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**CULTURE AND MOTIVATION IN ONLINE
LEARNING ENVIRONMENTS**

by

Frances A. Clem

A Dissertation Submitted to the Faculty of
San Diego State University and the University of San Diego
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Dissertation Committee:

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May 2005

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by

Frances A. Clem

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DEDICATION

For my mother, Janet Runft Clem, who never doubted that I would accomplish what I undertook, and for my daughter, Janet Catherine Kling, who will certainly accomplish far more than I.

The trouble with the world is that the stupid are cocksure and the intelligent are full of doubt.

-Bertrand Russell

ABSTRACT OF THE THESIS

Culture and Motivation in Online Learning Environments

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Doctor of Education

San Diego State University & the University of San Diego 2005

In the past, instructional design of online learning has largely ignored culture in the creation of online learning environments. Because research in the interaction of culture and online learning is very sparse, an exploratory, blended study was conducted to assess whether there is evidence that one measurable aspect of learners' culture interacts with the online learning environment in ways that can be observed and identified, and whether this interaction impacts learners' motivation and behavior in those environments.

"Culture" is a complex concept consisting of many interrelated behaviors and values. For this reason, the study focused on one single aspect of culture—Hofstede's individualist/collectivist (IC) orientation—and investigated its relationship to learner behavior and motivation in online learning environments.

This study found patterns of significant correlations between motivation and IC variables within the online learning environments, as well as between certain types of online interactions (particularly listserv usage) and IC variables.

Patterns of correlations between IC scores and synchronous activities, asynchronous activities, individual components, and group work were clearly observable. Of these, the synchronous component seems to have the weakest associations, possibly due to a relatively small sample size. There is clearly an association between respondents' emotional reactions to synchronous work and their IC scores; however, these coefficients are uniformly negative. This indicates that, as a learner collectivist score increases, the emotional reaction that the learner experiences as a result of synchronous components decreases.

The results of this study indicate that further research in this area is warranted. Instructional designers and implementers should be aware of potential interactions between online learning environments and the cultural characteristics of the learners who utilize them. Understanding how a learner's culture may interact with specific online learning components makes possible the exploration and creation of alternative means of supporting learners in the construction of knowledge.

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PREFACE

The goal of this study is to learn how to increase the effectiveness of online learning for all cultural groups. It is *not* intended to single out particular groups, based on culture, and label them as “motivated” or “unmotivated”.

Because the issue of culture in online learning environments has never been adequately studied, we risk inadvertently disenfranchising large groups of potential learners. Only if we understand how learners’ cultural background affects their perception of and reaction to various components of online courses can we hope to design courses that are truly inclusive.

Similarly, instructional designers may be wholly unaware of how their own cultural biases may act to reduce the motivation level of their learners. This study aims to help us better comprehend the needs of learner audiences so that we can provide learning environments that are more effective and motivating to learners, thus increasing their opportunities for success.

Since culture is a multi-faceted concept; this dissertation will address only a few aspects of the complex of traits we refer to as culture. Additionally, each individual lives in multiple cultures simultaneously; thus at the individual level we’re looking a kaleidoscope of facets that can affect a learner’s responses. Still, if we begin to see that there may be persuasive evidence that we must consider culture in online learning environments rather than ignoring it, we will have taken a step toward better access to learning environments for all.

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Having the help and guidance of Drs. Bernie Dodge, Farhad Saba, and Susan Zgliczynski has been invaluable, not only in the writing of this dissertation but also in the development of my thoughts and knowledge throughout the doctoral program. It has been a huge privilege to work with all three of these professors, and a lot of fun, too.

The Director of SDSU's Interwork Institute, Michelle Warn, was a wonderful help and support throughout the data gathering phase of this research. Michelle gave me entrée to the classes I needed for research subjects, encouraged me when problems arose, and was generous with her time and expertise. I owe her as well as the SDSU/Interwork professors and facilitators a great debt of thanks. Likewise the students who gave their time and attention as study subjects; for many of them this study took place in the last semester of a long and difficult program, at a time when they were overworked and overstressed. I appreciate their willingness to participate and their interest in the study results.

Thanks are also due to my dear friend and colleague Sylvia Levinson for coming to my rescue with much needed research assistance more than once, and for her continuing encouragement and interest.

My own family deserves more credit than I can convey. They put up with my inattention, lack of time for almost anything other than this dissertation while I was working on it, anxiety, and frequent grouchiness for longer than anyone should have to, all the while giving me loving support, backrubs, and an occasional gentle whack upside the head. All were required at the time and will be happily returned when needed. After all, that is what families are for.

CHAPTER 1

INTRODUCTION

Online learning has been hailed as a huge step forward for education. Academia is increasingly offering Internet-based distance courses because they allow “anywhere, anytime” learning and access to a wider pool of students. Firms and organizations like it for training employees because it permits consistency and repeatability in training delivery. To a lesser extent, K-12 educators endorse it because it teaches children important skills that they will need in their advanced education process and in their careers.

But there is persuasive evidence that not all learners like learning online equally. Or at least not all learners seem to benefit from it equally.

HIGH ATTRITION IN ONLINE LEARNING

As online learning has become more prevalent, there have surfaced some significant problems with its use and implementation that go beyond the level of technical issues such as bandwidth, access speed, and memory/storage requirements. Chief among these is attrition, which has shown up as a major problem in both academic and corporate environments.

Anecdotal evidence and individual reports suggests that dropout rates in industry tend to be from 10-50% higher in online courses (Frankola, 2001), while academic institutions estimate that their attrition may be as high as 30-50% (Cornell & Martin, 1997). In a 2002 study, Santa Barbara City College found that their online success rate was 53% compared to 69% for their classroom courses (Serban & Fleming, 2002).

Some initial attempts to analyze this fact of online learning have been published recently; these have considered such issues as Kemp’s (2002) investigation of the relation between persistence, life events, external commitments, and resiliency in undergraduate distance education, in which she found only a correlation between a few resiliency skills and persistence. Hara and Kling’s (2001) well-publicized ethnography of a small class of

education students documented their sometimes-extreme frustration with the online environment and its constraints. Shin (2003) has looked at transactional presence as a predictor of learning achievement, satisfaction, and persistence. But there has been limited empirical or theoretically based research that would explain this apparent failure in motivation on the part of online students.

What if one contributor to this higher attrition lies in the interplay of attributes of learners *and* online learning environments, rather than merely in the attributes of e-learners alone? What if some aspects of online learning have characteristics that act to reduce motivation, and therefore persistence, for certain groups of learners? This is the essential issue that this paper will attempt to shed light on.

STATEMENT OF THE PROBLEM

In the past, instructional design of online learning has largely ignored culture in the creation of online learning environments (Thomas, 2002). By not taking learners' culture into consideration, it is possible that online learning has been designed in such a way as to negatively impact learners' motivation and persistence levels.

Online learning has been implicitly considered the lingua franca of education in terms of its functioning and graphic content (Gunawardena & McIsaac, 2004, p.363). Affordances of online learning environments such as navigation, use of icons, graphic aspects, controllability by the user, and much more have been investigated for usability and efficacy. Individual user differences have also been studied in detail in terms of users' information processing styles (right or left brain dominance), their spatial perceptions and processing, field dependence/independence, cognitive mapping ability, holist versus serialist information processing styles, etc. (Allen, 2000; Baylor, 1999; Chen, 2000; Ford, 2000; Frick et al., 1999; Lazonder, Biemans, & Wopereis, 2000; Palmquist & Kim, 2000, among many others).

But there may be other issues at play here as well. For example, Merryfield (2001) found unexpected challenges in transferring a course on diversity in education to the Internet. She observed that many of the behavioral aspects that differentiated students were broken along cultural lines, and noted that this may have implications for equity of access.

In the European Union, where issues of cultural diversity loom even larger than they do in American classrooms, there have already been some efforts to find an acceptable middle ground in educational software and to make it more portable across political and ethnic borders. According to Collis and Remmers (1997) such barriers as (human) language and vocabulary; problems of differences in educational cultures and environments; teaching style differences; problems relating to the ergonomics of different human languages in terms of their display and handling by computers; and technical problems relating to platforms, operating systems, and the lack of standard interfaces and module libraries were considered. These deliberations seem to have reduced technical problems, but pedagogical and cultural issues continue, negatively impacting the ability to port educational software originally designed for a given environment to larger markets. Suggestions offered by the Commission of the European Communities are pragmatic and aim at making educational software equally usable by all, but they do not address issues of learner motivation or persistence except by inference.

Because research in the interaction of culture and online learning is very sparse (Collis, 1999; Collis & Remmers, 1997; Thomas, 2002), an exploratory study was needed to assess whether there is evidence that some measurable aspect of learners' culture interacts with the online learning environment in ways that can be observed and identified. Such a study would open the way to further research to evaluate the effects of learner culture on cognition within online learning, perception of affordances, problem-solving, and especially motivation. Evidence that cultural issues are among the widening range of factors that affect how users utilize online learning environments should encourage course designers to take that fact into account when designing courses.

As a recent artifact of (primarily) Western culture, online learning environments may not be able to be correctly assessed by their creators for evidence of their own cultural bias. Unless we are aware of our own ethnocentrism and attempt to look at it for what it is, we will never see it. Thoughtful people have come to understand that the imposition of one culture on another is not desirable or legitimate, but if culture leaves its trace at the level of cognition and perception, we may not be aware of its influence. The fact that online learning and distance education can act to impose its authors' goals,

perspectives, and standards on a receiving culture (Gunawardena & McIsaac, 2004, p. 388) is very rarely cited in the literature.

Understanding how a learner's culture interacts with a major delivery method such as online learning makes possible the exploration and creation of alternative means of supporting learners in the construction of knowledge. Not doing so may well condemn groups other than the course implementer's or author's to higher attrition and reduced chances of benefiting from a digital learning environment.

As "culture" is a complex variable, this study will attempt to isolate and investigate the interaction of one single aspect of learner culture (Individualism/Collectivism) with online learning environments and then to analyze the effect of that interaction on learner motivation and persistence levels. Specifically, this study will investigate the question:

Is there a relationship between learners' IC profiles and their reactions to specific online course components, or between learners' IC profiles and their interactions in online learning environments, that would suggest that the learners are differentially motivated by the course components?

HYPOTHESES

Scholars have attempted to measure the "motivational content" of online learning environments in terms of various components offered within the environment, such as games, types of activities, visual components, site organization, etc. (Keller, 1999; Keller & Suzuki, 1988; Lepper & Malone, 1987; Small, 1997a). However, if the theories cited in this paper are correct, learners' emotional reactions to some of these elements will vary depending on their Individualism/Collectivism (IC) profile and will not find the components equally motivating. Thus, the first hypothesis to be investigated in this paper is:

H₁: The activities that learners find most motivating will show a correlation with learners' IC profile.

Many theorists recommend group activities, introductions, and intense interaction among the learners in an online class (e.g., Palloff & Pratt, 1999; Ravitz, 1997). Instructors may partially base grades on the types and/or frequency of interactions, either in synchronous and asynchronous environments, without reference to learners'

characteristics. However, Individualists and Collectivists vary considerably in terms of how they identify with and interact with groups, the significance the group holds for them, and the degree to which they are willing to submerge their own goals and identities in that of the group. This is likely show up in the types of interactions they engage in. Thus, the second hypothesis to be investigated in this paper is:

H₂: Interaction among learners, in terms of frequency and type, will correlate with learners' IC profiles.

RATIONALE AND THEORETICAL FRAMEWORK:

Most of the few research efforts focusing on the effects and interaction of learners' culture in an online learning environment (Bohlin & Bohlin, 2002; Collis & Remmers, 1997; Faiola, 2002; Geer, 2001; Kim & Bonk, 2002; Wilson, Gunawardena & Nolla, 2000) have been observational in nature, handled primarily as case studies; none has had a rigorous conceptual or theoretical base to guide the process of inquiry. Thus they have provided specific information about cultural effects in specific circumstances, without offering a framework that can be extended further.

One recent study (Vishwanath, 2003) used Hofstede's Uncertainty Avoidance Index (UAI) as a theoretical basis to evaluate different cultures' tolerance for and reaction to varying levels of incomplete information in online environments. Using an online auction (eBay), Vishwanath analyzed the impact of varying levels of seller-specified information on the attractiveness of an auction; subjects included Japanese (who rank very high on the UAI), Germans (who rank moderately), and Americans (who rank very low on the UAI). Study results indicated a significant interaction between culture, information levels, and the UAI, and were consistent with Hofstede's UAI rankings for the cultures studied.

To date, this author has been unable to locate any research directed at evaluating the interrelationship of culture and motivation in an online learning environment, in spite of searching in educational publication databases (e.g., ERIC) as well as databases of publications in the fields of psychology and relevant technology.

If it is true that instructional designers must constantly be aware of the influence culture can play when developing learning experiences for the Internet or the classroom

(Holmes & LaBoone, 2002), then they can benefit from theory developed for other scholarly disciplines.

Thus we must be prepared to examine the intersection of several theoretical frameworks. In this study, Ford's Motivational Systems Theory (Ford, 1992) will anchor the understanding of the dynamics of motivational theory. Support for the notion that cognition is socially grounded will come predominantly from the work done by Gauvain (1995; 2001), and cultural value constructs will be based on the very extensive and well recognized work of such researchers and theorists as Hofstede (2001), Triandis (1995), and Rokeach (1973; 1979). In particular, Hofstede's theoretical structure of cultural attributes will provide a framework for delimiting the scope of the inquiry in terms of the central cultural value to be evaluated for motivational interaction in the online learning environment, while the work of Triandis, Hui (1988), and Matsumoto (2003) will provide the definitions and measurement tools for e-learners' IC orientation.

SIGNIFICANCE

Uncovering evidence that culture does, indeed, play a role in how learners behave in and react to online learning environments may have potentially wide implications, especially for institutions of higher learning that offer their courses internationally and for corporations that use online training in their global operations. Instructional designers will be encouraged to evaluate their audiences based on an additional dimension and will be better equipped to structure their online learning in such a way as to present to each learner with the most useful and beneficial activities for that learner. If learners' motivations are better supported, their persistence may be enhanced and encouraged. Online learning already in use can be evaluated, particularly courses that have high attrition rates, and can be reconfigured more advantageously.

But the most important result from a better understanding of the interplay between learner culture and online learning is enhanced access and a heightened potential for success for *all* e-learners. McPhail, McPhail & Smilkstein (2001, p. 10-11) express the goal of this study well, when they observed,

If the functions and structures that students of whatever age bring to school are not compatible with, are not expected by, are not provided for nor respected and valued in the curriculum and pedagogy of the classroom, then

the students will be at a critical academic, emotional, and social disadvantage in that unfamiliar world.

DEFINITION OF TERMS

Several terms will be used frequently throughout this paper. Below is a brief definition of each one.

Online learning: learning mediated by computer, whether via the Internet, World Wide Web, or residing in the local computer itself. In the past this has also been referred to as Computer Based Instruction (CBI), computer-based learning, and so forth. In all online learning the student is primarily interacting with a computer, although the instructor may be available via email or online postings. Learners may have interaction with other learners as well, but primarily via email or postings.

Motivation: a general term that encompasses such concepts as persistence, interest, curiosity, attribution, personal agency, expectations of success, etc. Motivation is considered to be an internal state of the learner in this paper, as evidenced by the learner's behavior.

Persistence: an element of motivation, evidenced by the learner's continuing focus on the achievement of specific goals even if there are alternatives available to the person.

Culture: like motivation, this is a general term that includes many subsidiary concepts. Its definition may include the language, behaviors, values, norms, beliefs, and practices shared by a group of people, though social scientists and anthropologists vary on their definitions of what comprises a culture, subculture, or microculture (Ziegahn, 2001). Anthropological definitions of culture are explicitly limited to learned behavior, excluding that which is genetically inherited or solely individual (Taylor, 1969, p. 14).

Values: "...core conceptions of the desirable within every individual and society. They serve as standards or criteria to guide not only action but also judgment, choice, attitude, evaluation, argument, exhortation, rationalization, and. attribution of causality. Values are learned and determined by culture, society, society's

institutions, and personal experience, and are determinants in turn of attitudes, judgments, choices, attributions, and actions." (Rokeach, 1979, p. 2)

ASSUMPTIONS AND LIMITATIONS:

This study looks for evidence regarding the influence on motivation and persistence caused by the interaction of online learning and only one aspect of learners' culture. As will be discussed in greater detail below, the concept of "culture" consists of many interlocking dimensions that influence each other in ways that are not yet clearly understood. So while the results of this study may imply that there could be benefits in studying how other cultural characteristics influence the learner's perceptions and cognition in an online learning environment, it cannot furnish direct evidence of such a phenomenon.

This study was undertaken as an exploratory study only. It attempts to provide a theoretical and research framework for the future evaluation of cultural effects in online learning, but due to its exploratory nature, it does not provide clear evidence that can be exactly replicated. Furthermore, due to its limited scope, it is not generalizable to larger populations or cultural communities.

CHAPTER 2

LITERATURE SURVEY

The possibility that learner culture and persistence may be linked in online learning environments has no direct evidence. There appears to be no extant research that has explicitly investigated this proposition; there are no confirming studies. The evidence is circumstantial but persuasive in its range and totality. It comes from a variety of disciplines however, and is scattered across several theories, all of which require explication in order to make a case.

The research question to be investigated is: *Is there a relationship between learners' IC profiles and their reactions to specific online course components, or between learners' IC profiles and their interactions in online learning environments, that would suggest that the learners are differentially motivated by the course components?*

An overall view of the interactions proposed in this paper is shown in Figure 1. Relevant research will be cited to support major links indicated in the graphic in order to show how culture and online learning may interact, affecting learner motivation and persistence.

To explain the linkages shown in the diagram, this chapter will begin with a general discussion covering theories of persistence in distance learning. It will continue by reviewing research that explains how culture may affect both cognition and values followed by a discussion of the specific culturally related value of Individualism/Collectivism. It will conclude with a review of motivational theory, especially Ford's Motivational Systems Theory (MST), and how motivation and persistence are affected by the individual's goals, emotions, and personal agency beliefs.

PERSISTENCE IN DISTANCE LEARNING

Persistence has long been an issue in both onsite and distance courses (Wonacott, 2001) for both educational and economic reasons, but there has been little agreement regarding how to decrease attrition.. As early as 1968, Donchower looked at 12 variables' apparent effect on students' success in correspondence courses, and suggested some

Figure 1. Graphic representation of the interaction of culture and motivation in online learning environments.

approaches to lowering attrition. Coldeway, Spencer, and Stringer (1980) also considered correlations between learner attributes and learner performance, exploring some nineteen hypotheses. Others, such as Kerka (1995) and Tucho (2000) have also looked at persistence in Adult Basic Education and General Educational Development (GED) courses.

In many cases, educators have looked at demographics to distinguish which learners were most likely to persist. For example, Nesler (1999) looked at 10 years of student records at Regents College searching for demographic clues such as educational

background, ethnicity, gender, military status, and the number and types of credits transferred in by the student to explain persistence. But demographic data can only show correlations, not causation (Brindley, 1987); thus such studies have limited interest.

