructors surveyed in the pilot study voiced doubts about the feasibility of creating community in an Internet course. One comment that exemplified this concern was:

Face-to-face interaction, and the sense of belonging to a group, that occurs in the traditional classroom is difficult (if not impossible) to replicate in online courses. [P31]

It is hard to imagine teaching and learning without communication and interaction between instructor-student and among students, the sort of contact that embodies both the "Instructor's Role" and "Connections" factors of the framework. Unfortunately, data from the student exit surveys from this study show that many online courses still use an isolative, correspondence course model design.

One example of faculty anxiety about pedagogical restrictions, related to the topic of building "Connections," was for using group projects in an online course. Of interest from pilot survey data, was the low mean importance score associated with "Use group projects" ( $M = 3.02$ ), which professors ranked last among the eight themes for online teaching and learning. Both the literature review and data from the study suggest that group work by students is a prominent factor in building an online learning community. Perhaps group work strategies appear too cumbersome for some online instructors to manage without significant changes to their pedagogical approach. Data from the study

points to a faculty sentiment that assigning online group projects and other collaborative assignments could end in disaster.

Interestingly, "Use group projects," despite a low mean importance score, was both correlated with "Course has a learning community structure" ( $r = .652$ ) and clustered strongly with the other indicators when factor analysis was performed in Stage One. As suggested by the variance statistic, there was considerable disagreement among both faculty and students about whether or not the distance education format allowed for meaningful group collaboration. Professors generally fell into two camps regarding group work as a course design strategy as illustrated by these comments from the pilot study:

This is a great way to work with students who have different schedules.  
They can 'meet' in discussion groups and keep track of documents online.  
[P20]

Not sure since group projects are difficult when students can get together  
to plan and distance and time may make this more difficult. [P07]

While all this confirms that a strong association is present, further investigation into reasons for faculty de-emphasizing or balking at the prospect of group projects online is merited.

In addition to "Group work," the data revealed differences between how students and instructors rated the importance of the factor "Instructor sharing experience." As suggested earlier, when comparing Table 4.2 and 4.17, professors ranked the "Instructor sharing experience" factor sixth in importance from a list of eight survey statements, while students reported this factor as significant when differentiating between a favorable or unfavorable experience with an online course. Discrepancies between how student and faculty view certain online pedagogical techniques and course design strategies, such

as group work and personal disclosure, identified in this study should be researched further.

Another concern for faculty centered around the idea that forging an online learning community requires substantial computing power, communication speed (Internet bandwidth), and innovative software. Infrastructure problems continue to disappear as more and more students acquire high-speed Internet access. However, results from the study show deficiencies exist in courseware and these are clearly a source of frustration for instructors. While courseware systems generally do a good job offering basic features for administration and organization, many are inflexible and limited as a tool for student communication and collaboration. In fact, gaps in design are encouraging some computer-savvy faculty to create their own complimentary courseware features for encouraging community and collaboration among students, as described by the following pilot study survey response from a professor who teaches online at a large public university:

While I believe [collaboration is] extremely important, I don't believe there is a technological toolkit that adequately facilitates real collaboration (chat, threaded discussion are primitive). As a result, I have developed my own collaborative software that allows students to see and edit each other's work (in real time if desired). It is now just emerging from beta form into production form. [P32]

An additional worry that emerged from faculty responses in the pilot study was for instructor training and support. Web-based teaching and learning has become a change agent in how we view both organizational structure and traditional relationships at universities and colleges. Technology cannot simply be thrust upon faculty. Training needs to be provided, not only in technology use, but also in how to organize and deliver online instructional material. Some skeptical and unsupported faculty from the study

discounted the role of technology for community building in online distance education. Results from this study suggest that colleges should invest more effort in training and supporting faculty members on how to use courseware, including pedagogical approaches for increasing communication and engagement. The old paradigms about curriculum and course development, when superimposed on online distance education, are a source of difficulty because "we won't meet the needs for more and better higher education until professors become designers of learning experiences and not teachers" (Spence, 2001, p. 18).

It is absolutely critical that colleges and universities provide ongoing faculty development and training opportunities for those teaching via the Internet. Professors should be trained to create curricula that challenge students to be part consumer and part producer of knowledge in an online class. Moreover, support for faculty in the form of teaching assistance for administering an online class is vital. In a sense, a shift is occurring where we are moving away from "using technology to support the individual... [and moving toward] using technology to support relationships between individuals" (Brown, 2000, p. 20). Two faculty participants in the pilot study offer the following suggestions to those contemplating an approach to teaching online:

In order to be an effective online instructor - you must first be an online student. [P11]

The teacher facilitates the learning experience via assignments, group discussions, and feedback. Communication skills, feedback, and tone of communication to students are of great importance. [P46]

For the most part online pedagogy and technology used in collegiate teaching has gotten off to a shaky start. As Spence (2001) noted, "a lot of technology in education looks like bolting an internal combustion engine on the back of a horse and buggy...

technology will transform education only when we unhitch the horse" (p. 18). However, one benefit of adopting the principles of "Connections," "Instructor's Role," and "Student's Responsibility" as presented in this study is that these are familiar and comfortable ideas for most faculty from their experiences in the traditional classroom. The factors and indicators delineated in the "Online Learning Community" framework shown in Figure 26 can be used as a checklist for designing an online course. Moreover,

Figure 26. The "Online Learning Community" framework.

-----"Online Learning Community"-----

Factor 1 <b><i>INSTRUCTOR'S ROLE</i></b>	Factor 2 <b><i>CONNECTIONS</i></b>	Factor 3 <b><i>STUDENT'S RESPONSIBILITY</i></b>
1. Instructor took the role of mentor, guiding students through the course.	1. Student had the opportunity to work in a group on a project or task.	1. It was important to be self-motivated.
2. Instructor shared ways of thinking about problems and problem-solving with students.	2. Student had the chance to help other students.	2. The ability to organize and prioritize was vital.
3. "Do's-and-don'ts" for the class were provided.	3. Student took a leadership role in some task or event related to the course.	3. Student needed to manage time effectively.
4. Instructor looked for course concepts and course-specific vocabulary when grading student writing assignments.	4. Interaction between students was important.	4. Student was responsible for own learning.
5. Instructor encouraged students to share their ideas and experiences.		

campus teaching and learning centers can use the framework presented in this study for familiarizing both faculty and students with factors that lead to a satisfying online learning experience.