Models of persistence in education have been relatively slow to emerge and have elicited only narrow agreement. Based on Durkheim's model of suicide (Kember, 1989), Tinto's (1975) model of persistence in college studies is probably the best known, and argued that it is the individual's integration into the academic and social systems of the college that most directly relates to his continuance in that college. Bean and Metzner (1985) expanded on Tinto's model to include non-traditional learners, using background and defining variables, social integration variables, academic and environmental variables, and psychological and academic outcomes, in a highly complex system.

Kember's (1989) longitudinal model was derived from Tinto's work and focused on distance learners. It included Tinto's academic and social integration factors, but defined them differently, viewing them as intervening variables between initial background characteristics and outcome measures (Kember, 1994). The model indicated that a learner makes a cost/benefit decision to determine whether it was worthwhile to continue studying. It also included a recycling loop to account for changes and developments as students proceed through a course. However, Kember's model was not focused on the older, non-standard student who typically uses distance education (Tresman, 2002, p 3).

There have been many studies exploring persistence in distance and online courses, focusing on various dimensions of Tinto's and Kember's models. These studies have used surveys and pre-defined instruments and have sought to compare completers to non-completers, with only partially successful results. Some examples include Thompson and Knox' (1987) look at field dependence/independence in terms of loneliness and isolation; Coggins' (1988) evaluation of learning styles correlated to success in distance education; Laube's (1992) exploration of academic and social integration variables; and Pugliese's (1994) investigation of loneliness, communication apprehension, communication competence, and locus of control. Fjortoft (1995) used survey data on a wide variety of factors and characteristics to attempt to construct a predictive model via regression; but was only able to explain 23 percent of the variance in persistence.

Belawati (1998) tried to adapt Kember's model for Indonesian students with mixed results, implying that its application may be limited by culture or environment.

Thompson (1999) tested Kember's model and found it worked better for persistence than for withdrawal.

Other studies include Chu and Hinton's (2001) evaluation of work- and family-related variables associated with completion; Valasek's (2001) survey and observation of 8 online classes to search for correlations for persisters; Menager-Beeley's (2001) use of the CANE model of task commitment (Clark, 1997 cited in Menager-Beeley, 2001), which concluded that motivation is a function of task values in online learning; and Kemp's (2002) investigation of the relation between persistence, life events, external commitments, and resiliency in undergraduate distance education.

A few studies have looked for data on persistence problems by asking the students themselves. In an exploratory study at Athabasca University, Brindley (1987) interviewed 40 students, using critical incident analysis to determine what helped or hindered persistence in their first distance course. In 1993 Garland used ethnographic techniques to investigate 47 students' ability to persist in distance education courses. Interestingly, she noted that the 30 persisters and 17 non-persisters in the study shared most of the same problems.

Chyung, Winiecki, and Fenner (1998) produced a brief case study showing how Boise State University (Idaho) increased persistence in their Master's Degree distance program; during the cause-analysis phase of the project, the researchers conducted a series of interviews of both dropouts and persisters in which participants noted such sources of dissatisfaction as information overload, lack of confidence, restricted interaction with peers and instructors, depersonalization, and a need for increased feedback. In 2001, Matus-Grossman and Gooden used focus groups and telephone interviews of persisters and non-persisters, to explore educational access and retention issues for low-wage working parents at community colleges; Hara and Kling (Hara, 2001) also produced an ethnographic study of students in a small, graduate-level course in which they identified technological problems, and instructor communication of course content as the main foci of student distress.

It is notable that a search of databases covering educational, psychological, and relevant technical research has yielded no recent scholarly studies that investigated whether there was any kind of link between learners' cultural backgrounds (as opposed to ethnicity) and distance education, particularly in online courses.

IS ONLINE LEARNING DIFFERENT?

Why is it necessary to explore and evaluate the issues of culture and persistence in online learning environments, as distinguished from other specific environments? After all, there already exists persuasive evidence that culture does matter, whether in the classroom, in textbook construction, or in testing. So it is worthwhile to ask the question: Why should online learning need to be investigated separately?

Although research does not generally indicate that learning outcomes are different in online learning as compared to other learning delivery methods (Saba, 2000), Winn and Snyder (1996) noted that traditional theories of distance education evolved while behaviorist models were prevalent; thus cognitive psychology and cognitive science have been incompletely integrated in distance education theory and models.

There is evidence to support the contention that online learning environments impose different types of cognitive loads on the learner. This was first proposed by Kozma, who argued that there must be recognition of the cognitively relevant characteristics of media. Kozma differentiated between the learner's *internal* and the *external* environments, specifying that the learner must use his or her internal cognitive resources to extract information from the external environment during the process of constructing new knowledge (Ullmer, 1992).

This position was strengthened by recent research comparing brain activity in virtual and real environments (Micropoulos, 2001). In this exploratory study, participants' EEG readings were recorded while executing a simple task in a virtual environment and the same task in a real environment, and the two readings were compared. Significant differences were found in the readings, indicating that different cognitive processes were being used when in the virtual environments.

Related to this is Prensky's (2001) contention that "digital natives" actually think differently from those who are not accustomed to using digital accessories and games. He

argued that the very use of the digital tools has modified the cognitive processes of those who have grown up with them. Other research on such phenomena as split-attention effects (Mayer & Moreno, 1998) has tended to support similar conclusions.

If it is true that the cognitive load imposed by online learning differs qualitatively from that of other learning environments, then perceptions and reactions that are intertwined with cognition are also likely to vary. A review of how culture and cognition interact will illustrate how this may be true.

THE RELATIONSHIP BETWEEN CULTURE AND COGNITION

A sociocultural view of cognitive ability first appeared in the early 1900s (Sticht, 1994), although at that point it was almost the opposite of what it is today. A century ago scholars believed that "primitive" people had primitive cognition patterns such that the cognition patterns and the cultures reinforced each other (Cole, Gay, Glick & Sharp, 1971), making members of those cultures unable to think in complex or "advanced" ways. With behaviorism, however, came the belief that cognition is essentially the same across cultures, regardless of cultural norms and practices; anthropologists especially held that position, believing that people varied only on cultural practices.

However, behaviorism fails to explain why different cultures develop such radically different practices if their cognitive patterns are essentially the same. The concept of "World View" prevalent in the 1970s and 1980s attempted to deal with this issue by analyzing the "culturally specific cognition of a people" and representing it "in terms of a set of logically interrelated and structurally consistent propositions and corollary statements that are assumed to model native perception and thinking." (Kearney, 1984, p. 36) Kearney defined a culture's worldview as a model of how that culture looks at reality, consisting of "...basic assumptions and images that provide a more or less coherent, though not necessarily accurate, way of thinking about the world." (p. 41) Kearney further noted that different worldviews developed because of both external (i.e., environmental) and internal (i.e., cognitive) reasons; however, this stance incompletely addresses the question of interaction between culture and cognition.

The sociocultural understanding of cognition has regained currency recently, as social constructivism and contextualism has emerged, according to Sticht (1994), who

noted that this approach attempts to explain the cognitive development of humans in general and social groups (cultures) as well as individual development.

Contributing to and fueling this re-emergence was a growing interest in diversity, and thus in how one culture behaved as compared to another (e.g., Dick & Robinson, 1997). Such comparisons often took the form of a litany of differences that were largely anecdotal and without theoretical basis, but they did attempt to categorize and rationalize cultural differences. Unfortunately, they also had the tendency to reduce cultures to stereotypical lists of characteristics.

As knowledge regarding different aspects of cognition was expanded, there began to be cultural analyses that emphasized those aspects. For example, Griggs and Dunn (1996) considered learning styles of Hispanics, mentioning their "other-directedness" which conflicts with the US mainstream individualism and noting that Hispanics' emphasis on cooperation can result in discomfort with the competitiveness of the classroom. A similar study was produced by Chen and Stevenson (1995) who looked at motivation and mathematics achievement in Asian-American, Caucasian-American, and East Asian high school students.

COGNITION, LEARNING THEORIES, AND SOCIAL CONTEXTS

During the 60's and 70s, the influence of Piaget caused learning and intelligence to be seen as a progressive process involving feedback and stages of cognitive development. The individual and the characteristics of the individual's mental organization was at the center of Piagetian theory, and social issues were at best secondary, being indicators of progress rather than contributing factors (Light & Perret-Clermont, 1989).

In contrast, Vygotsky treated cognitive development and higher mental functions as primarily a social-cultural product, with cultural knowledge and values providing the basis of reasoning, inferencing, and interpreting meanings. Vygotsky also linked culture with language development, and language with learning, providing an additional link or anchor into cultural meaning making (Trueba, 1993).

An offshoot of Vygotskian thought, and advanced by Luria, Leont'ev, and Zinchenko, activity theory takes as its main focus the sociocultural nature of intellectual

development, according to Gauvain (2001). It is based on three main assumptions: (1) behavior is goal-directed and practical, (2) development is a product of social and cultural history, and (3) cognition is a socially mediated process. Gauvain commented that, because activities and their settings are created by the participants in that setting, they reflect the group's assumptions, resources, and goals. "This notion transcends the boundary between the individual and the social. In so doing, it connects the interpsychological plane, that is, *between* individuals, and the intrapsychological plane, that is, *within* an individual, of human functioning and development." (p. 48) Thus cognitive development is the means by which the individual shapes his/her biological capabilities to conform to the social environment in which the individual is active. But Gauvain cautioned that activity theory is limited because it does not specify which social processes shape intellectual growth or connect specific features of social interaction to specific facets of cognitive growth.

An early example of the application of the sociocultural theory of cognition is found in the study published by Cole, Gay, Glick, and Sharp (1971). It is an exhaustively detailed ethnography of the Kpelle in Liberia that sought an explanation of why Kpelle children have so much trouble with Western-style mathematics, and in doing so it demonstrated how culture and thought processes are intertwined. The researchers found significant differences between the Kpelle and Americans in uses of taxonomies, class distinctions/heuristics, memory skills, etc. Their primary conclusion was

...that cultural differences in cognition reside more in the situations to which particular cognitive processes are applied than in the existence of a process in one cultural group and its absence in another. Assuming that our goal is to provide an effective education for everyone..., our task must be to determine the conditions under which various processes are manifested and to develop techniques for seeing that these conditions occur in the appropriate educational setting. (p. 233)

Bandura continued to focus on social constructs, in particular expanding the notion of self-efficacy to include the concept of "collective agency" (Pajares, 2002). This is defined as "a group's shared belief in its capability to attain goals and accomplish desired tasks". (Pajares, 2002, Self-efficacy Beliefs, paragraph 7)

Clearly, current learning theory has progressively emphasized the role of the culture in the development of cognition and learning. But how is this accomplished?

What is the nature of the interaction between the culture and the developing intellect that would make this so?

ON THE SOCIAL CONTEXT OF COGNITION

At the organic level, it is assumed that all “normal” brains function roughly in the same way within a broad range in terms of perceiving and conveying data (Carter, 1998). That data is then processed into information and stored; this “information processing approach” (Anderson, 2000) is assumed to be common to all “normal” human cognition. But an important corollary of these concepts is that the brain perceives and processes information by using pathways and schemata laid down by previous experience; consequently, each successive cognitive experience is progressively more affected by what the individual has perceived and experienced previously. So over time, perceptions of experiences and knowledge provided by the environment (including the sociocultural context) will literally change the flow of the same mental processes from which they emerged (Anderson, 2000; Carter, 1998; Sticht, 1994; Valsiner, 1996).

Not only perception, but also reasoning is strongly influenced by culture. Reasoning depends on schemata, many of which are supplied by the cultural context (Hutchins, 1980, cited in D’Andrade, 1989). D’Andrade (1989) concluded that when differences in problem solving are found between groups of people, it is much more likely that this is the result of a difference in shared cognitive structures, or culture, between the groups than the result of a genetic difference in some kind of general reasoning ability.

These perspectives are further buttressed by the theory of ecological psychology, which argued that the mind and the environment must be treated as a unity rather than separate and independent entities (Costall, 1989; Rosche, 1996). Similarly, the theory of situated learning (Stein, 1998; Sticht, 1994) asserted that learning results from a social process involving a variety of thought, perception, problem-solving, and interaction; thus learning is not separate from the physical, dynamic world, but connected to it through complex social environments. Downes (2004) transferred that concept to online environments, commenting on the importance of social interactions in learning,

especially in computer supported collaborative learning, and touched briefly on the cultural aspect of social interactions

If, indeed, social context is intimately involved with the development of cognition, what are the means by which it leaves its mark, and on what aspects of cognition? As noted at the beginning of this paper, culture has traditionally been defined as a stable set of norms, beliefs, and behaviors. But during the past two decades, culture has been seen as consisting of knowledge and conceptual structures (Valsiner, 1996). If so, how do those structures and knowledge impinge upon and affect the developing mind such that they leave a lasting imprint?

Gauvain (2001, 1995) examined in minute detail the research that points to the social foundation of developmental cognition. She considered the sociocultural context of development to provide the core activities through which children are exposed to and learn about thinking, and believed that the vast majority of the cognitive functions that children develop in the early to middle years of childhood to be connected to social experience in ways that are both intricate and interrelated.

She identified three subsystems (Gauvain, 1995) that serve as a sociocultural structure within which cognition develops:

1. Cultural activity goals and values
2. Tools and materials provided by the culture to meet the goals and values
3. High-level cultural structures (e.g., scripts, routines, and rituals) that help the culture implement the goals and values in socially organized and cohesive

These subsystems both assist and constrain the cognitive development of the culture's members, and channel human thinking in ways appropriate to and supportive of the culture.

It may seem intuitively obvious that children are taught by adults in a culture, but what is less obvious is that those adults quickly and completely pass on their own cultural values and goals to the children (Rogoff, 1989). Thus, children are, in effect, apprentices to their culture, and learn concepts, e.g., amount, number, area, volume, weight, etc., that exist in their culture because they are useful in that environment (Light & Perret-Clermont, 1989). Gauvain (2001) referred to this process as *cognitive socialization*, and noted that it emphasizes the cultural and goal-directed nature of these interactions as well as requiring the learner to play an active role in the process. By linking the larger

sociocultural context of cognition with the individual context of cognitive growth, the learner's mind is organized and shaped "in ways that are suited to the needs and aspirations of the community in which growth occurs." (p 34).

Gauvain's interpretation is strengthened by the fact that she was able to identify three well-researched social-cognitive processes that are crucial in acquiring knowledge and are well established in infancy: intersubjectivity, joint attention, and social referencing. These processes continue to be used even after adulthood, meaning that the individual is influenced by the social context from the very beginning of and throughout life.

Higher mental functions identified by Gauvain and indicated by research also to be socially co-constructed processes include:

- **Problem solving skills:** Transfer of cultural knowledge is involved in terms of what features of a problem space to encode, strategies to use, and knowledge base development. Values are also transmitted about the problem domain and the categories of thinking that problems represent
- **Memory:** both content and process are socially co-constructed processes. In the process of developing memory, individuals absorb values represented as memories as well as specific strategies for remembering.
- **Planning:** Social context is involved in learning how to plan actions in order to reach goals and how to coordinate plans with those of others.

Gauvain did not deny that the individual brings capabilities to social interactions and therefore to the developmental process. But she focused on the research that supports the view that much of cognitive development is a shared domain between the individual and society. If her view is correct, there should be persuasive evidence that adults in different cultures actually have differing thought patterns.

Such research has recently been published by Nisbett (2003). Basing his conclusions on a series of experiments conducted by himself and others and supporting them with an analysis of cultural history, he contended that East Asians and Westerners differ in terms of whether they perceive the world holistically or as collections of objects, their conception and use of logic and categorization, their valuation of individualism versus group harmony, their use and understanding of causal attribution, their inclination to apply rules to situations, relationship skills, and much more. His research tends to bear

out Gauvain's assertions about cognitive development, and show us the degree to which the typical adult's final cognitive profile can differ from culture to culture.

CULTURALLY DEFINED VALUE SYSTEMS

Gauvain, Nisbett, and others have indicated the degree to which the sociocultural context affects cognition and how social goals and values underlie many cognitive processes. But that begs the question: to what extent do value systems (and therefore goals) reflect cultural identity? This is an important question in the current inquiry, because a distinct correlation between value clusters and culture is required in order to search for the effect of a given culture in an online learning environment, or to differentiate between two or more cultures.

Recent analyses of culture and attitudes in teaching indicate that values do, indeed, matter. For example, Boufoy-Bastick (2001) noted that strategies for improving computer-related attitudes and beliefs of young Latino students are needed as many do not see computers as being relevant in either their careers or their personal lives. Ziegahn (2001) remarked on the potential variance between adult education teachers' values and those of their students.

The term "values" can vary somewhat in definition from scholar to scholar, but it consistently carries with it the concept of normative orientations, of preferred or even obligatory conduct and of desirable and undesirable conditions (Williams, 1979). It is recognized that societies (as well as institutions) have specific value priorities or hierarchies (Rokeach, 1979; Williams, 1979).

Human values are directional (meaning that values are polarized as desirable or undesirable) and have both affective and cognitive aspects. Their main function is in being a criterion for selecting or rejecting action, resolving conflicts, choosing goals, and guiding behavior. Interestingly, the older the individual, the tighter the link between values and behavior is likely to be; as social reinforcement for the value is repeated, the use of the value to guide behavior often becomes "quasi-automatic or non-voluntary" (Williams, 1979).

Rokeach (1979), whose quantitative research some three decades ago clearly established the fact that values were differently prioritized by different institutions and

societies, contended that values were organized into value systems by organizations and societies, and that a main determinant of values is one's culture. Using a list of 18 terminal values (i.e., ideal end-states of existence) and 18 instrumental values (i.e., ideal modes of behavior) Rokeach assessed the value systems of many different groups, concluding that the actual number of terminal and instrumental values that an individual or an organization has is fairly small.

But it was Hofstede's astonishingly wide data-gathering work that led to a more comprehensive value structure across countries and cultures. In a work first published in 1980 and augmented in a second edition (2001), Hofstede details the results of a series of surveys of cultural values conducted between 1966 and 1978, then added to in 1985-1995. The surveys included some 116,000 questionnaires in 72 countries, using 20 languages; respondents were members of the IBM workforce. Later, even more data from non-IBM respondents was added.

Using the data produced, Hofstede and his associates constructed a database suitable for statistical analysis. Extensive statistical analysis and data reduction techniques revealed a structure of five axial data values (or clusters of values) on which the national cultures surveyed differed from one another. Significantly, countries seemed to group together on each of the structural axes in ways that suggested a degree of cultural consistency (e.g., Hispanic countries tend to group near each other on most of the axes).

Hofstede's five cultural dimensions follow, together with a list of countries that score at the top or bottom of each scale (in descending order):

Power distance: the degree to which the less powerful members of the society accept and agree that power is distributed unequally; the acceptance of power inequality in the society. Countries with the highest power distance were: Malaysia, Guatemala, Panama, Philippines, Mexico, Venezuela, and Arab countries; those with the lowest power distance were Finland, Norway, Sweden, Ireland, New Zealand, Denmark, Israel, and Austria.

Uncertainty avoidance: a measure of how comfortable or uncomfortable members of a culture are in unstructured situations; how much the society accepts the novel/surprising/unknown versus how much it tries to control it. This concept is

not analogous to risk avoidance; rather it is a tolerance for ambiguity or uncertainty. Countries that rated highest on the uncertainty avoidance scale were Greece, Portugal, Guatemala, Uruguay, Belgium, and El Salvador; the lowest scorers included Great Britain, Ireland, Hong Kong, Sweden, Denmark, Jamaica, and Singapore.

Individualism/collectivism: the balance in the society between the requirement that individuals take care of themselves versus integrating into groups; the degree to which social referencing is encouraged; whether the individual identifies strongly with a group and is indivisible from it, or whether the individual primarily sees him/herself in self-defined terms, separate from group identity. High individualism countries included: United States, Australia, Great Britain, Canada, Netherlands, and New Zealand; low individualism (and therefore high collectivism) countries were: Peru, Costa Rica, Pakistan, Indonesia, Columbia, Venezuela, Panama, Ecuador, and Guatemala.

Masculinity/femininity: the width of the divide between gender-based roles; the degree to which biological differences are expected to be reflected in social and emotional roles. Highest scoring countries were: Japan, Austria, Venezuela, Italy, Switzerland, and Mexico; lowest scoring were Finland, Yugoslavia, Costa Rica, Denmark, Netherlands, Norway, and Sweden.

Long-term/short-term orientation: the degree to which members of a society are expected to be able to accept delayed gratification of material, social, and emotional needs; persistence and thrift are aspects of this continuum. High scorers included: China, Hong Kong, Taiwan, Japan, South Korea, Brazil, and India; low scorers included the United States, Great Britain, Zimbabwe, Canada, Philippines, Nigeria, and Pakistan.

Hofstede supported his results by an extensive investigation of all relevant literature, with particular emphasis on scholarly literature and solid research. He also provided an immense amount of secondary analysis of the data in the form of correlations between and among the five dimensions, breakdowns within each dimension, etc.

Hofstede offered the first comprehensive, data-derived model of cultural values. He defined the model and its components in ways that are usable and coherent, consistent

with previous research in the field, and statistically defensible. His categories were precise, but applicable across all cultures without overlapping. For this reason, his work provided an excellent structure for a research effort involving any aspect of culture, and was used as a basis of inquiry and evaluation in the current study.

INDIVIDUALISM/COLLECTIVISM

Other theorists and scholars have also focused on Individualism/Collectivism (IC) as a defining cultural characteristic. Bochner and Hesketh (1994) validated the interrelated concepts of IC and Power distance in a single multicultural work context at a large Australian bank, using quantitative methods. Commenting that ethnic identity and country of citizenship may not be consistent in a highly multicultural society, these researchers used ethnic identity (instead of country of citizenship) for the independent variable in the study, strengthening its conclusions. They commented that assuming that individuals in a given ethnic group would have a similar independent variable score was “a contentious issue” and an “ecological fallacy” (p. 244), but they defended their decision to do so, saying:

Whenever we use culture, nationality, or ethnicity as the independent variable, we assume that the subjects so categorized as individuals share certain characteristics that distinguish them from other categories of subjects. More precisely, we expect the within-group variance on the variable of interest to be smaller than the between-group variance (p. 254).

Gunawardena, Wilson, and Nolla (2003) commented that “Researchers in the fields of cross-cultural psychology and intercultural communication agree that the major dimension of cultural variability that can be used to explain intercultural differences in behavior is individualism-collectivism” and observed that there is consistency in how researchers understand the construct (p. 754).

It should be noted that some researchers’ results have not validated the concept of Individualism/Collectivism to the same extent as others. For example, Fijneman, Willemsen, and Poortinga (1996) examined IC in a study done on subjects in Hong Kong, Turkey, and Greece. Their analysis did not support the determination of IC on a cultural basis, and they further challenged the construct on the basis of over-generalization, methodology of research, and theory, noting that others have questioned it as well.

Triandis (1995) produced a definitive work on the construct, offering the term “allocentric” for collectivism and “idiocentric” for individualism at the level of the individual. He asserted that individuals have both allocentric and idiocentric elements, “but are most likely to sample the elements that correspond to their society in given situations and use them to construct the meaning of a social situation” (p. 8). He further defined the constructs as follows:

1. The definition of the self is interdependent in collectivism and independent in individualism. Thus the collectivist depends on his/her in-group for self-definitions, while the individualist defines him/herself without reference to an in-group.
2. Personal and communal goals are closely aligned in collectivism and not at all aligned in individualism. In collectivist cultures group goals have priority, while in individualist cultures personal goals have priority.
3. Cognitions that focus on norms, obligations, and duties guide much of social behavior in collectivist cultures. Those that focus on attitudes, personal needs, rights, and contracts guide social behavior in individualist cultures.
4. An emphasis on relationships, even when they are disadvantageous, is common in collectivist cultures. In individualist cultures, the emphasis is on rational analysis of the advantages and disadvantages of maintaining a relationship (p 43-44).

Triandis indicated that a variety of factors can influence personal tendencies toward individualism or collectivism, including age, social class, child rearing, travel/education/occupation, and so forth (p 61-68).

Hui (1988), noting that Hofstede’s work considered IC at the ecological rather than the micro level, created an instrument called INDCOL to measure the construct at the individual level. He developed the instrument to measure IC as a personality construct and a syndrome of behaviors, rather than a measurement of oppositional motives (p. 20) and validated it via six studies. INDCOL measures IC in terms of eight different target groups (spouse, parents, kin, family, neighbors, friends, co-workers/classmates, and unknown persons/acquaintances) and is a paper-and-pencil instrument.

Matsumoto (2003) created a more streamlined instrument to measure IC, the Individualism-Collectivism Interpersonal Assessment Inventory (ICIAI). This instrument is intended to assess IC tendencies for four social groups (family, close friends, colleagues, and strangers) as ratings of values and self-reported behaviors. It is suitable for use as a paper-and-pencil test or an online instrument, and has been validated in

multiple studies and in various cultural groups with a total of 1152 subjects. Matsumoto's validation results showed a close consistency with Hofstede's original definitions.

MOTIVATION AND PERSISTENCE

It is clear from the foregoing discussion that values are culturally anchored, and deeply intertwined with cognition and therefore with learning. But what is the connection of values, cognition, motivation, and persistence?

Thought and theory regarding motivation in general has undergone much development in the twentieth century, especially since McClelland (1961) and Atkinson (1964) respectively introduced their works on achievement and expectancy theories. Atkinson examined such factors as anxiety regarding failure, expectancy of success, and need for achievement, but considered these to be individual characteristics only. McClelland, however, saw an effect of culture, at least obliquely, by considering social practices such as methods of childrearing that he felt contributed to the individual's need for achievement.

A few years later, Raynor (1967) addressed what was essentially a weakness of expectancy theory—that it was concerned only with the expectations of success and failure in the activity being observed. In his model of motivation, Raynor integrated the importance of long-term goals and expectancies, noting that anticipated future consequences of present behavior differentially affects individuals, depending on the strength of their achievement-related motives.

Maehr (1974) did early studies specifically pointed at cultural aspects of motivation, examining logically various constructs that might represent the interaction among culture, personality, and motivation. He observed the effect that social roles may have on certain types of behavior and recommended that more should be done to analyze the influence of social norms on motivational behavior. It is significant that he commented at length in the same article on the fact that assessment procedures are, by definition, culture-bound in that they can only sample instances of achievement motivation associated with a given culture; likewise, he commented on the need to distinguish between the motive to achieve and the ways in which this motive might be actualized, which is dependent on culturally approved means and ends. Maehr noted that

culturally derived beliefs about ends (terminal values) and means (instrumental values) typically played little or no role in then-current achievement motivation, but felt that they should.

Keller's (1983; 1987) ARCS model brought together the above themes in motivational thought plus many more, including those of such theorists as Weiner, de Charms, Rotter and Bandura. ARCS (standing for Attention, Relevance, Confidence, and Satisfaction) provides a systematic approach to incorporating motivational tactics into instruction. The learners' goal orientations are implicit in the Relevance aspect of the model, and their perceived success in having met those goals is included in the Satisfaction phase.

The ARCS model continues to influence assessments of motivation, including that of specific cultural and ethnic groups mentioned earlier in this paper. For example Bohlin and Bohlin's (2002) study indicates that one reason that young Latino students have unfavorable attitudes toward computer instruction is that many do not perceive that computers will be relevant in their chosen careers or personal lives. Similarly, Cornell and Martin's (1997) pragmatic advice regarding motivation in the design and management of Web-based instruction includes many factors that are connected with student attention and satisfaction.

MOTIVATIONAL SYSTEMS THEORY

Still, motivation as a field did not have a single, unifying theory until Ford's (1992) work. Anchored within a comprehensive theory of human functioning called the Living Systems Framework, Ford's Motivational Systems Theory (MST) provides a complete formulation of the basic characteristics and interactions of motivation and competence development.

Ford defines motivational processes as having three primary characteristics:

- They are qualities of the person rather than properties of the context.
- They are future-oriented rather than being focused on the past or present.
- They are evaluative rather than instrumental in character.

So motivation can be facilitated or constrained, but not imposed on a learner under Ford's theory as it is entirely internal to the individual.

Within MST, motivation is defined as "the organized patterning of an individual's personal goals, emotions, and personal agency beliefs." (p. 78) Thus the concept can be restated: **Motivation = Goals x Emotions x Personal Agency Beliefs**

Crucial to the reasoning of this paper, Ford assigns goals a leadership role in motivation, specifying that both cognitive and emotional evaluations underlie the formation of new goals. He contends that a large portion of one's feelings of satisfaction and frustration can be traced to the organizing aspect of one's goals, and that the most motivating activities in life will be those that involve the simultaneous pursuit and attainment of multiple personal goals. Goals include both content (representing the consequences to be achieved or avoided) and process (directing the other components and capabilities of the person to try to produce those consequences).

Thus Ford's theory fits neatly into the space provided by Rokeach and Hofstede on one hand, and Gauvain and Nisbett on the other. As discussed earlier, Rokeach and Hofstede make clear that goals and the values that support them are heavily influenced by one's national culture, and Gauvain and Nisbett show in exhaustive detail the extent to which culture is seen to affect the individual's cognitive processes. This interlinking of values, goals, cognition, and culture is at the heart of the theoretical support for this paper's purpose of study. It is precisely what this study is meant to investigate and understand.

In fact, Gauvain (2001) nibbles around the edges of this when she remarks that children's learning and involvement with their community shows "patterns reflecting both short- and long-term goals and values of the communities. These variations would be expected to lead to differences in what children learn to think about and how they learn to think" (p. 40).

The other two components of MST also show unmistakable connections with the individual's culture. Personal Agency Beliefs are evaluative thoughts (and therefore anchored in cognition) that compare desired and anticipated consequences; but they have no meaning or functional significance if the goal they support is without value to the individual. They are seen as being more fundamental than the actual skills and circumstances they represent, because they can encourage people to open opportunities and acquire capabilities that they do not yet possess; thus they serve as a potentiating

force. Ford notes that they play “a particularly crucial role in situations that are of the greatest developmental significance—those involving challenging but attainable goals” (p 124). Note that Bandura’s notion of “collective agency” (described above) is an expanded version of this concept that illustrates the cultural connections even more clearly.

Likewise, emotions (in older children and adults) are generally “activated by cognitive evaluations pertaining to current or potential concerns in real or imagined circumstances” (p. 143). Regardless of whether the emotions are conscious or not, they may involve habitual patterns. Both in terms of their cognitive component and in terms of their connection with ingrained patterns, emotions clearly have connections with culture.

Note that emotions have long been considered to have a clear interaction with online learning as well. Malone and Lepper (1987; also Lepper and Malone, 1987) wrote extensively on the importance of using “motivational embellishments” to create a sense of fun, challenge, curiosity, and fantasy in online learning in order to engage learners and enhance their intrinsic motivation.

Finally, it should be noted that MST defines competence as “the attainment of relevant goals in specified environments, using appropriate means and resulting in positive developmental outcomes.” (p. 67) Accordingly, the concept of competence is also intimately connected with cultural issues as regards both goals and context.

Thus every aspect of Ford’s theory, when juxtaposed with other relevant models and theories, is permeated by the effects of the individual’s cultural background and the effects that background unavoidably imposes.

SUMMARY

Cognition, cultural goals, and values, motivation... the pieces are all there for online learning and instructional design experts to find. The problem is that they are scattered across disparate disciplines: anthropology, psychology, sociology, and education. Given the current state of relevant knowledge and theory, it would be illogical to think that there might *not* be an effect—or a range of effects—on learner motivation and persistence, rooted in the interplay between the online learning environment and learner culture. It only remains to find what those effects might be so that we can allow

and plan for them, and in so doing, provide added means by which all learners can advance equally on the path offered by online learning.

CHAPTER 3

METHODOLOGY

The aim of this study was to investigate the interaction of an aspect of learner culture and online learning environments and the effect that interaction may have on learner motivation and behavior in online environments.

“Culture” is a complex concept consisting of many interrelated behaviors and values. To begin to find evidence of this, the study focused on one single aspect of culture—Hofstede’s individualist/collectivist (IC) orientation—and investigated its relationship to learner behavior and motivation in online learning environments.

The IC orientation of learners was selected for several reasons:

- It is considered by theoreticians to be a basic cultural value, and thus can be presumed to have a direct effect on goals and motivation, and therefore on persistence.
- It may be observable in learner behavior in online environments through evaluation of chats, postings on discussion boards, etc.
- It is an attribute on which online learning varies considerably, i.e., some online learning includes much social interaction, some includes very little.

The specific research question examined by this study was:

Is there a relationship between learners’ IC profiles and their reactions to specific online course components, or between learners’ IC profiles and their interactions in online learning environments, that would suggest that the learners are differentially motivated by the course components?

In order to answer this research question, this study considered three subsidiary questions:

1. Are participants’ reactions to specific course components, and therefore their motivation levels when engaging in those components, related to their individualist/collectivist profiles?
2. Can differing communication or interaction patterns within the online learning environment be discerned based on the individualist/collectivist profile of course participants?

3. In this exploratory study, what factors do subjects perceive as affecting their motivation and participation in the course?

To explore these questions, the hypotheses examined quantitatively were:

H₁: The activities that learners find most motivating will show a correlation with learners' IC profile.

H₂: Interaction among learners, in terms of frequency and type, will correlate with learners' IC profiles.

The blended methodology used in this study also categorized free-form answers by participants in order to identify additional factors that might have impacted their behavior and feelings of motivation during their online study course.

In order to test the above hypotheses and look for additional factors affecting motivation of participants, this study needed to answer the following questions:

1. What were the IC scores of study participants?
2. How did study participants react to specific course components in terms of their motivation levels?
3. How did participants' interactions within the course differ in terms of type and frequency?
4. Could participants identify any potentially confounding factors that might have affected their motivation levels or interaction patterns?

THE RESEARCH DESIGN

Because research in culture and online environments is very sparse (Collis & Remmers, 1997; Thomas, 2002), an exploratory approach was needed to assess whether there existed persuasive evidence that learners' culture interacts with the online learning environment in terms of their motivation levels.

There are significant problems to be overcome in such a study. Gunawardena and McIsaac (2004) noted that cultural research is difficult as there are individual variations that can influence the outcome; such variations in behavior and values can be difficult to winnow out of the results. Additionally, doing such research is complicated by the fact that psychological instruments, unless they are specifically intended for cross-cultural use, are virtually certain to be culturally biased. This is particularly true of instruments that attempt to measure the theoretical construct of motivation. The behaviors or attitudes

that indicate “motivation” in one culture (e.g., engagement) may not be equally applicable to other cultures.

Accordingly, most motivation instruments are not culturally validated. Even Keller’s ARCS model (Keller, 1983; Keller, 1987; Keller & Suzuki, 1988), which forms the basis of most modern motivation-measuring instruments, has never been validated cross-culturally. As a result, we do not know if the elements of the ARCS model (Attention, Relevance, Confidence, Satisfaction) are equally applicable across cultures. For example, is attention as important to Eastern Asians as it is to Anglo Americans?

Generally speaking, there are two categories of instruments that purport to measure motivation in online learning. One type of instrument looks at the online learning environment to determine how “motivating” it is. Small’s (1997a) WebMAC and Keller’s IMMS (Small, 1997b) are both examples of such an instrument. The other type looks at the learner to determine his/her motivation after taking a course. In this case the concept of motivation is typically construed as generalized motivation (i.e., the motivation to continue one’s education) rather than focusing on the effect of a specific instructional event) and the instruments do not focus specifically on online learning. Pearson and Carey’s (1995) Academic Motivation Profile (AMP) and Vallerand’s (Vallerand et al., 1992; Vallerand et al., 1993) Echelle de Motivation en Education (EME) are both examples of this kind of instrument. None of the above instruments have been validated cross-culturally, although Vallerand’s EME has at least been validated in both English and French for use with Canadians and US citizens.

For these reasons a blended methodology using both quantitative and qualitative data was employed to search for evidence of motivational effects that can be correlated with Individualism/Collectivism. The approach used a validated instrument to develop quantitative IC scores (the independent variable), combined with qualitative methods including self-reporting via a questionnaire and analysis of online interactions to discern evidence of motivational effects (the dependent variable). To do so, the steps in Table 1 were followed. Details for each step are discussed following the table.

Table 1. Research Methodology Steps

Element	Timing
1. Test class participants for IC scores	During the first two weeks of class
2. Monitor class as inactive observer	During class
3. Administer, analyze, and code questionnaires evaluating participants' reaction to class components	Administration: During the final week of class Analysis and coding: following the end of class but before IC scores are developed
4. Analyze and code transcripts and records of telesessions, discussion boards, etc.	During and following the end of class, but before IC scores are developed
5. Score individualist/collectivist tests	After the end of class
6. Correlate transcript counts and interview codes with individualist/collectivist scores	
7. Look for and display representative statements	

Test class participants for Individualist/Collectivist (IC) scores

At the start of the online class, participants were asked to take the ICIAI (see Appendix A), an instrument that measures an individual's IC score. This test was administered online, but was not evaluated and scored until the end of the data collection phase, in order to prevent biasing the results of steps #3 and #4.

Monitor class as an inactive observer

While the class was running, telesessions, discussion boards, etc., were monitored and captured as transcripts.

Administer, analyze, and code questionnaires

At the end of the online class, participants were asked to complete an online questionnaire (see Appendix B). The questionnaire asked participants about their reactions to specific course components including synchronous, asynchronous, individual, and group activities. Participants' responses were numerically coded to allow for correlation with IC scores.

Analyze and code records of online interactions

Transcripts of all available student interactions, including telesessions, discussion boards, and listserv use were coded for interaction type and frequency. See Data Collection and Analysis Section, below, for detailed information regarding the coding scheme.