### *Conclusion*

The dramatic growth of online learning in higher education is prompting the development of tools for studying and evaluating events in the virtual classroom. Tools, such as the "Online Learning Community" framework developed in this study, are important in a "cyber-revolution" that is prompting both students and faculty to approach learning in a way that puts extra emphasis on interaction, communication, and community building via the Internet. However, there exists a complicated dynamic in which technology poses a challenge for both professor and student. Professors are being asked to revisit and alter their pedagogical techniques. All of this change is coupled with a transformation in the learning styles of technology-savvy students in the new millennium. Today's learner appears ready for a shift in course design and delivery because students today possess an amazing level of comfort with the computer. Moreover, in an age of rising student consumerism and expectations, the teaching strategies presented in this study may help bridge the "awkward and growing generation gap between computer-literate young people and their professorial elders" (Kennedy, 1997, p. 269).

A successful course design strategy should include a mix of all indicators from the "Online Learning Community" framework, as this student in the study noted:

I've taken numerous online courses and the instructor feedback was definitely constructive and way above average as far as online classes go.

The team projects were more collaborative than just individual contributions slapped together... I'm walking away from this course feeling that I've retained more than in most online courses. The (course management system) features used for this course were easy to follow... This is one of the best online courses I've taken. [699]

This student comment suggests that the possibilities for online distance education are both positive and exciting. Indeed, this mode for educational delivery can help greatly to address the needs of a growing population of nontraditional learners seeking higher education. It shows promise as a strategic tool for use in a lifelong learning model for education in the Information Age (Breivik, 1998). Higher education administrators see benefit in offering cost-effective classes and academic programs via the Web, helping institutions to compete effectively for students. Online learning is not a fad; it is here to stay. For skeptics, the handwriting is on the wall, "Such technological abilities (and consumer preferences) will force colleges and universities to rethink the delivery of educational programming" (Tierney, 1999a, p. xiv). Peter Drucker expressed his view on learning via the Internet when he commented that "universities won't survive" in their present form and the economic realities of higher education are driving institutions to "deliver more lectures and classes off-campus (via technology)... at a fraction of the cost" (Lenzer & Forbes, 1997, p.129).

Using the Internet to promulgate higher education should have a positive democratizing effect on students, attracting a wide variety of students from diverse backgrounds. The lack of geographic boundaries makes more courses and programs available for more students, including those in rural areas. This medium for learning has huge potential for both frequency and quality of student collaboration, communication,



and learning. One student participant in the study summarizes notions of access, communication, and academic vigor in online higher education this way:

The courses that I have taken in an online environment have been extremely challenging due to the high level of course participation required. Graduate coursework is demanding enough on its own, but when one adds the fact that every comment, discussion, project - every interaction with the professor and other students - requires reading and typing, the amount of time dedicated to online coursework is far more significant than most would consider. Online courses are simply not an alternative to those who are seeking an easier way to accomplish a degree. Rather, online courses offer access to universities and professors beyond the confines of other competing demands, such as family or a career. [237]

Innovative pedagogical strategies, such as the formation of online learning communities, can help meet the quality challenge. The "Online Learning Community" construct presented in this study, both the qualitative framework and the quantitative measure, provides one way to ascertain their existence.

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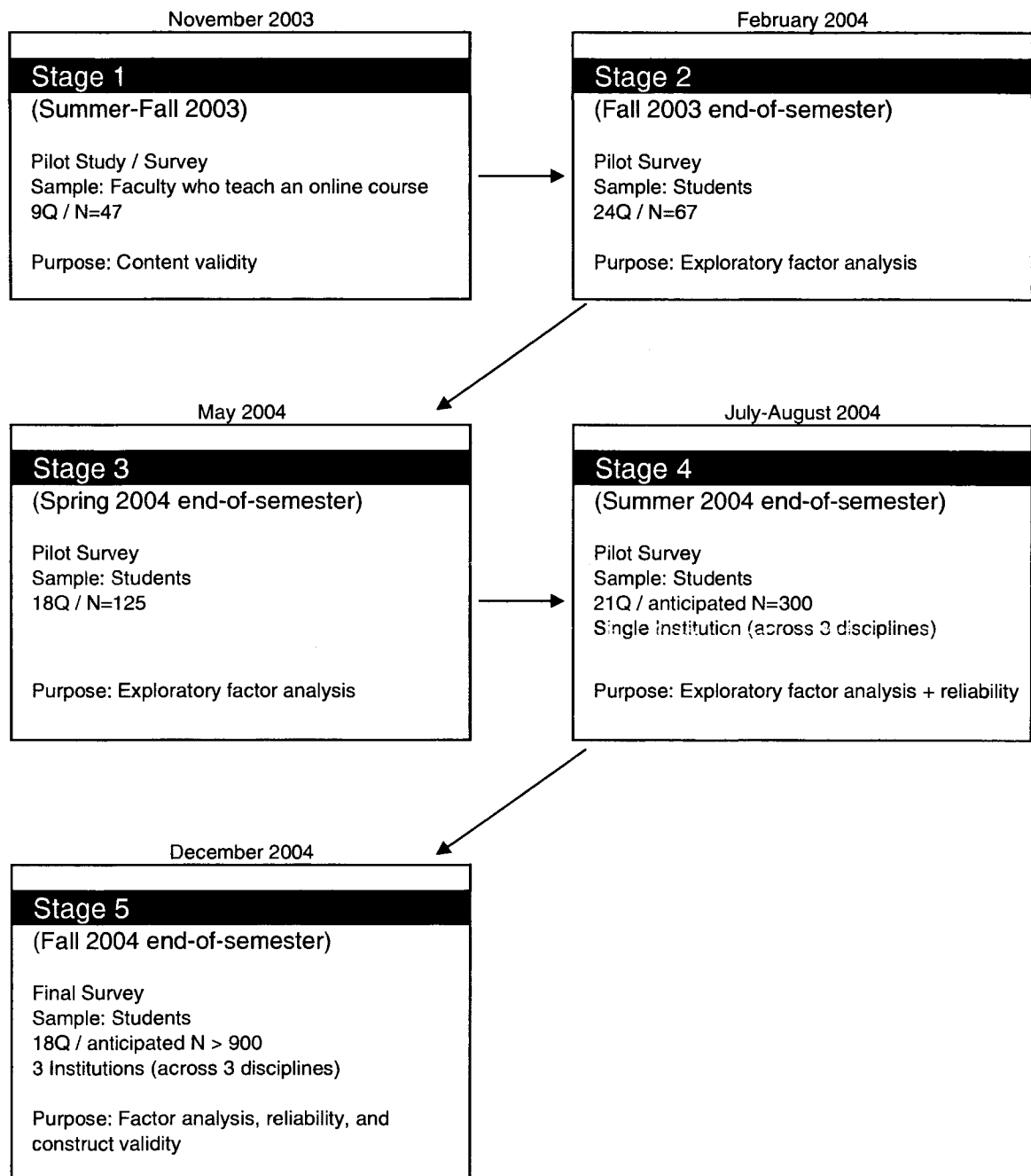
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*Appendix A. Milestone map for multi-stage study.*



**Appendix B1.** Survey used in Stage One pilot study for collecting data from faculty who teach online courses (N=47).

Our group is conducting research about distance education. We are interested in **YOUR APPROACH TO TEACHING ONLINE**. Your response is greatly appreciated... *thank you for your assistance in this project!*  
 David DiRamio  
 UNLV - Department of Educational Leadership  
 702-895-1224 office / 702-895-3492 fax

How important are these in your approach to teaching online?	Very Important	Important	Moderate Importance	Of Little Importance	Unimportant
1. Use group projects to promote collaborative learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Encourage students to share their own experiences, concepts, and ideas in discussions and/or postings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Utilize some method to assess if curriculum is relevant to students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Share your own internal processes (ways of thinking) with students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Incorporate ideas about ethics, character, and leadership into the course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Inspect student writings and postings for evidence of learning, such as presence of course concepts and subject-specific vocabulary.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How important are these in your approach to teaching online?	Very Important	Important	Moderate Importance	Of Little Importance	Unimportant
7. Course has a "learning community" structure - emphasizing interaction between students, instructor as facilitator, peer learning, and jointly constructed knowledge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Clearly state the purpose, scope, and "do's-and-don'ts" for the class.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. From the list above, please rank order your TOP THREE most important (example: 4-3-5):	(please rank order your TOP THREE)				

**Thank you for participating in our survey!**

If you have any **COMMENTS ABOUT TEACHING AND LEARNING ONLINE**, please feel free to submit your comments below (your name and your institution's name will remain strictly confidential!):

Please type your comments here

If you would like a copy of the results of this survey (and the accompanying article "Community at a Distance: A New Framework for Studying Online Education") please include your **EMAIL ADDRESS** here: yourmail@yourschool.edu

Submit

**Appendix B2.** Twenty-four question survey used in Stage Two of study; student exit survey for detecting and measuring an “Online Learning Community.” (N=67)

We are interested in YOUR FEEDBACK regarding the online course that you have completed (are completing). Please answer each question listed below by clicking the radio button corresponding to your best answer. Push the submit button at the bottom when you are done. Your response is greatly appreciated... *thank you for your assistance!*

<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
1. Expectations for the class were clearly stated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I communicated with the instructor regularly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I had the opportunity to work in a group on a project or task.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The instructor incorporated ideas about ethics and ethical situations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. The instructor looked for course concepts and course-specific vocabulary when grading my writing assignments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I had the opportunity to help other students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
7. Material covered was applicable in my own life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. We used discussion threads and posted messages.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I had the opportunity to take a leadership role in some event or task related to the course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I perceived that the instructor knew me as a unique individual enrolled in the course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. "Do's-and-don'ts" for the class were clearly stated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I was challenged to defend my position on an issue.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
13. I was encouraged to share my ideas and experiences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. The instructor shared with me his/her own ways of thinking about problems and problem solving.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. There was a reasonable level of trust and confidentiality.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Interaction between students was important.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. The material covered was relevant to the real world.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I had the freedom to learn the material in my own way.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
19. We were encouraged to use Internet and library resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I had input into the goals and expectations for the course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Back-and-forth emailing was important.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. I've been applying some of what I've learned to my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. The instructor gave helpful tips for the best possible course experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. I had the opportunity to introduce myself to the other students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Submit Survey

**Appendix B3.** Eighteen question survey used in Stage Three of study; student exit survey for detecting and measuring an “Online Learning Community.” (N=125)

We are interested in **YOUR FEEDBACK** regarding the online course that you have completed (are completing). Please answer each question listed below by clicking the radio button corresponding to your best answer. Push the submit button at the bottom when you are finished. Your response is greatly appreciated... *thank you for your assistance!*

<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)	No Opinion
1. Expectations for the class were clearly stated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I had the opportunity to work in a group on a project or task.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. It was important to be self-motivated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I had the opportunity to help other students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)	No Opinion
5. Material covered was applicable in my own life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. We used discussion threads and posted messages.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I had the opportunity to take a leadership role in some event or task related to the course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. "Do's-and-don'ts" for the class were clearly stated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I was empowered to study topics of interest to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)	No Opinion
10. I was encouraged to share my ideas and experiences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. The instructor shared with me his/her own ways of thinking about problems and problem solving.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Interaction between students was important.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I was responsible for my own learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. The instructor looked for course concepts and course-specific vocabulary when grading my writing assignments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)	No Opinion
15. I was challenged to defend my position on an issue.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I had input into the goals and expectations for the course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Back-and-forth emailing was important.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I had the opportunity to introduce myself to the other students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Submit Survey

**Appendix B4.** Twenty-one question survey used in Stage Four of study; student exit survey for detecting and measuring an “Online Learning Community.” (N=347)