Score Individualist/Collectivist tests

After all transcripts and questionnaires for the class were coded, participants' IC scores were computed. It was important that this step be done *after* the coding steps are complete to avoid contaminating the analysis of the qualitative data.

Correlate questionnaire scores and behavior code frequencies with IC scores

All quantitative data was correlated using Pearson r . (after checking that the relationship, if any, appeared to be linear). It is important to note that this statistic does not prove causality, but only association.

Look for and display representative statements

As a final step, transcripts and questionnaires were reviewed for specific quotes that effectively represented and illustrated the findings in the foregoing steps. To protect participants' confidentiality, all identifying details were stripped from the quotes (e.g., the use of personal names, etc.) before they were arranged in lists and tables according to the final coding scheme.

The above steps were followed for each online class observed.

SAMPLE

Because learner culture may be expressed in a range of behaviors and interactions, its effects may be subtle, ambiguous, and difficult to observe directly. Therefore this study required a range of online learning environments and participants.

To avoid confusing a learning group's subculture (as developed during the course of an online class) with the learners' original culture, eight different classes were observed, taking place at two different schools within San Diego State University. This helped compensate for the effects of differing teaching styles on the research outcome. In the classes observed, all class members (except for employees of the State of Texas, due

to limitations imposed by that State) were invited to participate in the research. In total, over 100 student participants were observed.

Criteria for selection: All parts of the classes in the sample were conducted online with no face-to-face interaction included in the course, as it has been suggested that interaction in blended classes may be different from that of classes conducted wholly online (Clem & Hanson, 2003). Classes selected for observation contained learners with a wide range of cultural backgrounds. Classes selected for this study were all twelve weeks in length in order to provide adequate data.

All classes included in this study were graduate-level courses. Such classes were desirable as a source of participants because those students are less likely to experience serious problems with online learning technology (a confounding factor) as they are very likely to have already taken other online courses. Such students are also less likely to be coping with the same degree of personal and academic adjustments that younger students often deal with.

Description of study environment: The eight classes in this study covered three types of subject areas: vocational rehabilitation, food and drug regulatory affairs, and educational technology, as shown in Table 2. These subjects tend to attract students who are motivated to improve their current professional standing or to enter a new profession. Course structures varied widely in terms of their components.

The largest classes providing study participants were within San Diego State University's Interwork Institute. This school within the University conducts research, training, and education using a variety of strategies including distance learning technologies; it specializes in studies and projects connected with degrees, certificates, and credentials in vocational rehabilitation and related disciplines. It attracts learners from across the United States and the Pacific area.

Four courses in vocational rehabilitation and two courses in regulatory affairs provided participants to this study. They were:

- ARP645 Assessment and Vocational Development: a core course for Vocational Assessment and Career Development; taught by one professor and four co-instructors; 78 total students (60 female, 18 male). Course activities included discussion boards, web exercises, and two group projects as well as individual work. Discussion boards counted for 12 of 100 possible course points, group projects for 24 points.

Table 2. Courses and Components

	Synchronous	Asynchronous	Individual	Group
Vocational Rehabilitation Courses				
ARP645b Assessment and Vocational Development	No synchronous activities	Discussion boards	Various	Group project
ARP685b Medical and Psychological Aspect of Disability	No synchronous activities	Discussion boards	Various	Group project
ARP710 Seminar in Rehabilitation – Grant Writing	No synchronous activities	Class-wide listserv use	Various	Group project
ARP745 Internship	Group telesessions	Discussion board (optional)	Various	No group assignments
Food and Drug Regulation				
RA602 Introduction to Food and Drug Law	Telesession role-plays	Discussion boards	Various	Group project
RA779 International Medical Regulations	No synchronous activities	Discussion boards	Various	Group project
Educational Technology				
Edtec561 Advanced Web-based Multimedia Development	Live webcasts weekly	Class-wide listserv use	Various	Group project
Edtec670 Exploratory Learning Through Simulation and Games	Live webcasts, chats	Wikis and blogs	Various	Group project

- ARP685 Medical and Psychological Aspects of Disability: this course provides rehabilitation professionals with the knowledge and case management skills to guide their clients with various disabilities from one stage of treatment to the next; taught by one professor and four co-instructors; 88 total students (67 female, 21 male). Course activities included discussion boards, web exercises, a team project (a discussion board-based debate) as well as individual work. Discussion boards counted for 12 points and the team discussion-board debate for 22 of 100 possible course points.
- ARP710 Seminar in Rehabilitation - Grant Writing: this course teaches students to write human services grants; taught by one professor and three co-instructors; 61 total students (15 male, 46 female). Course activities included a large group project as well as individual work. Groups worked extensively together using group-based listservs. The group project counted for 40 of 100 possible points.
- ARP745 Internship: this course, a capstone course in Interwork's Vocational Rehabilitation programs, allows students to assess their skills and areas for improvement in a professional environment; taught by one professor and four co-instructors; 47 total students (37 female, 10 male). Course activities included group-based telesessions (three per semester for each group) as well as individual

activities. Telesessions were required and counted for 15 of 100 possible course points.

- RA602 Introduction to Food and Drug Law: one of two introductory courses in the Master of Science in Regulatory Affairs program offered by the Center for Bio/Pharmaceutical and Biodevice Development at SDSU; taught by one professor and three co-instructors; 54 total students (27 male, 27 female). Course activities included discussion boards, web exercises, and a team-based telesession as well as individual work. Discussion boards counted for 12 points of 100 possible course points; the telesessions, which were conducted as role plays with assigned roles, counted for 14 points.
- RA779 International Medical Regulations: a graduate elective course in the international medical regulations that pertain to the development and commercialization of medical devices, biologics and pharmaceuticals; taught by one professor; 11 total students (five male, six female). Course activities included a web exercise, team project, and several discussion boards. Discussion boards totaled 50 points and the team project counted for 40 points of 100 possible course points.

Two classes within SDSU's Educational Technology department were also included in this study, contributing a few additional study participants each. Both classes were graduate courses: Edtec561 Advanced Web-based Multimedia Development and Edtec670 Exploratory Learning Through Simulation and Games. Each class included a small number of students who took the course wholly online as well as classroom-based students; the former were invited to participate in the study. Edtec561 included considerable use of a listserv through which students shared their projects; Edtec670 used blogs and wikis. Both courses included a group-based assignment.

MEASURING INSTRUMENTS

Two instruments were used in this study: The Individualism-Collectivism Interpersonal Assessment Inventory (ICIAI) and a questionnaire. The ICIAI provided the independent variable.

The ICIAI was created by David Matsumoto (Matsumoto, Weissman, Preston, Brown, & Kupperbusch, 1997) in response to a need to provide an individual rather than an ecological instrument to measure IC. Although Hofstede (2001) first provided the empirical data to support the connection of Individualism/Collectivism with culture in the early 1970s, other researchers and theorists such as Hui (1988), Triandis (1995), and Matsumoto et al. (1997) have refined the concept.

Unlike Hofstede's instrument, the ICIAI was constructed for use at an individual rather than an ecological level and has been validated across cultures and in multiple contexts and rating situations. It measures IC in four different social groups (close family, friends, colleagues/classmates, and strangers) and two different domains (values and behavior). Because it measures IC individually, it removes the need to assume that particular cultural groups are uniformly Individualist or Collectivist; thus it is suitable for use as an independent variable. It also recognizes that people may act differently in out-of-group situations as compared to in-group situations, and that behavior and values may not be perfectly in synch.

This instrument was evaluated in a series of six studies (Matsumoto et al, 1997) in order to assess its internal validity and reliability. Its internal reliability was found to be consistent across different ethnic groups with a mean alpha of .85. Test-retest reliability was reported to be between $r = .77$ to $.88$ on Values and $r = .62$ to $.86$ on Behaviors, depending on the social reference group. It has also been calibrated against such instruments as the Rokeach Value Survey, Hui's INDCOL and others. The external validity of the ICIAI was assessed to detect cultural differences in between- and within-country samples.

The ICIAI instrument (see Appendix for the instrument as implemented) consists of a 2-page questionnaire that can be filled out in person or electronically. In the current study, it was abbreviated to evaluate only participants' values and behaviors toward colleagues and strangers, a modification approved by its author (Matsumoto, 2004, personal communication, December 17, 2003).

The ICIAI was completed by participants online and scored in SPSS to yield the following permuted scores:

- Values/strangers
- Values/colleagues
- Behaviors/strangers
- Behaviors/colleagues
- Total values
- Total behaviors
- Total strangers

- Total colleagues
- Total IC score

For IC scores, the higher the score, the more that respondent tends toward Collectivism; conversely, the lower the score, the more that respondent tends toward Individualism. It is important to recognize that an individual may present a very different I/C profile to strangers than s/he presents to colleagues. Thus, a respondent may, for example, exhibit strong collectivism toward classmates that s/he knows, but less so toward those whom s/he does not know.

The questionnaire administered to participants is based on Ford's MST (1992) as described in the literature review of this study. In order to avoid cultural bias insofar as possible, it depends on self-reporting of participants' reactions to specific course activities in terms of respondents' goals, emotions, and personal agency beliefs. In his work Ford made clear that the role of goals in motivation is primary; thus the questionnaire was constructed to give goals the most weight (five points) for each course component. Emotions and personal agency beliefs, while crucial, play secondary roles. The questionnaire was constructed to give emotions two points and personal agency beliefs two points for each course component.

This questionnaire, intended only as an exploratory tool, was tested in a small pilot before the main body of research was done. The goal of the pilot was to evaluate whether respondents understood the questions posed by the instrument, and to discover if a majority of respondents would persevere to the end of the questionnaire. Results of the pilot indicated that most respondents did, indeed, complete the instrument and that the responses they entered to the free-form (qualitative) questions provided valuable information regarding their reactions to course components.

During the course of this study, it became apparent that many of the respondents were in multiple classes together and/or had previously taken courses together as a cohort. Therefore, a question was added to the questionnaire to allow the respondent to indicate how well s/he knew classmates by asking the percentage of strangers in the class for which the respondent was completing the questionnaire. It was hoped that this question would help correct for the "cohort effect", i.e., some respondents knowing each other fairly well while other respondents did not know anyone else in the class.

In both the pilot test and in this study, the questionnaire was completed online at the end of each class, after participants had completed most or all class work. It contains two general course questions regarding respondents' original goals in taking the course and interest in learning more about the subject, plus eight questions about each course component (five with Likert scales, three with free-form answers). In accordance with Ford's theory, participants were asked about how each course component (synchronous, asynchronous, individual, and group components) affected their goals, emotional responses, and personal agency beliefs. At the end of the questionnaire, respondents were asked if there was any other factor(s) that might have affected their motivation levels during the course.

The final coding scheme for the questionnaire allowed development of a total motivation score as well as partial scores for each course component. Higher scores were expected to imply higher motivation levels. A respondent could, for example, indicate a fairly high motivation level overall in his/her response for a given course, but this could include a comparatively low motivation for one component of the course (e.g., the synchronous or the group component) and very high motivation scores for other components. In its final form the questionnaire had a maximum of fourteen points per each of four course components plus five continuing motivation points (indicating the respondent's overall level of interest in taking further courses in the same subject area) for a total of sixty-one possible points as a maximum motivation score. Points were not assigned for free-form responses; these were used only for the qualitative portion of the data analysis.

Appendix C contains a complete list of all variables used in the quantitative analyses, the source of the variables (ICIAI or questionnaire), and how the data were used.

DATA COLLECTION AND ANALYSIS

Because the environment in which the research took place consisted of online courses, all data was collected online. The ICIAI test was administered at the start of each online course to be observed, but the data it generated was not collected or concatenated with other data until after the end of the course. The questionnaire was administered

during the last week of class. Both instruments were scored for quantitative data using Microsoft Excel and SPSS.

All quantitative data collected was entered into Excel data files containing the following fields:

1. Participant identifier
2. Cultural identity
3. Class identifier
4. Individualist/collectivist orientation
 - 4.1. IC scores
 - 4.2. General IC score totaled from sub-scores
5. Dependent data

A separate data file was constructed for each main category of correlation performed, yielding the following base data files:

- IC scores with Questionnaire Responses
- IC scores with Telesession Data
- IC Scores with Discussion Board Data
- IC Scores with Listserv Data

These files were used as input to SPSS, which was used for all statistical analyses.

The qualitative data covering participants' interactions with each other within each course was reviewed to determine suitable categories to be used for their classification. These categories were then developed and refined as demanded by the data for clarity and efficiency in explication (Creswell, 1995). Creswell makes clear that qualitative data analysis is far less structured, and far more contextual in nature than quantitative data analysis. The general process for this type of analysis consists of an initial evaluation of the data to begin to identify codes and categories that are appropriate, followed by adjustment of codes, and eventually reduction of the information. This open-coding process is iterative as well as self-organizing; the goal is to eventually be able to count code frequencies.

Creswell characterizes this type of discourse analysis as a "data analysis spiral" (p. 142) and explains that it requires a series of "analytic circles rather than using a fixed linear approach." The researcher may begin with an initial coding scheme, but that

scheme will be adjusted as the data is analyzed in order to better represent the data and the interactions it contains. The researcher must make multiple passes through the data; during each pass, the coding scheme is further refined and adjusted, and interactions are re-analyzed and re-coded as required. This iterative process of classification, adjustment, and re-analysis eventually yields a stable set of codes that appropriately define and classify the interactions. It is important to note that the final set of codes used may have little in common with the initial coding scheme.

Using this type of non-linear, open-coding approach has the possibility of reducing researcher bias by not imposing the researcher's own culturally-bound values and expectations on the study participants. The researcher allows the voices of the participants themselves to determine the coding structure, rather than constraining them. Thus the research is more open to finding any evidence that may exist, rather than only what the researcher expects to find.

There are many practical examples of the use of this kind of discourse analysis on web-based interactions, including Graddy's (2002) assessment of the dynamic nature of online discussions in online learning environments, and Davidson-Shivers and Morris' (2001) evaluations of gender-based differences in communication in online learning environments. Voithofer (1999) also used discourse analysis to probe the mental models that users develop in navigating the Internet. Voithofer commented that "Discourse analysis provides a methodology with which to articulate the relationships between language, social context, and the cognitive processes that underlie discourse perception and productions." (p. 543)

PILOT

This research protocol was tested during June – August, 2004. During the pilot phase, the following tests were performed:

1. Online ICIAI: this instrument was tested for accuracy of results and for potential user problems. The data file generated by it was also tested for accuracy and completeness. One minor adjustment in terminology was made in order to identify respondents' cultural backgrounds rather than "ethnicity" which tended to elicit racial group.

2. Online questionnaire: this form was tested for ease of use and for respondent reaction. Results were used to refine questions, answer choices, and scoring techniques.

Although the size of the pilot group was very small, (16 usable paired responses, some of them incomplete), initial analysis indicated that a few significant correlations were achieved.

ROLE OF THE RESEARCHER

It is worth noting that the problem of the innate cultural bias of the researcher herself must inevitably interfere with the study. This issue was first suggested by Maehr (1974), and also commented on by Gauvain (1995; 2001), and Hofstede (2001) among others. In the case of this study, a focused effort to avoid such analytical contamination was made by means of the study design itself. Because it was conceived as an exploratory, blended study, the voices of the learners in the actual online learning environments were heard, without editing or modification. The researcher relied on the students' spontaneous and unplanned interactions and on their unstructured responses to open questions in order to support and illuminate the quantitative data, rather than using more formalized and constrained instruments that included only implicit assumptions about the forms that motivation must take. While there may still admittedly be bias present in the selection and understanding of the learner interactions included as data for this study, it is hoped that it was reduced to an acceptable level via the study methodology.

CHAPTER 4

FINDINGS

The specific research question examined by this study was:

Is there a relationship between learners' IC profiles and their reactions to specific online course components, or between learners' IC profiles and their interactions in online learning environments, that would suggest that the learners are differentially motivated by the course components?

In order to answer this research question, this study considered three subsidiary questions:

1. Are participants' reactions to specific course components, and therefore their motivation levels when engaging in those components, related to their individualist/collectivist profiles?
2. Can differing communication or interaction patterns within the online learning environment be discerned based on the individualist/collectivist profile of course participants?
3. In this exploratory study, what factors do subjects perceive as affecting their motivation and participation in the course?

To explore these questions, the hypotheses examined quantitatively were:

H₁: The activities that learners find most motivating will show a correlation with learners' IC profile.

H₂: Interaction among learners, in terms of frequency and type, will correlate with learners' IC profiles.

The blended methodology used in this study also categorized free-form answers by participants in order to identify additional factors that might have impacted their behavior and feelings of motivation during their online study course.

In order to test the above hypotheses and look for additional factors affecting motivation of participants, this study needed to answer the following questions:

1. What are the IC scores of study participants?
2. How do study participants react to specific course components in terms of their motivation levels?

3. How do participants' interactions within the course differ in terms of type and frequency?
4. Can participants identify any potentially confounding factors that might have affected their motivation levels or interaction patterns?

ASCERTAINING IC SCORES OF PARTICIPANTS

Students in participating classes were asked to volunteer to complete the online implementation of Matsumoto's ICIAI instruments during the first month of their class. This data was preserved intact without being scored until after other data was gathered and evaluated. At that point, IC scores were calculated. After eliminating duplicate and unusable records, there were 109 usable cases. Not all cases had all data points, as participants often did not complete one or more sections of the instrument. In order to qualify as "usable" a record was required to have at least one section of four completed.

The sections of the ICIAI are: Values/Colleagues, Values/Strangers, Behavior/Colleagues, Behavior/Strangers. The instrument also contains sections for Values and Behavior for Family and Friends, but these were not applicable to this study and were not used or presented to participants. From the data collected, the following nine variables were calculated:

- Values/Colleagues
- Values/Strangers
- Behavior/Colleagues
- Behavior/Strangers
- Total Values (by adding the scores of Values/Colleagues and Values Strangers)
- Total Behavior (by adding the scores of Behavior/Colleagues and Behavior/Strangers)
- Total Colleagues (by adding the scores of Values/Colleagues and Behavior/Colleagues)
- Total Strangers (by adding the scores of Values/Strangers and Behavior/Strangers)
- Total IC (by adding the scores of Values/Colleagues, Values/Strangers, Behavior/Colleagues, and Behavior/Strangers)

These nine scores were left as sums rather than averaged by dividing by the total number of questions in the applicable section of the ICIAI. This was done to help provide a wider range of data points and thus more exact correlations.

ASCERTAINING PARTICIPANTS' REACTIONS TO SPECIFIC COURSE COMPONENTS IN TERMS OF THEIR MOTIVATION LEVELS

The second instrument, the online Questionnaire, was administered to all participants during the last week of class. There were 101 usable responses to the questionnaire. To qualify as “usable” a questionnaire response had to be able to be matched with an ICIAI score; those respondents who had not completed the ICIAI were eliminated. Additionally, records were required to have the numeric questions of at least one section completed. The sections asked the same questions for each of the following types of course components: Synchronous (abbreviated SYN in the variable names), Asynchronous (ASYN), Individual (IND), and Group (GP). The respondents were asked to evaluate their response to each type of activity separately. Respondents whose courses did not include a given component (e.g., synchronous components) were asked to skip that section and proceed to the next section. Respondents who were in more than one of the classes involved in the study were asked to complete the questionnaire separately for each class.