We are interested in YOUR FEEDBACK regarding the online course that you have completed (are completing). Please answer each question listed below by clicking the radio button corresponding to your best answer. Push the submit button at the bottom when you are done. Your response is greatly appreciated... *thank you for your assistance!*

<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
1. Expectations for the class were clearly stated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I had the opportunity to work in a group on a project or task.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. It was important to be self-motivated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I had the chance to help other students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Being able to work independently was vital.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
6. We used discussion threads and posted messages.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I took a leadership role in some task or event related to the course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. "Do's-and-don'ts" for the class were provided.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I was self-directed in the study of topics that interested me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I was encouraged to communicate my ideas and experiences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
11. The instructor shared with me his/her own ways of thinking about problems and problem solving.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Interaction between students was important.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I was responsible for my own learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. The instructor looked for course concepts and course-specific vocabulary when grading my writing assignments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. A schedule or calendar was provided showing dates for assignments, tests, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
16. The instructor often took the role of mentor, guiding me through the course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Back-and-forth emailing was important.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I needed to manage my time effectively.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. The instructor was responsive to my questions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I had the opportunity to introduce myself to the other students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. The ability to organize/prioritize was vital.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Submit Survey

**Appendix B5.** Eighteen question survey used in Stage Five of study; student exit survey for detecting and measuring an "Online Learning Community." (N=709)

We are interested in YOUR FEEDBACK regarding the online course that you have completed (are completing). Please answer each question listed below by clicking the radio button corresponding to your best answer. Push the submit button at the bottom when you are done. Your response is greatly appreciated... *thank you for your assistance!*

<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
1. Expectations for the class were clearly stated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I had the opportunity to work in a group on a project or task.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. It was important to be self-motivated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I had the chance to help other students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Being able to work independently was vital.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
6. I had input into the goals and expectations for the course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I took a leadership role in some task or event related to the course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. "Do's-and-don'ts" for the class were provided.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. The ability to organize/prioritize was vital.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I was encouraged to communicate my ideas and experiences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
11. The instructor shared with me his/her own ways of thinking about problems and problem solving.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Interaction between students was important.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I was responsible for my own learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. The instructor looked for course concepts and course-specific vocabulary when grading my writing assignments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. A schedule or calendar was provided showing dates for assignments, tests, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>In my online course...</i>	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
16. The instructor often took the role of mentor, guiding me through the course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I had the opportunity to introduce myself to the other students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I needed to manage my time effectively.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Submit Survey





**Social/Behavioral IRB - Expedited Review  
Approval Notice**

**DATE:** March 31, 2004

**TO:** Dr. Robert Ackerman

**FROM:** Dr. Michael Stitt, Chair *f m Stitt*  
UNLV Social/Behavioral Sciences Institutional Review Board  
via the Office for the Protection of Research Subjects

**RE:** Protocol Title: *Measuring Virtue! Communities* OPRS# 0403 - 1207

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This memorandum is notification that the protocol for the project referenced above has met the criteria for exemption from full committee review by the UNLV Social/Behavioral Institutional Review Board (IRB) as indicated in regulatory statutes 45CFR 46.110. The protocol has been submitted through the expedited review process and has been approved.

The protocol is approved for a period of one year from the date of IRB review. Work on the project may proceed as soon as you receive written notification from OPRS.

Should the use of human subjects described in this protocol continue beyond March 25, 2005, it would be necessary to request an extension 30 days before the expiration date. Should there be any change(s) to the protocol, it will be necessary to request such change in writing through the Office for the Protection of Research Subjects.

If you have questions or require any assistance, please contact the Office for the Protection of Research Subjects at [OPRSHumanSubjects@ccmail.nevada.edu](mailto:OPRSHumanSubjects@ccmail.nevada.edu) or call 895-2794.

*Appendix C2. Modification approval letter, University of Nevada, Las Vegas.*



**Social/Behavioral IRB - Expedited Review  
Modification Approved**

**DATE:** October 1, 2004

**TO:** Dr. Robert Ackerman  
Educational Leadership

**FROM:** Office for the Protection of Research Subjects

Notification of IRB Action by Dr. Michael Stitt  
Chair, UNLV Social/Behavioral Sciences Institutional Review Board

**RE:** Protocol Entitled: **Measuring Virtual Communities** OPRS# 0403 - 1207

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Modification of the subject protocol was reviewed and approved in OPRS via expedited review.

Modifications reviewed for this action include:

Modification in subject pool to include University of Nebraska-Lincoln and Florida State University graduate-level education, agricultural, and business students.

This IRB action will not reset your expiration date for this protocol. The current expiration date for this protocol is March 25, 2005.

If you have questions or require any assistance, please contact the Office for the Protection of Research Subjects at [OPRSHumanSubjects@ccmail.nevada.edu](mailto:OPRSHumanSubjects@ccmail.nevada.edu) or call 895-2794.

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Website: <http://www.unlv.edu/Research/OPRS/>

Office for the Protection of Research Subjects (OPRS)  
4505 Maryland Parkway Box 451037  
Las Vegas, NV 89154-1037  
Office (702) 895-2794 Fax (702) 895-0805

Research Administration Building 104 M/S 1037  
Email: [OPRSHumanSubjects@ccmail.nevada.edu](mailto:OPRSHumanSubjects@ccmail.nevada.edu)  
Website: <http://www.unlv.edu/Research/OPRS/>  
Directions: Campus Map #63

Appendix C3. Review board approval letter, University of Nebraska-Lincoln.



RESEARCH COMPLIANCE SERVICES  
Institutional Review Board

October 29, 2004

Mr. David DiRamio  
543 Meadbury Drive  
Henderson NV 89014

TITLE OF PROJECT: **Measuring Virtual Communities: A Student Exit Survey for  
Use by College Administrators and Faculty Leaders in  
Evaluating Online Courses and Programs**

Dear Mr. DiRamio:

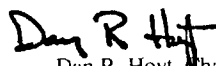
The UNL Institutional Review Board (IRB) for the Protection of Human Subjects received the above-named research project. This is a joint project being conducted for your dissertation at UNLV.

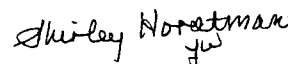
Subject data will be collected in accordance with the UNLV guidelines. The UNL IRB acknowledges that IRB responsibilities have been assigned to UNLV and request that you also keep us informed of the status of your study and continuing approval.

If you have any questions, please contact Shirley Horstman, IRB Administrator, at 472-9417 or email at [shorstman1@unl.edu](mailto:shorstman1@unl.edu).

Best wishes for the success of your research.

Sincerely,

  
Dan R. Hoyt, Chair  
for the IRB

  
Shirley Horstman  
IRB Administrator

Alexander Building West / 312 N. 14th Street / P.O. Box 880408 / Lincoln, NE 68588-0408 / (402) 472-6965 / FAX (402) 472 9323

*Appendix C4. Review board approval letter, Florida State University.*



Office of the Vice President For Research  
Human Subjects Committee  
Tallahassee, Florida 32306-2763  
(850) 644-8673 · FAX (850) 644-4392

**APPROVAL MEMORANDUM**

Date: 11/24/2004

To:  
**David DiRamio**  
543 Meadbury Drive  
Henderson, NV 89014

Dept.: **EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS**

From: **John Tomkowiak, Chair**

Re: **Use of Human Subjects in Research**  
**"Measuring Virtual Communities..." (doctoral dissertation) University of Nevada, Las Vegas**

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Exempt per 45 CFR § 46.101(b) 2 and has been approved by an accelerated review process.

**The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.**

If the project has not been completed by **11/23/2005** you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

Cc: Allan Jeong  
HSC No. 2004.817

Appendix D. Summary of results for Stage One Pilot Survey.

Framework Element	Survey Question (Indicator)	Mean Importance Score	Mean Scale Position	Statistically Significant Correlation?
Climate	Q6. Inspect student writings and postings for evidence of learning, such as presence of course concepts and subject-specific vocabulary.	4.41 (sd=0.96) (n=46)		Yes $r = .450$ Sig. (2-tailed) = .002
	Q8. Clearly state the purpose, scope, and "do's-and-don'ts" for the class.	4.40 (sd=0.85) (n=47)		
Curriculum	Q2. Encourage students to share their own experiences, concepts, and ideas in discussions and/or postings.	4.43 (sd=0.93) (n=47)		No $r = .127$ Sig. (2-tailed) = .399
	Q3. Utilize some method to assess if curriculum is relevant to students.	3.76 (sd=1.08) (n=46)		
Character Dev.	Q4. Share your own internal processes (ways of thinking) with students.	3.74 (sd=1.17) (n=47)		No $r = .178$ Sig. (2-tailed) = .231
	Q5. Incorporate ideas about ethics, character, and leadership into the course.	3.51 (sd=1.27) (n=47)		
Community	Q1. Use group projects to promote collaborative learning.	3.02 (sd=1.38) (n=47)		Yes $r = .652$ Sig. (2-tailed) = .000
	Q7. Course has a "learning community" structure - emphasizing interaction between students, instructor as facilitator, peer learning, and jointly constructed knowledge.	4.00 (sd=1.29) (n=47)		

Appendix E1. Faculty Report #1 from Stage Two of the study.

Online Learning Community Survey  
Example Course "A" (N=20)

**Component 1: "Structure"**

<b>EXAMPLE COURSE "A" Composite Mean</b> <b>= 3.24 out of 4.00 (SD = 0.66)</b>	
<b>All Surveys (N=67) Composite Mean</b> <b>= 3.47 out of 4.00 (SD = 0.61)</b>	

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	20	3	4	3.55	.510
Q4	20	2	4	3.15	.587
Q5	16	3	4	3.44	.512
Q6	18	1	4	2.94	.639
Q7	20	2	4	3.50	.607
Q11	18	1	4	3.17	.857
Q12	20	1	4	2.95	.887
Valid N (listwise)	15				

**Outstanding "Structure" Elements**

(Scored above 0.50 SD of the All Surveys Composite Mean = >3.78)

\* None \*

**Room-for-Improvement? "Structure" Elements**

(Scored below 0.50 SD of the All Surveys Composite Mean = <3.17)

- Q4. The instructor incorporated ideas about ethics and ethical situations. (3.15)  
 Q6. I had the opportunity to help other students. (2.94)  
 Q12. I was challenged to defend my position on an issue. (2.95)

Note: Survey uses a 1 to 4 (SA-A-D-SD) Likert Scale with a "No Opinion" option. "No Opinion" answers are disregarded in statistical computations.

**Online Learning Community Survey**  
**Example Course "A" (N=20)**

**Component 2: "Communication"**

<b>EXAMPLE COURSE "A" Composite Mean</b> <b>= 3.63 out of 4.00 (SD = 0.48)</b>	
<b>All Surveys (N=67) Composite Mean</b> <b>= 3.61 out of 4.00 (SD = 0.59)</b>	

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Q8	20	3	4	3.85	.366
Q14	20	3	4	3.65	.489
Q16	19	3	4	3.53	.513
Q21	20	2	4	3.45	.605
Q22	20	3	4	3.50	.513
Q24	19	3	4	3.79	.419
Valid N (listwise)	18				

**Outstanding "Communication" Elements**

(Scored above 0.50 SD of the All Surveys Composite Mean = >3.91)

\* None \*

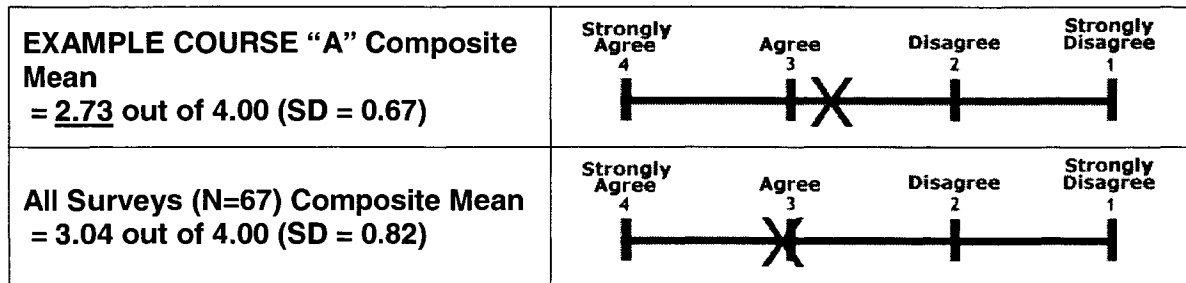
**Room-for-Improvement "Connections" Elements**