During the evaluation and scoring of the Questionnaire it became clear that respondents had often completed the Likert and yes/no items but had not completed the free-form responses in some or all sections. These free-form responses had been intended for coding and adding to the score for each respondent's questionnaire; however, due to the number of missing responses these items (three free-form responses per section) were eliminated from the questionnaire scores and were evaluated separately.

Quantitative scoring of the questionnaire yielded the following variables for each case:

- For each section of the questionnaire (see Appendix C for the variable list and the exact question associated with each variable) the following variables were scored; thus each case included a total of 24 variables at the section level).
 - Motiv
 - Goals
 - Feeling
 - Challenge
 - Support
 - Total (calculated by adding the above five variables)
- TOTAL_MOTIV_WITH_SYN (Calculated by adding the total for each section, for those records describing classes with a synchronous component)

- TOTAL_MOTIV_NO_SYN (Calculated by adding the total for each section except the synchronous section, for those records describing classes without a synchronous component).

In its final form (not including free-form responses) the questionnaire had a maximum of fourteen points per each of four course components plus five continuing motivation points (indicating the respondent's overall level of interest in taking further courses in the same subject area) for a total of sixty-one possible points as a maximum motivation score.

When reviewing questionnaire records, it also became clear that a number of respondents had mistakenly filled in all or part of the synchronous section for classes that did not contain a synchronous component. These responses were eliminated from the records as invalid, but the responses to other sections were kept as they were.

Qualitative evaluation of the free-form responses for each section were based on two question areas:

Goals: "Which of your goals were relevant to this course activity? How did this component help you reach the relevant goal(s)?"

Personal agency beliefs: "How did this component affect your belief that you could successfully complete the course?"

Evaluation of the responses for all course components eventually yielded eight categories. These categories were used to code the free-form responses for each section and are:

- Interaction with peers and with the instructor
- Simply fulfilling course/program requirements
- Increasing knowledge, skills
- Answer questions, help with assignments/class content
- Fulfilling goals external to the course (job-related)
- Personal goals/issues
- Demonstrate new skills, knowledge, resulting in added confidence
- Did not contribute to goals/personal agency beliefs

The responses were counted by category for each section and totaled by category to arrive at a description of how survey participants saw each component in terms of motivating factors.

EVALUATING PARTICIPANTS' INTERACTIONS WITHIN EACH COURSE

The design of the courses involved in the study varied a great deal in terms of their use of such elements as telesessions, discussion boards, listservs, group/team activities, etc. See Table 2 for exact course names and a summary of course components.

To evaluate email usage, ARP710 and ET561 listserv usage was quantified. For discussion board posts, ARP645b, ARP685b, RA602, and RA779 were observed. Because RA602 tele-session use was a role play in which certain individuals had specific roles with potentially more opportunities to speak, only ARP745 was evaluated for synchronous behavior.

Coding categories were arrived at via reduction methods described in Chapter 3. The participants' behaviors and interactions in these forums were quantified by category as follows:

Email: emails sent to the class listservs by study participants were categorized and counted as follows:

- Email total: total emails sent by that participant
- Course: number of emails that were strictly course-related and in fulfillment of assignments
- Personal: number of emails that had personal (i.e., not directly related to the course) content
- Mixed: number of emails that had mixed course and personal content
- Acknowledgement/support: emails that simply acknowledged or praised another student's work, contribution, message, etc. No original content.
- Getting help: number of emails that solicited help with a specific course-related question or issue
- Giving help: responses to a request for assistance
- Total_non_course: computed by adding all of the previous variables not including "Course" or "Email total".

Each email was only counted in a single category. In cases where an email could have fallen into more than one category, its primary purpose controlled category selection. Only email sent via the class listserv was counted. Wikis and blogs were not evaluated because those tools vary considerably from emails in terms of their function and expected purpose.

Discussion board posts: for each study participant, the total number of discussion board posts was counted as well as the number of initiating posts (a subset of the total defined as posts not in response to another student's post). For each class, the required number of discussion board posts was subtracted from the total number of posts. This was done in an effort to equalize the number of discussion boards across classes, as classes varied widely on the number of discussion boards used. For example: RA602 required two postings on each of six discussion boards; therefore 12 was subtracted from the total posts for study participants in that class. ARP745, in which discussion board use by students was optional, was not used in this analysis.

Telesessions: All telesessions were tape recorded with the consent of the facilitators and all students involved in each session (regardless of whether they were study participants or not). The comments of study participants were transcribed from the tape recordings; comments of non-participants were not transcribed. The total number of times each participant spoke was counted, and the total number of words spoken by each participant was calculated using MS Word's "Word Count" tool. Only the portion of the telesession relevant to the class itself was transcribed; therefore, the initial part of each session in which students and the facilitator made small talk while waiting for all group members to arrive was ignored. Additionally, one telesession facilitator had a significantly different facilitation style in comparison with other facilitators; her sessions were far more informal in tone. Therefore data from those sessions was not included in the data pool, as it was not functionally comparable to other facilitators' sessions.

IDENTIFYING POTENTIALLY CONFOUNDING FACTORS THAT MIGHT HAVE AFFECTED RESPONDENTS' MOTIVATION LEVELS OR INTERACTION PATTERNS

Qualitative evaluation of participants' responses to the final question on the questionnaire ("Was there anything else that you feel may have affected your motivation in this course?") eventually yielded the following categories which were then used to code all responses:

- Course design
- Grades

- Peers
- Job
- Personal
- Program-related
- Instructor
- Financial
- No other factor

Some responses fell into two separate categories simultaneously; these responses were counted in both categories.

CHARACTERISTICS OF STUDY PARTICIPANTS

The study participant ranged in age from twenty-on to fifty-nine, with a mean age of 39.9 years old. They were predominantly female; of those who gave their gender, 77.8 percent were female and 21.3 percent were male. The respondents showed a broad range of cultural backgrounds, including African-American, Anglo-American, Arab-American, Asian-American, Azorean, Cambodian, Chinese-Cuban, Danish, Filipino, Hispanic/Latino, Indian, Jewish, Micronesian, Native American, and South Korean. Note that the respondents specified their ethnicity/cultural background using a free-form input field, therefore there was wide variation in self-applied labels (e.g., Hispanic, and Latino were both used freely). When the IC scores of the current sample were averaged, the group of subjects in this study showed to be slightly collectivist overall with an average TotalColl of 3.65, and an average TotalStran of 2.60. There was no significant correlation between respondents' ages and their IC scores.

QUANTITATIVE ANALYSIS OF THE DATA

Quantitative variables described above were analyzed using SPSS version 12.0.0 for Windows. Because of the exploratory nature of this study, the alpha was set at the .10 level for all tests. Results are described below, according to the tests that were run for each hypothesis respectively.

H₁: The activities that learners find most motivating will show a correlation with learners' IC profile.

To evaluate this hypothesis, a bivariate correlation was conducted between all IC variables and the TOTAL_MOTIV_WITH_SYN and TOTAL_MOTIV_NO_SYN variables. Refer to Appendix C for a list and definition of all variables. The results, shown in Table 3, show a clear pattern of significant correlation at the .1 level between most of the IC variables and the TOTAL_MOTIV_NO_SYN variable. The TOTAL_MOTIV_WITH_SYN variable did not show a pattern of significant correlation, probably due to the small number of cases that qualified for this test. Note that in Table 3, as well as in all following tables, correlations significant at the .1 level are boldfaced for easier identification.

Table 3. Correlation of IC Variables and TOTAL_MOTIV Variables

		Val Col	Val Stran	Behav Coll	Behav Stran	Total Val	Total Behav	Total Coll	Total Stran	Total IC
TOTAL_MOTIV_WITH_SYN	Pearson Correlation	-.022	.358	-.129	.072	.185	-.039	-.090	.169	.039
	Sig. (2-tailed)	.934	.173	.647	.798	.493	.891	.750	.563	.896
	N	17	16	15	15	16	15	15	14	14
TOTAL_MOTIV_NO_SYN	Pearson Correlation	.224	.338	.179	.300	.302	.272	.193	.341	.292
	Sig. (2-tailed)	.058	.005	.148	.014	.012	.027	.124	.007	.022
	N	72	69	67	66	69	66	65	61	61

It should be noted that the two IC variables that did not show a significant correlation with TOTAL_MOTIV_NO_SYN (BehavColl and TotalColl) both narrowly missed the alpha cutoff; if the alpha is raised to just .15 then all measures qualify.

Course Component Analysis

Each component was analyzed to check whether the correlations held true on the component level and the degree to which significant correlations were found on the variable level.

Synchronous Components: there was no significant correlation between SYNTotal and IC variables, as shown in Table 4. However, when the separate synchronous variables

were correlated with IC variables, there was a clear pattern of significant correlations between the Feelings variable and IC scores. Moreover, coefficients in the significant correlations were consistently negative, as shown in Table 5. This indicates that, the higher the subject's IC score (i.e., the more collectivist the subject is) the less s/he was motivated by the synchronous component(s) of a course. Other variables did not show a significant correlation, possibly due to the relatively small sample size.

Asynchronous components: the ASYNTotal variable showed almost completely consistent correlation with the IC Variables at the .1 alpha level as indicated in Table 6, with the only exception being in the BehavColl (Behavior/Colleagues) variable.

The separate asynchronous variables, shown in Table 7, also showed some correlation, with ASYNMotiv and ASYNGoals demonstrating significant correlations with most IC variables. Interestingly, ASYNFeelings did not show any significant correlations with this component. Other asynchronous variables did not show a significant correlation.

Individual components: again, INDTotal was significantly correlated with most IC variables, as noted in Table 8. Again, the only exception was in two Colleagues variables, BehavColl and TotalColl.

Separate Individual component variables showed significant correlations with INDMotiv and all IC variables, similar to the Asynchronous components, as indicated in Table 9. INDGoals also shows significant correlations with most IC variables except for BehavColl and TotalColl. Other Individual component variables did not show a significant correlation with any IC variables.

Group components: GPTotal did not show a significant correlation with any IC variables, as noted in Table 10. However, separate Group variables did demonstrate a significant correlation. As shown in Table 11 both GPMotiv and GPGoals showed a pattern of significant correlations.

H₂: Interaction among learners, in terms of frequency and type, will correlate with learners' IC profiles.

To examine this hypothesis, three aspects of learner interaction were examined: discussion board posts, listserv email usage, and telesession activities.

Table 4. Correlation of IC Variables and Synchronous Total Variable

		Val Col	Val Stran	Behav Coll	Behav Stran	Total Val	Total Behav	Total Coll	Total Stran	Total IC
SYN Total	Pearson Correlation	-.196	-.043	-.116	-.100	-.128	-.114	-.161	-.091	-.127
	Sig. (2- tailed)	.275	.814	.534	.598	.485	.550	.394	.647	.519
	N	33	32	31	30	32	30	30	28	28

Table 5. Correlation of IC Variables and Separate Synchronous Variables

		Val Col	Val Stran	Behav Coll	Behav Stran	Total Val	Total Behav	Total Coll	Total Stran	Total IC
SYN Motiv	Pearson Correlation	-.222	-.007	-.115	.092	-.120	.009	-.165	.073	-.027
	Sig. (2- tailed)	.207	.971	.529	.623	.505	.964	.375	.707	.891
	N	34	33	32	31	33	31	31	29	29
SYN Goals	Pearson Correlation	-.155	.100	-.099	.133	-.021	.030	-.130	.109	.003
	Sig. (2- tailed)	.381	.580	.592	.477	.908	.874	.484	.572	.986
	N	34	33	32	31	33	31	31	29	29
SYN Feelings	Pearson Correlation	-.301	-.216	-.302	-.313	-.286	-.346	-.326	-.332	-.366
	Sig. (2- tailed)	.084	.228	.093	.086	.106	.056	.074	.079	.051
	N	34	33	32	31	33	31	31	29	29
SYN Challenge	Pearson Correlation	-.079	-.099	-.060	-.232	-.100	-.169	-.067	-.197	-.145
	Sig. (2- tailed)	.664	.592	.749	.217	.585	.373	.726	.314	.462
	N	33	32	31	30	32	30	30	28	28
SYN Support	Pearson Correlation	-.046	-.037	.056	-.152	-.046	-.055	.001	-.117	-.059
	Sig. (2- tailed)	.795	.837	.759	.414	.798	.771	.997	.544	.760
	N	34	33	32	31	33	31	31	29	29

Table 6. Correlation of IC Variables and Asynchronous Total Variable

		Val Col	Val Stran	Behav Coll	Behav Stran	Total Val	Total Behav	Total Coll	Total Stran	Total IC
ASYN	Pearson									
Total	Correlation	.227	.346	.165	.301	.315	.276	.198	.366	.320
	Sig. (2-tailed)	.035	.001	.145	.007	.004	.014	.085	.002	.006
	N	86	83	80	78	83	78	77	72	72

Table 7. Correlation of IC Variables and Separate Asynchronous Variables

		Val Col	Val Stran	Behav Coll	Behav Stran	Total Val	Total Behav	Total Coll	Total Stran	Total IC
ASYN	Pearson									
Motiv	Correlation	.188	.266	.141	.190	.243	.193	.161	.258	.234
	Sig. (2-tailed)	.078	.013	.199	.090	.024	.085	.153	.027	.045
	N	89	86	84	81	86	81	80	74	74
ASYN	Pearson									
Goals	Correlation	.234	.345	.166	.282	.313	.256	.205	.342	.302
	Sig. (2-tailed)	.027	.001	.131	.011	.003	.021	.068	.003	.009
	N	89	86	84	81	86	81	80	74	74
ASYN	Pearson									
Feelings	Correlation	.116	.150	.105	.183	.149	.166	.106	.187	.167
	Sig. (2-tailed)	.286	.174	.346	.105	.175	.142	.357	.114	.157
	N	87	84	82	80	84	80	78	73	73
ASYN	Pearson									
Challenge	Correlation	-.015	.151	-.070	.163	.073	.065	-.043	.181	.077
	Sig. (2-tailed)	.887	.166	.528	.149	.504	.570	.705	.126	.520
	N	88	85	83	80	85	80	79	73	73
ASYN	Pearson									
Support	Correlation	.088	.161	.039	.106	.132	.090	.062	.164	.125
	Sig. (2-tailed)	.413	.139	.728	.350	.227	.426	.587	.163	.290
	N	89	86	83	80	86	80	80	74	74

Table 8. Correlation of IC Variables and Individual Total Variable

		Val Col	Val Stran	Behav Coll	Behav Stran	Total Val	Total Behav	Total Coll	Total Stran	Total IC
IND	Pearson	.184	.271	.141	.245	.241	.223	.152	.266	.227
Total	Correlation									
	Sig. (2- tailed)	.087	.012	.200	.027	.026	.045	.180	.022	.052
	N	88	85	84	81	85	81	80	74	74

Table 9. Correlation of IC Variables and Separate Individual Variables

		Val Col	Val Stran	Behav Coll	Behav Stran	Total Val	Total Behav	Total Coll	Total Stran	Total IC
IND	Pearson	.269	.296	.220	.268	.296	.278	.243	.289	.286
Motiv	Correlation									
	Sig. (2- tailed)	.011	.006	.044	.016	.006	.012	.030	.013	.014
	N	88	85	84	81	85	81	80	74	74
IND	Pearson	.206	.286	.166	.276	.258	.252	.179	.291	.252
Goals	Correlation									
	Sig. (2- tailed)	.054	.008	.131	.013	.017	.023	.112	.012	.031
	N	88	85	84	81	85	81	80	74	74
IND	Pearson	.058	.169	.031	.118	.129	.089	.026	.140	.098
Feelings	Correlation									
	Sig. (2- tailed)	.589	.123	.780	.295	.239	.429	.822	.235	.408
	N	88	85	84	81	85	81	80	74	74
IND	Pearson	.086	.144	.053	.167	.123	.132	.065	.162	.126
Challenge	Correlation									
	Sig. (2- tailed)	.423	.190	.630	.137	.261	.241	.565	.168	.285
	N	88	85	84	81	85	81	80	74	74
IND	Pearson	-.047	.058	-.014	.074	.006	.041	-.057	.073	.010
Support	Correlation									
	Sig. (2- tailed)	.660	.601	.900	.510	.957	.717	.613	.539	.935
	N	88	85	84	81	85	81	80	74	74

Table 10. Correlation of IC Variables and Group Total Variable

		Val Col	Val Stran	Behav Coll	Behav Stran	Total Val	Total Behav	Total Coll	Total Stran	Total IC
GP Total	Pearson Correlation	.130	.151	.158	.104	.144	.136	.126	.133	.133
	Sig. (2- tailed)	.268	.205	.188	.395	.228	.264	.308	.299	.298
	N	75	72	71	69	72	69	68	63	63

Table 11. Correlation of IC Variables and Separate Group Variables

		Val Col	Val Stran	Behav Coll	Behav Stran	Total Val	Total Behav	Total Coll	Total Stran	Total IC
GP Motiv	Pearson Correlation	.235	.230	.254	.206	.244	.244	.244	.235	.255
	Sig. (2- tailed)	.042	.052	.033	.089	.039	.044	.045	.063	.043
	N	75	72	71	69	72	69	68	63	63
GP Goals	Pearson Correlation	.180	.211	.197	.139	.204	.173	.182	.185	.192
	Sig. (2- tailed)	.121	.076	.100	.254	.086	.154	.138	.146	.131
	N	75	72	71	69	72	69	68	63	63
GP Feelings	Pearson Correlation	.004	.032	.085	.032	.018	.057	.013	.022	.016
	Sig. (2- tailed)	.972	.789	.482	.794	.879	.642	.915	.864	.902
	N	75	72	71	69	72	69	68	63	63
GP Challenge	Pearson Correlation	.020	.026	-.018	-.061	.016	-.038	-.031	-.023	-.034
	Sig. (2- tailed)	.867	.828	.883	.620	.895	.755	.802	.859	.790
	N	75	72	71	69	72	69	68	63	63
GP Support	Pearson Correlation	-.048	.000	-.029	-.021	-.034	-.021	-.067	-.010	-.046
	Sig. (2- tailed)	.680	.998	.811	.865	.779	.862	.589	.935	.718
	N	75	72	71	69	72	69	68	63	63

Discussion board posts: both total posts (standardized by subtracting the number of required posts to yield “NetPosts”) and initiating posts were correlated with IC variables. No significant correlations were found, as shown in Table 12. Even if the alpha level is raised to .15, only one significant correlation is found between NetPosts and BehavStran (Behavior/Strangers) and the IC variables.

Table 12. Correlation of IC Variables and Discussion Board Posts

		ValCol	ValStran	BehavColl	BehavStran	TotalVal	TotalBehav	TotalColl	TotalStran	TotalTotal
NetPosts	Pearson Correlation	.089	.105	.093	.173	.068	.142	.105	.127	.081
	Sig. (2-tailed)	.390	.315	.410	.130	.516	.214	.362	.283	.492
	N	95	93	80	78	93	78	78	74	74
INIPosts	Pearson Correlation	.011	.004	-.046	.040	.007	.002	-.047	.047	.000
	Sig. (2-tailed)	.912	.966	.682	.725	.945	.987	.680	.688	.998
	N	96	94	81	79	94	79	79	75	75

Listsrv email interaction: email sent on the class listservs were categorized according to the type of message and correlated with IC variables, shown in Table 13. In spite of the low sample size, this correlation shows a surprisingly clear pattern of significant, positive correlations between almost all email measures and the IC/Colleagues variables. This indicates a clear pattern of association between listserv use and feelings of collectivism toward colleagues in the classes observed. A few correlations between other IC variables and email measures also exist.

Telesession data: telesessions were analyzed for the total number of times each study participant spoke and the total number of words each participant spoke (to indicate how long each participant controlled the conversation). These data were correlated with all IC variables but no significant correlations were found as noted in Table 14. Unfortunately, due to the complications in gathering data and the need to eliminate a number of cases due to lack of comparability, there were very few cases on which to base a correlation, which may have caused or contributed to the lack of significance. There is no way to predict whether, with

Table 13. Correlation of IC Variables and Listserv Use

		Val Col	Val Stran	Behav Coll	Behav Stran	Total Val	Total Behav	Total Coll	Total Stran	Total IC
Email	Pearson	.165	.074	.424	.008	.149	.246	.421	.089	.312
	Sig. (2-tailed)	.366	.693	.025	.966	.423	.207	.029	.665	.120
	N	32	31	28	28	31	28	27	26	26
Course	Pearson	.015	.072	.421	.116	.056	.321	.393	.178	.356
	Correlation									
	Sig. (2-tailed)	.935	.700	.023	.550	.766	.090	.043	.385	.074
Personal	N	32	31	29	29	31	29	27	26	26
	Pearson	.343	.101	.385	-.103	.274	.145	.423	.013	.262
	Correlation									
Mixed	Sig. (2-tailed)	.054	.590	.039	.596	.135	.453	.028	.949	.196
	N	32	31	29	29	31	29	27	26	26
	Pearson	.212	-.023	.339	-.061	.117	.149	.358	-.020	.199
Acknowl	Correlation									
	Sig. (2-tailed)	.245	.904	.072	.755	.530	.440	.067	.922	.330
	N	32	31	29	29	31	29	27	26	26
Give Help	Pearson	.232	.055	.390	-.045	.179	.189	.395	.037	.261
	Correlation									
	Sig. (2-tailed)	.201	.768	.037	.818	.336	.326	.041	.859	.199
Get Help	N	32	31	29	29	31	29	27	26	26
	Pearson	.198	-.044	.201	-.111	.095	.035	.274	-.096	.096
	Correlation									
Total_No n_Course	Sig. (2-tailed)	.278	.812	.296	.566	.612	.858	.166	.639	.639
	N	32	31	29	29	31	29	27	26	26
	Pearson	.226	.052	.398	-.240	.173	.054	.418	-.094	.185
Total_No n_Course	Correlation									
	Sig. (2-tailed)	.213	.783	.033	.209	.353	.780	.030	.649	.365
	N	32	31	29	29	31	29	27	26	26
Total_No n_Course	Pearson	.275	.049	.396	-.085	.201	.164	.419	.004	.252
	Correlation									
	Sig. (2-tailed)	.128	.795	.033	.662	.279	.394	.030	.985	.214
Total_No n_Course	N	32	31	29	29	31	29	27	26	26

sufficient cases to achieve statistical significance, the negative coefficients in that show in this table would still appear.

QUALITATIVE ANALYSIS OF THE DATA

There are two groups of qualitative data that may hold interest in the context of motivation. The first discussed below will concern other factors identified by participants as

having affected their motivation levels during the courses involved in the study. Then qualitative data from each of the components covered by the Questionnaire will be examined.

Table 14. Correlation of IC Variables and Telesession Data

		Val Col	Val Stran	Behav Coll	Behav Stran	Total Val	Total Behav	Total Coll	Total Stran	Total IC
times	Pearson									
	Correlatio	.024	-.023	-.063	-.175	-.001	-.184	-.136	-.219	-.282
	n									
	Sig. (2- tailed)	.935	.936	.811	.516	.998	.495	.628	.451	.329
words	N	14	15	17	16	15	16	15	14	14
	Pearson									
	Correlatio	-.019	-.040	.082	.002	.001	.044	.040	-.019	.006
	n									
	Sig. (2- tailed)	.948	.886	.754	.995	.998	.872	.887	.947	.984
	N	14	15	17	16	15	16	15	14	14

Before looking at each group of qualitative data, it may provide additional perspective to note the overall goals given by study participants for taking the courses. These are shown in Table 15. When asked, “What were your goals/reasons for taking this particular course?” participants’ answers fell readily into four categories. Some respondents gave more than one goal for taking a course; each goal was counted once yielding a total greater than the total number of responses to the Questionnaire.

Table 15. Overall Goals/Reasons for Taking Courses in This Study

Required to complete a program/degree/certification	74
To improve knowledge level, skills, in the content area	32
For job-related reasons	17
For financial reasons	1

It is likely that a majority of the answers indicating that the respondent took the course as a program requirement should be considered as job-related. This is because a large number of participants were completing the program either to prepare for a Rehabilitation

Counseling certification required by the State in which they work, or because their employer required a Master's degree in Rehabilitation/Vocational Counseling. When these facts are taken into account it is clear that on the order of 80% of study participants were taking the course for professional reasons, rather than for social reasons or for personal enjoyment.

ADDITIONAL FACTORS AFFECTING MOTIVATION

The last question on the Questionnaire inquired whether respondents could identify any other factor(s) that might have affected their motivation in the course for which they had filled out the Questionnaire. Sixty-nine respondents answered this question; their answers were distributed as shown in Table 16. The responses add up to 72 as three respondents indicated two factors that they felt had affected their motivation. The factors were evaluated for being either positive or negative; when the response was not clear as to whether it was positive or negative (e.g., "That it is one of my last courses.") it was placed in the "Positive Factors" column. To be counted as "No other motivational factor" the response had to be explicit (e.g., "No", "None", "N/A", etc.). Blank responses were not counted in any category. Negative responses are boldfaced for easier identification.

Table 17 is a complete, unedited list of factors noted by the respondents categorized by type. Responses that appear to be negative factors are boldfaced for easier identification.

Table 16. Additional Factors Affecting Motivation

	Positive Factors	Negative Factors	Total
Course design:	5	5	10
Grades:	1		1
Peers:	1		1
Job:	1		1
Personal:	9	6	15
Program-related:	4	4	8
Instructor:	16	3	19
Financial:	3	0	3
No other motivational factor			14

Table 17. Factors Affecting Motivation Noted By Students

Course
<ul style="list-style-type: none"> • The length of the course perfect, not too long or condensed • the scope of the class affected my motivation more than anything • I felt very overwhelmed since the beginning because there was just too much work required for this course. • not enough time allowed • Some of the material that needed to be done was not on the site early enough. Other material was changed in the middle of the stream. This class felt fragmented and too scattered. • Being able to work independently and being graded accordingly • The course content was relevant. • The book and tape that accompanied were outstanding and will provide as successful future references in actual grant writing. • yes - remove the group aspect of the program. • I really would have liked a grade for the internship and the work we did instead of just pass fail.
Grades
<ul style="list-style-type: none"> • My grades
Peers
<ul style="list-style-type: none"> • Need to help a group member.
Job
<ul style="list-style-type: none"> • My only motivation is keeping my job, because I know must have a CRC.
Personal
<ul style="list-style-type: none"> • I had a strong interest in multimedia creation going into the course. In addition, I was familiar with the instructor and looking forward to his style of facilitating again. • [Needed] more of a background and knowledge of FLASH • At times I was feeling very disconnected from the class and that was demotivating. • Busy schedule - too much on my plate this Fall /: forced me to procrastinate

<ul style="list-style-type: none"> • This class and type of class (on line) helps student to learn, but depends on student's learning style-visual, computer literate, etc. • I don't feel that this course is necessary and it really takes up too much time for those that are employed full time. • Very tired after 3 years of this. • Distance learning courses all require a great degree of self motivation. • The desire to learn • Last quarter of masters program, pregnant, full-time work and interviewing for jobs out-of-state. • The desire for personal and professional advancement • Time is of essence and there's always time for everything, not everything for time. • stress, lack of time • doing the research on each career theory and applying it to case examples.. • I truly enjoyed this course and the entire Distance Learning experience.
Program
<ul style="list-style-type: none"> • Yes, it was my LAST ONE!!!! Yay! • I don't feel that this course is necessary and it really takes up too much time for those that are employed full time. • Last class!!! Yeah!!! • That it is one of my last courses. • Very tired after 3 years of this. • To finally be done w/ this program. • Last quarter of school, pregnant, working full-time, applying and interviewing for jobs out of state and hoping to move in near future. • It was the last course, so I sometimes was burnt out.
Instructor
<ul style="list-style-type: none"> • The instructors were very slow in grading our work; if I don't know how I'm doing in the course, then how am I supposed to be motivated to continue what I'm doing or to work harder? • I get the feeling that all of the professors in the EDTEC department are overloaded. This seems to be a new phenomenon due to the budget cuts in CA. • I think my facilitator for this class is the worst I have ever seen. He takes forever to grades to us, he rarely responds directly to emails, and he has an excuse

for everything.

- The wonderful facilitators and technical support kept me motivated throughout this course.
- The professor has a good teaching style for this course, he seems to anticipate questions and answers them appropriately and in a timely way.
- The Instructors were prompt with their replies and they offered supportive feedback as appropriate with updates and information.
- No - it was a great course. The lecturers were great and gave us great overviews of the regulations in other countries.
- I had a strong interest in multimedia creation going into the course. In addition, I was familiar with the instructor and looking forward to his style of facilitating again.
- the elan of the professor ... he made the course highly motivating and effective.
- Dr. Hoffman was an excellent professor who calmly addressed each e-mail and gave answers.
- The professionalism of the faculty was really inspiring.
- a great facilitator :)
- Yes, the instructor support and feedback.
- Great support from the facilitator and good communication. Understanding when things came up for me that stalled my progress in the class.
- The good solid feed back from instructors in a timely manner.
- Instructor positive feedback was essential to my success and kept me going!!
- Great Instructor (facilitator). Very supportive and encouraging.
- The feedback from the facilitator on assignments was motivating and encouraging
- Dr. Koch. He is a wonderful teacher. He is a great encourager too.

Financial

- 100 % tuition reimbursement
- RSA and the state of Texas require me to maintain a 3.0 GPA to continue supporting me with training cost. This is a big motivator for me.
- Paying back the Feds if we don't complete the courses?

No additional motivational factor: 14

GOAL-RELATED AND PERSONAL AGENCY BELIEF RESPONSES

As noted at the beginning of this chapter, the free-form responses for each course component were too frequently missing to lend themselves to coding or rigorous quantitative analysis. Nevertheless, an evaluation of the responses may shed light on the question of motivation in online environment, especially when compared to the goals/reasons given for taking the course shown above.

When asked, “Which of your goals were relevant to this course activity? How did this component help you reach the relevant goal(s)?” respondents’ answers can be categorized for each component as shown in Table 18. It is interesting to note that “Interaction with peers and with the instructor” was noted in over 40% of the responses for the asynchronous component, but less than 30% of the synchronous component. Also noteworthy is the percentage of responses that indicated that group activities did not contribute toward any type of goals for the respondent.

For reference, examples of responses are shown in Table 19 for each component. These sample responses were chosen either because they were representative of a number of other responses, or because they were unique in some aspect within the responses for that component.

Study respondents were asked, “How did this component affect your belief that you could successfully complete the course?” in order to ascertain the component’s relationship to participants’ personal agency beliefs. Again, responses readily broke down into the same categories as were identified for the goal-related questions. Table 20 shows how the response categories compared across all components.

Of note is the general prevalence of interaction with peers and instructors as contributing toward the personal agency beliefs of respondents, even in asynchronous activities. Also of note is the even higher degree to which each activity did *not* support participant’s belief that they could successfully complete the course. In some cases this was because the participant indicated that s/he was confident of passing the course from the beginning, but in many cases the respondent indicated that this component had a negative effect on their personal agency beliefs.

Table 18. Goals Relevant to Course Components

	Synch.	Asynch.	Ind.	Group	
Interaction with peers and with the instructor	16 29.6%	33 40.2%	0	15 23.8%	64 22.7%
Simply fulfilling course/program requirements	8 14.8%	12 14.6%	16 19.3%	11 17.5%	47 16.7%
Increasing knowledge, skills	17 31.5%	15 18.3%	46 55.4%	15 23.8%	93 33%
Answer questions, help with assignments/class content	4 7.4%	11 13.4%	4 4.8%	0	19 6.7%
Fulfilling goals external to the course (job-related)	4 7.4%	6 7.3%	12 14.5%	5 7.9%	27 9.6%
Personal goals/issues	1 1.9%	0	2 2.4%	0	3 1.1%
Demonstrate new skills, knowledge resulting in added confidence:	0	0	1 1.2%	0	1 0.4%
Did not contribute towards goals	4 7.4%	5 6.1%	2 2.4%	17 27%	28 9.9%
	54	82	83	63	282

Table 19. Relevant Goals by Component

Synchronous Components	
Interaction with peers and with the instructor:	
<ul style="list-style-type: none"> • Meeting as a group helped ensure all were on the same sheet of music. However, with my time difference, I was unable to participate in the live chats but I read the transcripts. I was better able to understand the listserv information based on the archives of the transcripts. • Telesessions allowed us to freely engage in group discussion • Rehashing new information with other students. It helped with the learning curve. It forced further thinking on the topics by requiring interaction with fellow students. • I was interested in hearing the insights from our professor who is extremely well respected in our field. [But we had] too many technical problems, a reliance on chat based interface and travel problems. There was also a challenge of integrating a face to face class with on-line class sessions. 	
Simply fulfilling course/program requirements:	
<ul style="list-style-type: none"> • Just wanted to complete the course. It was ok but not everyone had a chance to participate during the role play. Difficult to get a word in. • Motivated to finish because I need the class for my degree. 	
Increasing knowledge, skills:	
<ul style="list-style-type: none"> • Teleconference was relevant and informative. These activities allowed me to learn to research information and know where to go when I had questions or wanted to know more information. • Understanding concepts. Provided some different views of various ideas • Increasing my skill in creating multimedia content. Immediate feedback answered my technical and design questions. • I was able to gather different perspectives and case management styles in handling client situations. It helped me to trouble shoot more, try different avenues to gaining information 	
Answer questions, help with assignments/class content:	
<ul style="list-style-type: none"> • Allowed for a better understanding of the course materials. • Information and questions brought my attention to matters that I had previously overlooked. The web chats sometimes put me back on track. I got some questions answered so that I could continue with my work. 	
Fulfilling goals external to the course (job-related):	

- Making a video for the department. I made the video in this class
- My goal was to increase placement of my disabled consumers through steady measurable methods, I accomplished my goals. Not only did I benefit, but more importantly my consumers.
- Satisfied the requirements of my employer.

Personal goals/issues:

- My goals were to increase my employment placement activities for Spanish speaking clients. It helped me because I have a difficult time talking on the phone (a phobia I have) this course helped me in bettering my phone skills.

Did not contribute towards goals:

- I did my [assignment] individually, I learn better when I work alone. I am a very serious person when I am working I don't like to be interrupted. I find that when working in groups you develop a lot of wasted time. This is very annoying to me.

Asynchronous Components

Interaction with peers and with the instructor:

- Inter-student exchange. it was good in the message boards but I would have preferred a 'live' interaction for banter
- All activity was transferred between group members via E-mail and listserv addresses. Enabled speedy communication with group members in order to complete assignments in a timely manner.
- To learn more about how other VR counselors feel about various subjects and to learn from their expertise. To read and interact with the other students on my time schedule
- Being able to correspond with others in my class despite not being in a 'classroom' with them.
- Learning how to use the discussion boards for group projects. Helped me discover how to work as a team via a discussion board.
- It was easy to email others in our group for feedback, brainstorming and planning of our group project. By providing the easy access to others in our group it was easy to communicate about our group project.
- The interaction of all the students on the discussion board brought out many ideas and others shared their previous experience. It forced us to look up relevant information to share with the class. with all of us doing 'research' and sharing information, a lot of information was passed on to myself and others that we may not have gotten just by listening to the lectures and reading the assignments.
- Having communication with the facilitator that provided the guidance needed through email. Email on group projects for communication that was necessary to complete the project. Group discussion boards were very helpful with understanding the weekly topic

discussed and getting other's perspective on the topics. All aspects of this component were necessary for successful completion of the course
Simply fulfilling course/program requirements:
<ul style="list-style-type: none"> • Requirement for the course. it was ok • This is part of our grade so of course it has a lot of relevance to us. Because we are graded on this exercise. • Fulfilling course requirements, grant writing process analysis, communication w/ colleagues on process. Completion of assignments conformed to course requirements and contributed to coordination of group activities essential for project completion. • requirement of the class • ...It is a required element and I need it to complete the course work, otherwise I would not be doing it.... sorry. • Completing the course successfully. I don't really like the discussion boards most of the time. • Completing the class. interesting forum
Increasing knowledge, skills:
<ul style="list-style-type: none"> • I suppose the goal to be more informed. I also wanted to learn new things. The listserv and the blog provided information. I had not known about blogs before, so I learned something new there. • Learning more about disabilities. it allowed for communication and feedback that has more years experience in this field. • Gaining knowledge on the subject matter by allowing me to share information with fellow students. • Learning more about cultural interactions. We had a good discussion board on this issue; it brought up some interesting points. • We used extremely cool asynchronous tools,. many of which were not used in any other classes. I love blogging and wikis. Hands on introduction to several very good tools for asynchronous learning.
Answer questions, help with assignments/class content:
<ul style="list-style-type: none"> • This also furthered my understanding of course materials. • We received weekly emails from the Instructor and co-instructor. These were helpful in letting us know where we should be and what was due during the week. The discussion board provided us an opportunity to share scenarios from our work life. • Completing assignments. Provided input and conversations among other students, the facilitator, and me. • The use of email was the primary teaching tool for this course. The email element served