(Scored below 0.50 SD of the All Surveys Composite Mean = <3.32)

\* None \*

**Online Learning Community Survey  
Example Course “A” (N=20)**

**Component 3: “Empowerment”**



**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Q3	19	2	4	3.05	.621
Q9	18	2	4	2.83	.707
Q20	16	1	4	2.25	.683
Valid N (listwise)	15				

**Outstanding “Empowerment” Elements**

(Scored above 0.50 SD of the All Surveys Composite Mean = >3.45)

\* None \*

**Room-for-Improvement? “Empowerment” Elements**

(Scored below 0.50 SD of the All Surveys Composite Mean = <2.63)

**Q20. I had input into the goals and expectations for the course. (2.25)**



Appendix E2. Faculty Report #2 from Stage Two of the study.

Online Learning Community Survey  
Example Course "B" (N=9)

**Component 1: "Structure"**

<b>Example Course "B" Composite Mean</b> <b>= 3.73 out of 4.00 (SD = 0.40)</b>	
<b>All Surveys (N=67) Composite Mean</b> <b>= 3.47 out of 4.00 (SD = 0.61)</b>	

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	9	3	4	3.78	.441
Q4	9	4	4	4.00	.000
Q5	9	3	4	3.89	.333
Q6	9	3	4	3.44	.527
Q7	9	3	4	3.78	.441
Q11	9	3	4	3.56	.527
Q12	8	3	4	3.63	.518
Valid N (listwise)	8				

**Outstanding "Structure" Elements**

(Scored above 0.50 SD of the All Surveys Composite Mean = >3.78)

- Q1. Expectations for the class were clearly stated. (3.78)
- Q4. The instructor incorporated ideas about ethics and ethical situations. (4.00)
- Q5. The instructor looked for course concepts and course-specific vocabulary when grading my writing assignments. (3.89)
- Q7. Material covered was applicable in my own life. (3.78)

**Room-for-Improvement "Structure" Elements**

(Scored below 0.50 SD of the All Surveys Composite Mean = <3.17)

\* None \*

Note: Survey uses a 1 to 4 (SA-A-D-SD) Likert Scale with a "No Opinion" option. "No Opinion" answers are disregarded in statistical computations.

**Online Learning Community Survey  
Example Course “B” (N=9)**

**Component 2: “Communication”**

<b>Example Course “B” Composite Mean</b> <b>= 3.46 out of 4.00 (SD = 0.83)</b>	
<b>All Surveys (N=67) Composite Mean</b> <b>= 3.61 out of 4.00 (SD = 0.59)</b>	

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Q8	9	2	4	3.67	.707
Q14	9	2	4	3.44	.882
Q16	9	1	4	3.22	1.093
Q21	9	1	4	3.22	1.093
Q22	9	2	4	3.33	.866
Q24	9	3	4	3.89	.333
Valid N (listwise)	9				

**Outstanding “Communication” Elements**

(Scored above 0.50 SD of the All Surveys Composite Mean = >3.91)

\* None \*

**Room-for-Improvement “Communication” Elements**

(Scored below 0.50 SD of the All Surveys Composite Mean = <3.32)

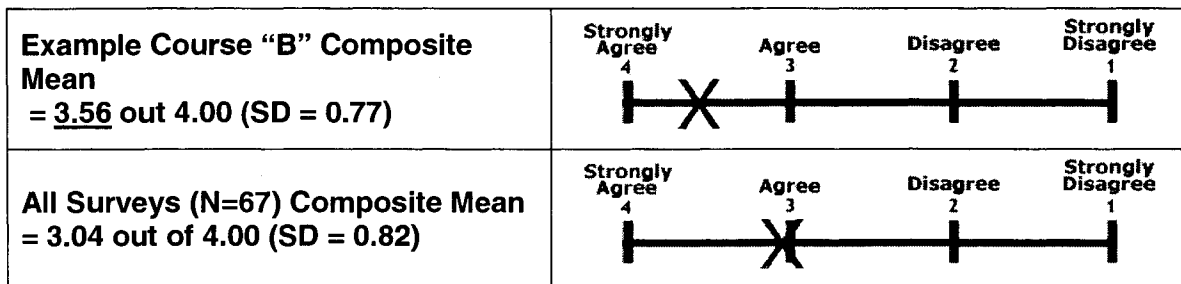
Q16. Interaction between students was important. (3.22)

Q21. Back-and-forth emailing was important. (3.22)

Appendix E2 (Cont'd). Faculty Report #2 from Stage Two of the study.

**Online Learning Community Survey  
Example Course "B" (N=9)**

**Component 3: "Empowerment"**



**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Q3	9	3	4	3.89	.333
Q9	9	2	4	3.67	.707
Q20	9	1	4	3.11	1.269
Valid N (listwise)	9				

**Outstanding "Empowerment" Elements**

(Scored above 0.50 SD of the All Surveys Composite Mean = >3.45)

- Q3. I had the opportunity to work in a group on a project or task. (3.89)  
 Q9. I had the opportunity to take a leadership role in some event or task related to the course. (3.67)

**Room-for-Improvement "Empowerment" Elements**

(Scored below 0.50 SD of the All Surveys Composite Mean = <2.63)

\* None \*

*Appendix F. Reliability and factor consistency across University of Nevada, Las Vegas sub-samples for Stage Five.*