<p>to instruct us students. Email was also the primary tool for communication between classmates.</p> <ul style="list-style-type: none"> • ...In comparison to another class I had this semester, I don't think either the discussion board or the e-mail communication helped as much as it did in my other class. The discussion board in [the previous class] prompted students to 'discuss' topics with one another, whereas the board in this class simply asked us questions just like the Web Assignments. Also, the e-mails we received in [the previous class] gave us an in-depth introduction to the week's topics. • In completing the discussion boards, I found it easier to express my ideas on the d/c boards than I would have in a face to face classroom. I learned quite a bit by reading what other classmates had to say about the different assignments.
<p>Fulfilling goals external to the course (job-related):</p> <ul style="list-style-type: none"> • Move to higher paying job. • Learning and improving Case Management skills to become VRC and future CRC Learning from others. • Completing the course for masters degree and obtaining information for eventual CRC. Frankie, I would love to say that I sought this for the knowledge and a keen desire to learn, but in truth, I would never have taken another course but craft courses if my job had not said it would be necessary. Gave me information on career development theories which will be on the CRC exam. Now I did learn a lot about things I had never thought about before - I am not going to argue with that. The course is going to help me in my job and in doing it better, but those weren't my goals in taking it. It was just one more class to get out of the way.
<p>Did not contribute towards goals:</p> <ul style="list-style-type: none"> • For this course the discussion board was available if you wanted to initiate dialogue regarding things that were affecting you. I didn't utilize it much. I reached the goals more through teleconferences • I hoped this component would take the place of classroom discussions. It was more work than the free flow of ideas in a normal classroom exchange.
<p style="text-align: center;">Individual Components</p>
<p>Simply fulfilling course/program requirements:</p> <ul style="list-style-type: none"> • I had to work on completing the research papers. By doing so, I reached my goal of finishing the class with hopefully a decent grade. • Necessary to successfully complete the course. Some of the information was new knowledge and other was good for a review, but all necessary for adequate knowledge to work as a VRC. • Complete the course and have it over with so I am closer to earning the master's degree

and obtaining the CRC. Completing it was necessary for completing the course
Increasing knowledge, skills:
<ul style="list-style-type: none"> • Broaden my overall knowledge and understanding of the various topics studied. Reading is a good medium for me when it comes to learning and retaining new information so reading assignments and research work for me. • The assignments enabled me to apply knowledge. Practicing multimedia skills helped me get better at using the tools. • The overall learning of the material. I acquired most of the relevant information through these exercises • To learn more about the subject. it helped by allowing me to read in my own time and when I was ready to study it. • We had to do 4 readings about Instructional Design. It allowed me reflection in the field and helped me think beyond my initial projects.
Answer questions, help with assignments/class content:
<ul style="list-style-type: none"> • This component allowed me to be creative with my researches to complete the assignments. • Readings were performed in very cursory and scanning fashion focused on extracting information essential to meet course requirements, but I enjoyed opportunity to conduct research in area where I'd had limited exposure previously. It permitted me to respond to assignments w/ some understanding of terminology and principles and to draft proposal elements in conformance with models provided. • Get to know how to do the research. Actually, I don't think it's helpful since the instructor only give you some research paper example. When you start the research, you have no idea what you need to do since you are just a beginner, but the instructor asked you to give her a proposal. And finally, little comments on the paper and I am confused how they graded the paper.
Fulfilling goals external to the course (job-related):
<ul style="list-style-type: none"> • Everything that I researched will be potentially on the CRC exam. • Applying current FDA guidance to a topic that was relevant to my job. Forced me to research and write a paper that I will use shortly for a presentation to management. • Gathering resources in order to be more efficient with my consumers, reduce stress, manage time more effectively and be more aware of resources or lack of them. Forced me to do things I have been wanting to do but did not take the time to do. • I learned that writing a grant is a lot of work, but the fear of grant writing is gone. I also realize that I can write a successful grant.

Personal goals/issues:
<ul style="list-style-type: none"> • I like individual assignments. Easier to be responsible for own work • I like independent study as well as interaction.
Demonstrate new skills, knowledge resulting in added confidence:
<ul style="list-style-type: none"> • The individual assignments just assured that you were understanding the coursework and allowed for everyone in the class to be heard. I was able to gather feedback that was relevant to what I was going through as a case manager
Did not contribute towards goals:
<ul style="list-style-type: none"> • Online research was not helpful to my personal goals for the course.
Group Component
Interaction with peers and with the instructor:15
<ul style="list-style-type: none"> • I enjoyed collaborating with the others. Their insight into the work was very helpful. • I did not have to do all the work myself... • Completing the assignments as a group... created an environment where we relied on one another in our group assignment. • I learned how valuable teams can be when everyone brings a skill to the table. We practiced effective communication as well. I also sometimes learn more of the subject matter through my peers. My teammates have been helpful in fulfilling the project deliverables, which is a goal since I am looking for a good grade. • It was great to realize that we didn't have to be in the same area to work as a team.
Simply fulfilling course/program requirements: 11
<ul style="list-style-type: none"> • Assigned to work in groups so I did it. the theory paper was done, but not all group members contributed equally or timely • Completion of final project necessary to meet course requirements. Though not explicitly stated above as course goal, I did feel obligation to classmates to achieve respectable result for course. Permitted division of labor on project which made project manageable and documented group activity which was required by course design. • Needed for completing the requirements of the course. Completing it was one more step to finishing the course.
Increasing knowledge, skills: 15
<ul style="list-style-type: none"> • Developing skills associated with working on a group project. Involved me in the actual work of bringing together a completed research paper from all the parts completed by the individual members • This was a thought proving activity that required research, teamwork, and the ability to

put aside one's point of view to consider another.

- It was my first experience doing that type of project.
- Getting my part of the group research project done on time so that it would be turned in as a whole.
- Helped in getting along with others even when they don't pull their own weight.

Fulfilling goals external to the course (job-related): 5

- All of my goals were relevant to this course activity. The course content was information I could use on a daily basis.
- Getting a feel for project management in the 'real world'. It forced everyone to work with a team and give their input; work together to reach the end goal.
- Working as a member in the industry... using the interpersonal skills I've acquired in a completely new area.

Personal goals/issues: 0

Did not contribute towards goals :17

- Did not enjoy the group project. .. everyone was horrible.
- I detest group projects of all kinds.
- I think I understand the concept but I did not particularly enjoy the group work, especially when one of your participants did not do their fair share.
- It was a requirement for the class, but I did not enjoy the project. I had a great group, but I did not enjoy it.
- I do and did not see the relevance of forcing students to work in groups. It did not help, it actually was the most frustrating component of the course.
- This was a struggle, mainly because of coordination.
- Hate group activities
- It wasn't really helpful in reaching a goal, I could have learned about the subject on my own.
- This was the only group project I have been involved in that was not good. One person did not abide by the deadlines set for turning in their sections and this delayed the whole paper... Disaster! The problem with group work is one person can make the whole group suffer (grade wise and everything else).
- Group activity is especially hard when persons are scattered through out the country I do not enjoy that aspect at all.

Table 20. Personal Agency Beliefs by Course Components

	Synch.	Asynch.	Indiv.	Group	Total
Interaction with peers and with the instructor	19 29.7%	20 28.2%	7 9.7%	18 31.6%	64 24.2%
Simply fulfilling course/program requirements	4 6.3%	2 2.8%	5 6.9%	3 5.3%	14 5.3%
Increasing knowledge, skills	2 3.1%	4 5.6%	13 18.1%	4 7.0%	23 8.7%
Answer questions, help with assignments/class content	9 14.1%	13 18.3%	9 12.5%	3 5.3%	34 12.9%
Fulfilling goals external to the course (job-related)	1 1.6%	1 1.4%	8 11.1%	0	10 3.8%
Personal goals/issues	1 1.6%	0	4 5.6%	2 3.5%	7 2.7%
Demonstrate new skills, knowledge, resulting in added confidence	6 9.4%	13 18.3%	13 18.1%	6 10.5%	38 14.4%
Did not contribute towards personal agency beliefs	22 34.4%	18 25.4%	13 18.1%	21 36.8%	74 28%
Total	64	71	72	57	264

Table 21 contains representative examples of the responses given for each category within each component. Again, these examples were chosen either because they appeared to be representative, or because they seemed, in some way, unique.

Table 21. Personal Agency Belief Statements by Course Components

Synchronous	
Interaction with peers and with the instructor:	
<ul style="list-style-type: none"> • Feedback from counselors and teacher showing I was on track. • I felt that I was among my peers. I felt I had information & experiences that could contribute to the class. • I was able to see where everyone else was in class, and some people had the same questions I had • It helped to see what other students were doing and that I wasn't in this alone. • It was positive and helped me to understand my skills in relation to my colleagues • The instructor and other students were an encouraging community. 	
Simply fulfilling course/program requirements:	
<ul style="list-style-type: none"> • As long as you participated at some level you got your full credit. • Because course assignments were compartmentalized, but related to project as whole, it contributed to belief that by pursuing a step by step process the final goal would be achieved. 	
Increasing knowledge, skills:	
<ul style="list-style-type: none"> • It increase my knowledge in the subject matter. • sharing information through telesessions, etc with classmates. 	
Answer questions, help with assignments/class content:	
<ul style="list-style-type: none"> • I felt confident that I understood the expectations of the professor. • It made me realize that I was more familiar with the course material then I thought. • It reinforced my knowledge and kept me on track with assignments during the week. • it was surprising to me and it still is that people are able to get the 'same' benefit as anyone taking any other normal class • The web cast component definitely helped and I would have been frustrated without it. I was grateful that the sessions were archived because the professor usually provided answers I needed which I could refer to later. 	
Fulfilling goals external to the course (job-related):	
<ul style="list-style-type: none"> • It was part of my actual job and as I was completing the requirements, I was getting my job done as well! 	

Personal goals/issues:
<ul style="list-style-type: none"> I think that the coursework can be as difficult or as easy as you make it. As long as you keep open on going communications with your facilitators your success is in your hands.
Demonstrate new skills, knowledge resulting in added confidence:
<ul style="list-style-type: none"> Certainly increased my confidence level. It confirmed my belief because I felt I was able to present cases in concise, pertinent manner, clearly state issues or needs and that I was able to respond to others in a productive collegial manner.
Did not contribute towards goals:
<ul style="list-style-type: none"> I am an independent learner. I would prefer to do my own work individually and to not be mandated to work in a group. This component did not affect my belief in my ability to succeed. I always believed I could succeed. I just wanted the information and instruction to learn how to perform the process of grant writing. I am unsure if I am successful It didn't have that effect. I could have gotten the same questions answered via email. It really did not affect it one way or the other: none of the online classes I have taken have successfully come to grips with the purpose and execution of class meetings with distance learners. So, I was already versed in the learning tools needed outside of class meetings. Wasn't sure because did not receive grades in a timely manner. With eight years of VR experience, I feel that this information just complements what I know already.
Asynchronous
Interaction with peers and with the instructor:
<ul style="list-style-type: none"> I was able to find relevant information to share. I also had some previous experience in 'former lives' (i.e. other jobs/classes) that I was able to bring to the table. It helped very much in seeing the knowledge base, expertise and opinions of other students. Liked the exchange of ideas. I find I learn a subject a lot more when I am having to critique it, either for questions or for defense. I liked defending my own stance on my group's paper, and I found myself doing additional research on other's people's papers in order to assist them in defending their work against attacks. It was fun. Sharing information via e-mail, internet links, and word documents is absolutely

critical to success in any distance-learning course, especially in a group project.
<ul style="list-style-type: none"> • Yes, by expressing your views on the board, you open yourself to others whether to agree with you or not. • It allowed for complete communication. Whenever I was unsure of something, my e-mails were always answered in no more than a day and my worries subsided. Supportive communication with the facilitator. • Reading other responses on the discussion board gave insight to the understanding level of the other participants and whether or not my thoughts were on track
Simply fulfilling course/program requirements:
<ul style="list-style-type: none"> • Could not have completed course requirements without it. • Because of the scores that I received on each discussion board.
Increasing knowledge, skills:
<ul style="list-style-type: none"> • Helped me to learn more and respect others' opinions and beliefs. • It provided knowledge that I previously did not have
Answer questions, help with assignments/class content:
<ul style="list-style-type: none"> • It helped me to see that I was on the right track and was thinking the way that others in the class were thinking. • Just to be sure I was completing assignments correctly. • The postings were relevant to the readings and current events. Allowed a self-paced direction during the week, but at the same time forced reading and review of the assigned material. • After reading other student's posts, I felt like my understanding of the material was acceptable.
Fulfilling goals external to the course (job-related):
<ul style="list-style-type: none"> • The course curriculum was relevant to my job.
Demonstrate new skills, knowledge:
<ul style="list-style-type: none"> • Because I could contribute postings that were germane to the topic at hand and because I could respond to postings of others in a way that demonstrated that I read, understood and could cogently respond to their statements. • Definite confidence boost • High feeling of satisfaction on the practical skills developed in wikis and blogs. • In a positive way: there is always an insecurity as a distance student, in feeling that perhaps you are out of synch or are not learning what needs to be learned. • It was the only thing that affected my belief I could finish this course. I wanted to

give up several times but I would throw an e-mail out and continue on. Seeing some work posted on the listserv allowed me the pleasure of finishing that particular task and moving on.

- The discussion board did require that we know something about the topic, i.e., from our reading assignments. I suppose having to answer questions about our reading forced us to have an understanding of what we read. I never doubted that I could successfully complete the course. I guess the discussion board reaffirmed that belief.

Did not contribute towards goals:

- I knew that it was possible, but only concern was the 'turnaround time.'
- I was never really confident that I could get through it successfully.
- No (not enough structure this time). It really didn't.
- It's kind of challenging since you study it 'alone' and need to complete all of the course by yourself. Since the discussions are counted into the score, I felt that I need to take care of what I posted. Moreover, I don't know what we discussed is right since the instructor does not post any response or summary about these questions.

Individual

Interaction with peers and with the instructor:

- Communication between team members and facilitator regarding individual assignments clarified information and built on knowledge acquired through assignments.
- Feedback was helpful, supportive and complementary.
- I could ask questions beyond my helpful classmates and instructor; I could see progress
- The instructor feedback was positive. That helped a lot.

Simply fulfilling course/program requirements:

- Once it was done, that requirement was satisfied.
- This probably had the largest impact on my learning in support of the class completion.
- Well, if I did well, I am that much closer to my goal of completing the masters.

Increasing knowledge, skills:

- Doing reading and research/project helps me to know and retain information mentally. It helps me to increase knowledge and understanding on what I'm reading and expanding knowledge with other information gained especially learning how to write a grant proposal with classmates.
- This component motivated me to use all resources (ie. internet, university libraries, company co-workers, etc) to find the necessary information to complete the assignments.

Answer questions, help with assignments/class content:
<ul style="list-style-type: none"> • It only affected my belief that I could successfully complete the course when I got my grade and it was not an 'F'. • It was a crucial piece since the directions were clear and the information was there. It allowed me to search further to complete assignments.
Fulfilling goals external to the course (job-related):
<ul style="list-style-type: none"> • It helped tremendously that our proposal was supported by local agencies and professionals, at a time that I was feeling very burned out. So researching a relevant and realistic grant project made all the difference. • It showed me that I could create strategies and tools for making my job a little easier while at the same time, making me more professional, proficient and efficient. • The individual assignment/profile was application of the learning process throughout the course. The hands on application of the assessment tools is needed by a VRC and the documentation for the individual profile is relevant to my everyday work as a VRC. The review of the various theories and incorporating them into the individual assessment process provided more understanding of the individual's vocational choice process.
Personal goals/issues:
<ul style="list-style-type: none"> • I enjoyed working by myself. I am then the only one held accountable for the success or failure of the paper. • I was able to proceed with assignments at my own pace and within my own environment. This made a significant difference due to some learning difficulties.
Demonstrate new skills, knowledge resulting in added confidence:
<ul style="list-style-type: none"> • By reading the course material, it gave me more confidence that I could successfully complete the course and move up in the regulatory field. • Gave me a sense of accomplishment, which reinforced the belief I could complete the course. • I could see that I was learning new info... I had a grasp of the information... thus I felt I would pass the course • It demonstrated that I was capable of establishing constructive goals and methodically pursuing those and that I was able to report on my progress. • Reinforced prior knowledge, which fostered an interest to learn more.
Did not contribute towards goals:
<ul style="list-style-type: none"> • Although I liked the readings, it made me worry about the class. There was so much material, I wasn't sure if I was absorbing it properly.

<ul style="list-style-type: none"> • it would have been nice to receive our grades for the paper in a timely manner. • this is like traditional classroom assignments, so i had no problems with it.
Group
Interaction with peers and with the instructor:
<ul style="list-style-type: none"> • ...everyone worked together and those of us that were better at certain things could help others. And, those of us that were weak in certain areas could be brought along by the others with more skills. • Each student made a great contribution to the final product and it was great to participate in a discussion where everyone had a part and was acknowledged for their participation. • Helped over an initial anxiety about getting through the subject and the cooperation of the group was of benefit. There was some difficulty at the end as some group were not pleased with outcome. • It was nice to interact on a more personal level with the other students. • Teamwork is always a positive reinforcement and support in any endeavor.
Simply fulfilling course/program requirements:
<ul style="list-style-type: none"> • Helped me complete course requirements to pass course. • It was required by the course to complete group assignments
Increasing knowledge, skills:
<ul style="list-style-type: none"> • It increased my knowledge in the subject matter. • More knowledge about each of the theories on career development.....the groups answered my questions
Answer questions, help with assignments/class content:
<ul style="list-style-type: none"> • My teams made good projects, which earned good grades. • Scores were good in this area. • The materials presented were realistic.
Personal goals/issues:
<ul style="list-style-type: none"> • Learning to assess situation and assist in a manner that's appropriate and not intimidating... Thus, it's up to us to decide what course of action to take and help rehabilitate clients...

Demonstrate new skills, knowledge resulting in added confidence:

- I was able to successfully argue a POV that was not one that I believed in.
- [The group activity] made [me] feel very positive.
- Seeing the parts come together to form the whole research paper was a good feeling of accomplishment.
- The successful completion of the project was a good feeling, and seeing the finished product was a definite boost to my confidence

Did not contribute towards goals:

- Being in a group you have to be on top of things because others are depending on you. For me this causes me more stress, although it forces me to be on time and not procrastinate on my homework assignments.
- Found this one very frustrating...
- I did not like the group project aspect of any of the courses.
- I don't like to rely on someone else for my grade in a class or be graded as a group and I doubted if the paper would be done and in on time because of others in the group
- I would rather have written a paper on my own. At least then I am responsible for the grade I receive and not punished because of someone else's work.
- I do not understand why distance learning forces its students to work on group assignments. Interaction with the class is great and should be available on a voluntary basis, as in conventional classroom settings. Individual performance should not depend on the group's performance. Having discussion boards available on a voluntary basis facilitates student interactive communication and enhances the learning process. However, mandatory discussion boards and mandatory group assignments only served to restrict rather than support my success in this course.
- There wasn't much guidance for the assignment, and my teammates were acceptable, but none of us really had a vision of where the project should go. I worked really hard, but had no idea if I was working in the right direction, which I found very stressful.

CHAPTER 5

CONCLUSION

Patterns of significant correlations between motivation and IC variables within the online learning environments in this study were found as indicated in Table 22. The strongest correlation patterns were observed between IC variables and the following: Asynchronous variables, Individual variables, and email variables. Total motivation variables also showed significant correlations with IC. Weaker patterns of correlation were found with Synchronous and group variables.