<u>Question</u>	<u>All Surveys (N = 709)</u>	<u>UNLV Education (n = 66)</u>	<u>UNLV Bus./Prof. (n = 76)</u>	<u>UNLV Soc. Sci. /Other (n = 151)</u>
Component One "Instructor's Role "				
Q8	<b>.696</b>	<b>.609</b> [.51]	<b>.714</b> [.57]	<b>.780</b> [.41]
Q10	<b>.575</b>	<b>.840</b> [.71]	<b>.805</b> [.67]	<b>.688</b> [.56]
Q11	<b>.770</b>	<b>.784</b> [.72]	<b>.524</b> [.52]	<b>.838</b> [.51]
Q14	<b>.676</b>	<b>.571</b> [.65]	<b>.683</b> [.59]	<b>.634</b> [.38]
Q16	<b>.781</b>	<b>.807</b> [.76]	<b>.757</b> [.72]	<b>.793</b> [.47]
Rel. $\alpha$	.794	.850	.815	.792
Component Two "Connections"				
Q2	<b>.830</b>	<b>.789</b> [.69]	<b>.821</b> [.69]	<b>.811</b> [.47]
Q4	<b>.753</b>	<b>.806</b> [.70]	<b>.613</b> [.50]	<b>.749</b> [.52]
Q7	<b>.751</b>	<b>.750</b> [.57]	<b>.748</b> [.58]	<b>.815</b> [.42]
Q12	<b>.742</b>	<b>.662</b> [.56]	no (.468) [.68]	<b>.751</b> [.51]
Rel. $\alpha$	.804	.797	.740	.751
Component Three "Student's Responsibility"				
Q3	<b>.789</b>	<b>.792</b> [.67]	<b>.889</b> [.79]	<b>.821</b> [.52]
Q9	<b>.730</b>	<b>.518</b> [.52]	<b>.872</b> [.82]	<b>.771</b> [.62]
Q13	<b>.715</b>	<b>.800</b> [.66]	<b>.853</b> [.76]	<b>.905</b> [.58]
Q18	<b>.717</b>	no (.130) [.42]	<b>.812</b> [.85]	<b>.837</b> [.61]
Rel. $\alpha$	.738	.586	.906	.759
Total Var. Explained	59.2%	62.7%	67.1%	60.0%

Notes. Communalities scores for sub-samples shown bracketed beneath associated factor score.  
Shaded score shows survey question's inclusion in component grouping.  
(DNF) Indicates "Did not factor" / Factor was not included in component analysis.

*Appendix F (Cont'd).* Reliability and factor consistency across University of Nebraska sub-samples for Stage Five.

Question	All Surveys (N = 709)	Nebraska Education (n = 96)	Nebraska Bus./Prof. (n = 82)	Nebraska Soc. Sci. /Other (n = 39)
Component One "Instructor's Role "				
Q8	<b>.696</b>	no (.246) [.42]	<b>.693</b> [.51]	<b>.782</b> [.69]
Q10	<b>.575</b>	<b>.541</b> [.41]	no (.231) [.55]	<b>.729</b> [.64]
Q11	<b>.770</b>	<b>.829</b> [.71]	<b>.632</b> [.66]	<b>.758</b> [.62]
Q14	<b>.676</b>	<b>.626</b> [.49]	<b>.718</b> [.65]	<b>.507</b> [.72]
Q16	<b>.781</b>	<b>.829</b> [.69]	<b>.780</b> [.64]	no (.246) [.69]
Rel. $\alpha$	.794	.747	.747	.660
Component Two "Connections"				
Q2	<b>.830</b>	<b>.771</b> [.69]	<b>.905</b> [.83]	<b>.816</b> [.70]
Q4	<b>.753</b>	<b>.818</b> [.71]	<b>.498</b> [.40]	<b>.796</b> [.71]
Q7	<b>.751</b>	<b>.734</b> [.65]	<b>.845</b> [.75]	<b>.840</b> [.76]
Q12	<b>.742</b>	<b>.750</b> [.63]	<b>.824</b> [.78]	<b>.781</b> [.80]
Rel. $\alpha$	.804	.793	.827	.853
Component Three "Student's Responsibility"				
Q3	<b>.789</b>	<b>.776</b> [.65]	<b>.814</b> [.69]	<b>.721</b> [.61]
Q9	<b>.730</b>	<b>.721</b> [.56]	<b>.871</b> [.78]	<b>.694</b> [.58]
Q13	<b>.715</b>	<b>.543</b> [.43]	DNF [.81]	DNF [.67]
Q18	<b>.717</b>	<b>.814</b> [.71]	no (.379) [.56]	<b>.816</b> [.75]
Rel. $\alpha$	.738	.725	.545	.635
Total Var. Explained	59.2%	59.7%	56.5%	58.0%

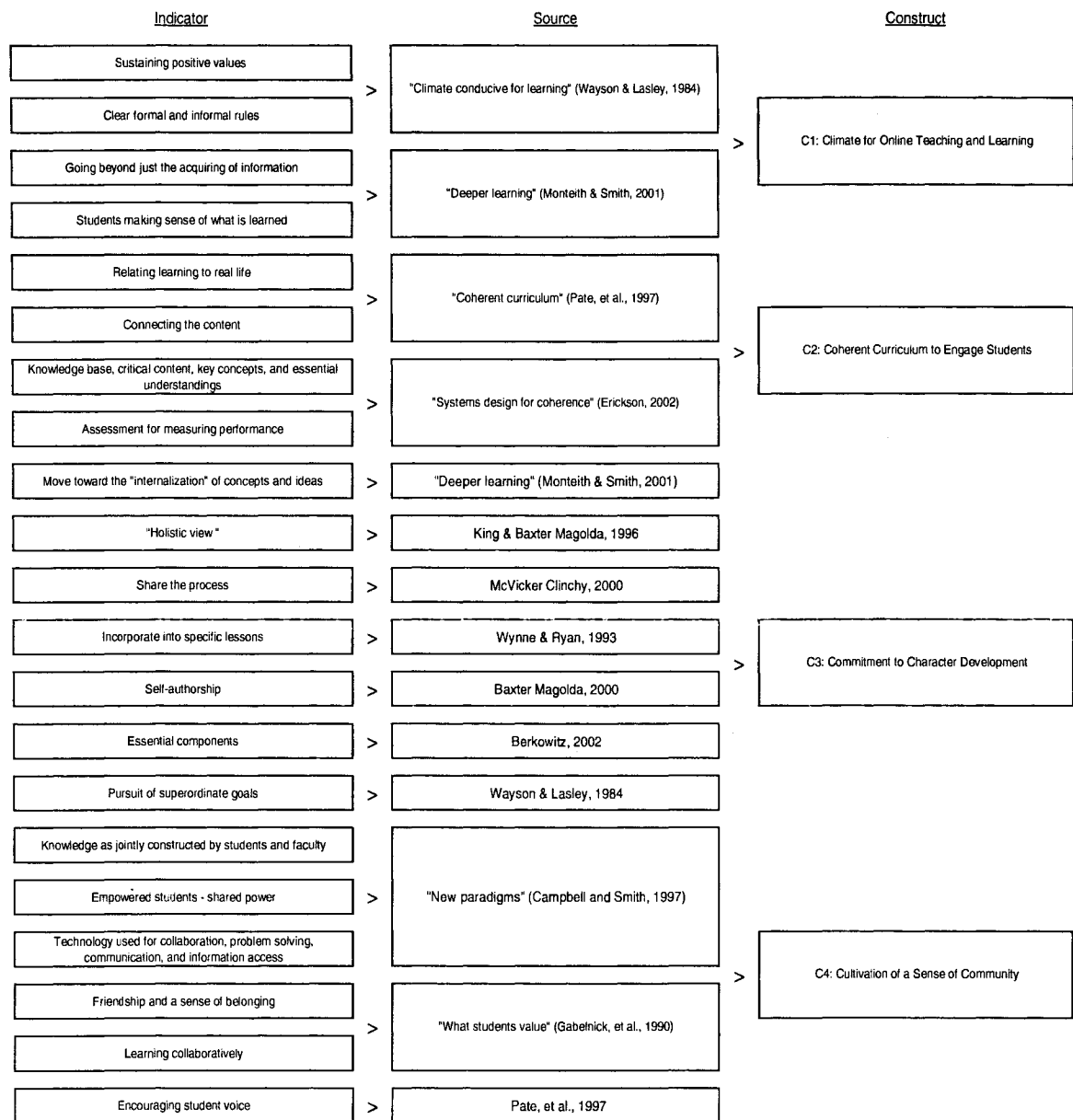
Notes. Communalities scores for sub-samples shown bracketed beneath associated factor score.  
 Shaded score shows survey question's inclusion in component grouping.  
 (DNF) Indicates "Did not factor" / Factor was not included in component analysis.

*Appendix F (Cont'd).* Reliability and factor consistency across Florida State University sub-samples for Stage Five.

Question	All Surveys (N = 709)	Florida St. Education (n = 76)	Florida St. Bus./Prof. (n = 62)	Florida St. Soc. Sci. /Other (n = 60)
Component One "Instructor's Role "				
Q8	<b>.696</b>	<b>.787</b> [.63]	no (.231) [.51]	<b>.805</b> [.71]
Q10	<b>.575</b>	<b>.626</b> [.53]	DNF [.78]	<b>.777</b> [.64]
Q11	<b>.770</b>	<b>.806</b> [.65]	DNF [.60]	<b>.728</b> [.77]
Q14	<b>.676</b>	<b>.707</b> [.57]	<b>.711</b> [.53]	<b>.781</b> [.63]
Q16	<b>.781</b>	<b>.778</b> [.68]	<b>.834</b> [.76]	<b>.890</b> [.85]
Rel. $\alpha$	.794	.826	.669	.871
Component Two "Connections"				
Q2	<b>.830</b>	<b>.710</b> [.56]	<b>.776</b> [.75]	<b>.640</b> [.55]
Q4	<b>.753</b>	<b>.772</b> [.63]	<b>.692</b> [.57]	<b>.678</b> [.66]
Q7	<b>.751</b>	<b>.723</b> [.61]	<b>.754</b> [.60]	<b>.757</b> [.60]
Q12	<b>.742</b>	no (.407) [.41]	<b>.517</b> [.51]	DNF [.84]
Rel. $\alpha$	.804	.645	.665	.532
Component Three "Student's Responsibility"				
Q3	<b>.789</b>	<b>.776</b> [.61]	<b>.798</b> [.66]	<b>.750</b> [.59]
Q9	<b>.730</b>	<b>.783</b> [.71]	<b>.625</b> [.67]	<b>.718</b> [.76]
Q13	<b>.715</b>	<b>.757</b> [.59]	<b>.815</b> [.75]	<b>.569</b> [.47]
Q18	<b>.717</b>	<b>.755</b> [.77]	DNF [.45]	<b>.835</b> [.73]
Rel. $\alpha$	.738	.785	.579	.710
Total Var. Explained	59.2%	61.1%	48.7%	57.2%

Notes. Communalities scores for sub-samples shown bracketed beneath associated factor score.  
Shaded score shows survey question's inclusion in component grouping.  
(DNF) Indicates "Did not factor" / Factor was not included in component analysis.

**Appendix G. Literature review supporting the "4C" conceptual framework: Inspired by the "nomological network" (Cronbach & Meehl, 1955).**



## VITA

Graduate College  
University of Nevada, Las Vegas

David C. DiRamio

### Home Address:

543 Meadbury Drive  
Henderson, NV 89014

### Degrees:

Bachelor of Science in Business Administration, 1991  
State University of New York at Buffalo

Master of Business Administration, 1993  
State University of New York at Buffalo

Doctor of Philosophy in Educational Leadership, 2005  
University of Nevada, Las Vegas

### Publications:

Ackerman, R.L., DiRamio, D., & Wilson, J. (in press, 2005). Knowledge and involvement of student affairs officers in financial decision-making. *The College Student Affairs Journal*, 46.

DiRamio, D., & Kops, G.C. (2004). Distance education and digital intellectual property issues. *Planning for Higher Education*, 32(3). 37-46.

Dissertation Title: Virtual Learning Community: A Student Exit Survey and Qualitative Framework

### Dissertation Examination Committee:

Chair, Robert Ackerman, Ed.D.

Committee Member, Teresa Jordan, Ph.D.

Committee Member, Mimi Wolverton, Ph.D.

Graduate Faculty Representative, Randall Boone, Ph.D.