Several sample characteristics may have influenced this outcome. Most important was the small number of respondents who reported on synchronous components in their courses due to the wide variation in course formats. This small sample size may have precluded achieving significance in many correlations. Additionally, the results may have been affected by the fact that many respondents were part of a cohort, and thus had been in classes together over the previous few years. In fact, within the sample over a quarter of the respondents (27.4 percent) indicated that they already knew at least half of their classmates at the start of the class. Over a third (40.7 percent) indicated that they knew at least a one-fourth of their classmates at the start of class. Finally, the vast majority of the respondents appeared to be taking these online classes for reasons related to their job, either to enhance their skills or because the degree or certification they were working towards was required. This fact may have provided external motivation that this study was not designed to analyze or account for.

Of all the components, the Synchronous component seems to have the weakest associations, but this may be an artifact of relatively small sample size. There is clearly an association between SYNFeelings and IC scores, suggesting that the emotional content of synchronous activities may be affected by IC. It should be noted that these coefficients are uniformly negative. This indicates that, as learner collectivist scores increase, the emotional reaction that learners experience as a result of synchronous components decreases.

Table 22. Summary of Significant Correlations

Synchronous	Asynchronous	Individual	Group
<u>Synchronous Total</u> (none) <u>SYNFeelings</u> Values/Colleagues Behavior/Colleagues Behavior/Strangers Total Behavior Total Colleagues Total Strangers Total IC	<u>Asynchronous Total</u> Values/Colleagues Values/Strangers Behavior/Strangers Total Values Total Behavior Total Colleagues Total Strangers Total IC <u>ASYNMotiv</u> Values/Colleagues Values/Strangers Behavior/Strangers Total Values Total Behavior Total Strangers Total IC <u>ASYNGoals</u> Values/Colleagues Values/Strangers Behavior/Strangers Total Values Total Behavior Total Colleagues Total Strangers Total IC	<u>Individual Total</u> Values/Colleagues Values/Strangers Behavior/Strangers Total Values Total Behavior Total Strangers Total IC <u>INDMotiv</u> Values/Colleagues Values/Strangers Behavior/Colleagues Behavior/Strangers Total Values Total Behavior Total Colleagues Total Strangers Total IC <u>INDGoals</u> Values/Colleagues Values/Strangers Behavior/Strangers Total Values Total Behavior Total Strangers Total IC	<u>Group Total</u> (none) <u>GPMotiv</u> Values/Colleagues Values/Strangers Behavior/Colleagues Behavior/Strangers Total Values Total Behavior Total Colleagues Total Strangers Total IC <u>GPFeelings</u> Values/Strangers Behavior/Colleagues Total Values
<u>TOTAL MOTIV</u> <u>NO SYN</u> Values/Colleagues Values/Strangers Behavior/Strangers Total Values Total Behavior Total Strangers Total IC	<u>Discussion Boards</u> (None)	<u>Email</u> Email Total, Personal, Acknowledging, Getting Help, and Total Non course: Behavior/Colleagues Total Colleagues Course: Behavior/Colleagues Total Behavior Total Colleagues Personal: Values/Colleagues Behavior/Colleagues Total Colleagues	<u>Telesessions</u> (None)

Factoring in the percentage of strangers in the class, as shown in Table 23, causes the number of qualifying cases to reduce to the point where there are few significant correlations, but the negative coefficients persist. Why would this be?

Table 23. Correlation of IC Variables and Synchronous Variables Factored by Percentage of Strangers in the Class

Control Variables			Val Col	Val Stran	Behav Coll	Behav Stran	Total Val	Total Behav	Total Coll	Total Stran	Total IC
% Strangers	SYN Motiv	Correlation	-.154	-.014	-.076	.067	-.090	-.001	-.119	.031	-.048
		Significance (2-tailed)	.453	.947	.711	.747	.661	.995	.562	.882	.817
		df	24	24	24	24	24	24	24	24	24
	SYN Goals	Correlation	-.120	.035	-.030	.099	-.045	.043	-.077	.074	.000
		Significance (2-tailed)	.558	.867	.885	.631	.829	.833	.708	.721	.998
		df	24	24	24	24	24	24	24	24	24
	SYN Feelings	Correlation	-.278	-.272	-.272	-.386	-.305	-.381	-.287	-.358	-.366
		Significance (2-tailed)	.169	.179	.178	.051	.130	.055	.155	.073	.066
		df	24	24	24	24	24	24	24	24	24
	SYN Challenge	Correlation	-.048	-.147	-.047	-.263	-.110	-.184	-.050	-.224	-.157
		Significance (2-tailed)	.817	.473	.818	.195	.593	.368	.810	.272	.443
		df	24	24	24	24	24	24	24	24	24
	SYN Support	Correlation	.021	-.054	.092	-.192	-.020	-.066	.060	-.136	-.046
		Significance (2-tailed)	.919	.792	.654	.347	.923	.749	.771	.507	.823
		df	24	24	24	24	24	24	24	24	24
	SYN Total	Correlation	-.163	-.106	-.102	-.137	-.148	-.138	-.138	-.132	-.152
		Significance (2-tailed)	.426	.607	.620	.504	.470	.501	.503	.521	.458
		df	24	24	24	24	24	24	24	24	24

We know from Triandis (1995) that highly collectivist people take identity from their ingroup and distinguish strongly between the ingroup and those not part of their identity group. Thus the negative correlations in synchronous activities may be due to the fact that they may feel discomfort at enforced interaction with people who they do not feel are a part of their identity group. In this context it is interesting that there are more significant correlations with the IC/Strangers variables; this pattern may indicate that the subjects in this study indeed tended to regard the other students more as strangers and that doing group and synchronous activities with strangers was difficult for them. A possible conclusion to this line of thought is that perhaps highly collectivist students actually prefer the “distance” that asynchronous activities afford them when the class is made up of “strangers”.

The positive correlation between I/C scores and the Asynchronous component may seem to be counter-intuitive. However we should consider that highly collectivist individuals avoid threatening the harmony of the group, preferring to build and maintain consensus even in an imposed group made up of newly acquainted colleagues. Therefore the transactional distance provided by an asynchronous environment may raise collectivists’ comfort levels especially in a work-related environment, by providing more response time and more time to become acquainted with their colleagues. This possibility is reinforced by other earlier studies documenting the advantages of asynchronous communication for many students. For example, in his assessment of computer-mediated communication Althaus (1997) points out that compared to synchronous environments, asynchronous interaction benefits participants who have difficulty speaking, are shy, or who prefer to give thoughtful, reflective responses. Since collectivists are likely to want to take time to frame their responses so as to enhance, rather than to threaten, group unity, asynchronous media may provide a more reassuring environment. As discussion boards and similar tools are very prevalent in online learning environments, this issue deserves continued study.

It should be noted that the synchronous component often seemed to have been confused in respondents’ minds with group work, which may have confounded the respective correlations to some extent. This may have been due to the fact that all synchronous activities were group-based in both of the classes that required synchronous interaction. Furthermore, much of the preparation and/or follow-up for these group activities took place in asynchronous environments, especially via email and on discussion boards.

A number of respondents indicated that their negative responses to synchronous components was a function of their frustration with having to work in an imposed group. However Group work showed a pattern of positive significant coefficients, especially in terms of how respondents viewed the experience (GPMotiv). Thus, the more collectivist a subject's score, the more s/he was likely to be positively motivated by group work. Note that this association persisted even when the percentage of strangers in the class was factored in, as shown in Table 24. This may be because the groups in all these classes lasted for a semester and the members of most of these groups achieved a high level of confidence in working with each other. Indeed, in analyzing emails within these work groups, many groups evidenced a remarkable level of comfort among the members, demonstrated by the amount of banter, support, encouragement, and even face to face meetings that the groups set up for themselves when possible.

Analysis of the qualitative data in Table 18 shows that an unusually high percentage of respondents indicated that group work did not support their goals in taking the course (27 percent compared to percentages at or below 7.4 percent for other components). This result was intriguing, especially as the mean IC scores for those respondents (TotalColl = 138.5 and TotalStran = 98.4) is almost identical to the mean IC scores for the sample as a whole (TotalColl = 138, and TotalStran = 99.1). A high percentage of respondents also indicated that the group work did not support their personal agency beliefs (see Table 20) but again, these respondents did not differ markedly from the sample as a whole (TotalColl = 132.6 and TotalStran = 95.6). In other words, the strong negative reactions to group work was not concentrated in either collectivist nor individualist respondents.

What these data may be telling us is that highly collectivist people enjoy group work in online environments, but feel stress or frustration when it is conducted in synchronous media. On the other hand, highly individualist people (i.e., low IC scores) appear to dislike group work compared to collectivists, but adding a synchronous component allows them to "shine" so they appreciate it. This may be what Merryfield (2001) was observing when she noted the variance in behaviors online that seemed to follow cultural lines. Results from other studies tend to support this possibility; for example, Clem and Hanson's (2003) study citing the changes in community dynamics when a synchronous component (especially

face to face interaction) is added, and Hara and Kling's (2001) look at learners' frustration with the "clunkiness" of technical interactions.

Table 24. Correlation of IC Variables and Group Variables Factored by Percentage of Strangers in the Class

Control Variables			ValCo l	ValStr an	Beha vColl	Beha vStra n	Total Val	Total Beha v	Total Coll	Total Stran	Total Total
% Strangers	GP Motiv	Correlation	.246	.247	.257	.240	.263	.276	.256	.254	.277
		Significance (2-tailed)	.054	.053	.043	.061	.039	.030	.044	.046	.029
		df	60	60	60	60	60	60	60	60	60
	GP Goals	Correlation	.176	.221	.190	.166	.213	.198	.187	.202	.211
		Significance (2-tailed)	.171	.085	.138	.196	.096	.124	.146	.115	.099
		df	60	60	60	60	60	60	60	60	60
	GP Feelings	Correlation	.017	.052	.086	.078	.038	.091	.052	.068	.066
		Significance (2-tailed)	.894	.688	.506	.546	.771	.481	.686	.599	.613
		df	60	60	60	60	60	60	60	60	60
	GP Challenge	Correlation	-.039	.022	-.056	-.079	-.008	-.076	-.048	-.029	-.042
		Significance (2-tailed)	.764	.864	.664	.542	.953	.559	.709	.820	.746
		df	60	60	60	60	60	60	60	60	60
	GP Support	Correlation	-.087	.032	-.026	-.012	-.027	-.021	-.058	.011	-.025
		Significance (2-tailed)	.502	.806	.840	.928	.836	.873	.654	.935	.850
		df	60	60	60	60	60	60	60	60	60
	GP Total	Correlation	.119	.169	.152	.136	.155	.159	.138	.159	.162
		Significance (2-tailed)	.355	.189	.237	.293	.228	.216	.284	.217	.209
		df	60	60	60	60	60	60	60	60	60

The IC/Email correlations found a variety of significant associations between email quantity in most categories and IC/Colleagues variables. (It should be noted that email not on the listserv was not included in this analysis; however, there was abundant evidence that it existed via the many references to email that had not been sent on the listserv.) The correlations between email and IC scores makes sense as the class that contributed most heavily to the email data was ARP710 (see Table 2 for a summary of courses used in this research). This is an advanced class for the Vocational Rehabilitation program at Interwork Institute, which is based on a cohort system. By the time students are in this class, a very high proportion of them have already worked together in other classes and have come to feel that they know each other.

Why did email interaction show a correlation when analysis of discussion boards and telesessions did not? Email interaction was by far the least structured and most discretionary of those three types of interactions. It was not graded; therefore, it did not impose artificial requirements on the respondents and the facilitators were much less likely to regulate it in any way. Instead, it was most likely to reflect the personality of participants. In contrast, the telesessions were moderated by facilitators who put their own imprimatur on the interaction, calling on students to contribute, asking provocative questions, etc. The discussion board interactions were similarly organized in most cases; facilitators posed questions or initiated discussions on specific topics, and the learners primarily responded to those prompts.

“Lurking” during the course of the research for this paper tended to support the foregoing impressions. The listservs of the courses that employed them for group work and interaction were extremely lively; for example, the ARP710 listserv transmitted over 2300 separate messages. Many of the students on the listservs were clearly enjoying the interactions and there was a good deal of banter and some very funny jokes and comments along with the messages. Many of the participants used the listservs for enhancing online acquaintances and friendships and to keep up each others’ spirits during difficult assignments and courses. Participants’ personalities came through clearly.

In contrast, some of the telesessions were poorly attended in spite of the fact that they were required for the course. Attendees were often late in arriving. Interaction sometimes flagged during the sessions and had to be encouraged by creative questions on the part of the

facilitators. Similarly, the discussion boards depended on specific questions and assignments; posters tended to stay largely within the parameters of the discussion.

Various observers of online communities have commented on the importance of community building through interaction and group formation (Palloff & Pratt, 1999; Bonk & Dennen, 2000). However, it is possible that some forms of interaction, such as listserv use, may in fact result from community rather than be the immediate cause of it. Depending on cultural factors such as Individualism/Collectivism, it is possible that some participants will be slower to interact with the community than others, or may never interact to the same extent. Online instructors may interpret the sheer volume of email from a student to indicate community involvement, but this behavior may have a cultural anchor and should not be given too much weight.

As mentioned previously in this study, IC scores as defined by Matsumoto are usually averaged across questions on the ICIAI, so that their range falls between zero and six, where zero indicates a “perfect” individualist, and six a “perfect” collectivist. Further, collectivists typically distinguish between the ingroup and the outgroup as indicated by a disparity in IC scores between the two groups. When the IC scores of the current sample were averaged in this way, the group of subjects in this study showed to be slightly collectivist overall with an average TotalColl of 3.65, and an average TotalStran of 2.60. This skewness of the sample group may show up in the qualitative data with the noticeable emphasis on interaction with peers and professor as the factor most mentioned both as a goal and a personal agency belief factor in all components other than individual work.

A final observation concerns the amount of correlation among the total motivation scores of the components analyzed in this study. Table 25 shows the degree to which the scores correlate. Clearly, the students in this study tended to like the course in which they were participating overall (or dislike it overall). This may reflect the fact that the courses from which study participants were drawn consisted of graduate courses in fields that the learners like and that are related to their work. Alternatively this result may be connected with the use of cohorts at the Interwork Institute; the somewhat collectivist sample may simply enjoy taking classes with people they know and have come to like. To test this the correlation was re-run, factoring in the percentage of strangers variable; this caused the appearance of groupings in the components, as shown in Table 26 (p. 91). When corrected

Table 25. Correlation of Component Total Motivation Scores

		SYNTotal	ASYNTotal	INDTotal	GPTTotal
SYNTotal	Pearson Correlation	1	.122	.253	.372
	Sig. (2-tailed)	.	.537	.177	.117
	N	34	28	30	19
ASYNTotal	Pearson Correlation	.122	1	.556	.424
	Sig. (2-tailed)	.537	.	.000	.000
	N	28	89	88	74
INDTotal	Pearson Correlation	.253	.556	1	.280
	Sig. (2-tailed)	.177	.000	.	.013
	N	30	88	92	78
GPTTotal	Pearson Correlation	.372	.424	.280	1
	Sig. (2-tailed)	.117	.000	.013	.
	N	19	74	78	78

for the percentage of strangers, the cohort factor drops out and a divergence between the combinations of SYN/GP and ASYN/IND becomes more noticeable. There is still a significant association between ASYN and GP, however; this may reflect the group activities on the discussion boards, some of which were very active.

These correlations among motivation scores may indicate that motivation in learning environments has an “overflow” effect, i.e., a positive motivation in one type of activity tended to influence the learner’s feelings of motivation in other activities. It is possible that, in a distance course with no synchronous component, people either like the course as a whole or not. The addition of group work may be pedagogically desirable, but it may do little to improve learners’ motivation.

RECOMMENDATIONS

This exploratory study found enough evidence to suggest the need and some directions for future research on the interaction of culture and online learning environments. A notable pattern of correlations between both affective responses and some behaviors with participants’ I/C scores was discovered. If supported by further studies, the implications of this may be profound. Instructional designers and course instructors will not be able to assume that online learning environments, as distinguished from content, are culturally

neutral. Instead, the environments may need to be evaluated for cultural bias and culturally anchored assumptions.

In the meantime, perhaps designers and instructors should consider that not all learners will react similarly to a given course component and that a given learner's reaction to, and apparent engagement in, a course activity may be anchored at a deeper level than previously assumed. Likewise, designers and instructors should not assume that specific components such as synchronous interaction will necessarily make the course better or that learners will find them equally motivating. As courses and learning institutions become more global and seek to attract learners from many countries and cultures, this will become an increasingly important consideration. Course sponsors may evaluate the costs of such components as synchronous interaction in terms of both the special equipment (e.g., for video-based interaction) and coordination they require and decide that they are not worthwhile.

As the interplay of culture and online learning environments is further studied, it may lead us to question our assumptions about what aspects of interaction build community, and which aspects result from a feeling of community. For example, instructors who evaluate students based on email interaction as an indicator of engagement or knowledge may be doing a disservice to learners of other cultures.

More study of these questions is certainly needed. If a similar methodology to that used in this study is employed by other researchers, the inclusion of an interview element may provide additional information about the reaction of participants to specific course components. The use of other culturally anchored independent variables will also help shed light on this important question.

Within the domain of online learning, culture is an aspect that deserves far more attention than it has received to date. Only by evaluating this important dimension of human behavior can we design and teach courses that are truly inclusive and provide an equal opportunity for success for all.

Table 26. Correlation of Component Total Motivation Scores Factored by Percentage of Strangers.

Control Variables			SYN Total	ASYN Total	IND Total	GP Total
%Strangers	SYN Total	Correlation	1.000	.239	.161	.477
		Significance (2-tailed)	.	.372	.552	.062
		df	0	14	14	14
	ASYN Total	Correlation	.239	1.000	.877	.521
		Significance (2-tailed)	.372	.	.000	.039
		df	14	0	14	14
	IND Total	Correlation	.161	.877	1.000	.324
		Significance (2-tailed)	.552	.000	.	.220
		df	14	14	0	14
	GP Total	Correlation	.477	.521	.324	1.000
		Significance (2-tailed)	.062	.039	.220	.
		df	14	14	14	0

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APPENDIX A

ONLINE IMPLEMENTATION OF THE ICIAI

Thank you for helping with this research!

This research is being conducted by Frankie Clem, a doctoral candidate in the Educational Technology Department at SDSU, under the guidance of Dr. Bernie Dodge. Its purpose is to help e-learning course designers to better understand which types of course components are most motivating for different individuals depending on their cultural background. You have been asked to participate because you are taking a distance learning course through SDSU or Interwork Institute.

In the survey that follows, you will be asked to answer 36 questions to assess aspects of how you interact with colleagues and strangers. Your participation in this research is completely voluntary. Your responses will be kept completely confidential; your instructor will not have access to them. You may stop answering the questions at any time by clicking on the Exit button.

This survey contains 36 questions and normally takes less than 15 minutes to complete.

If you have any questions regarding this questionnaire or the research that it is part of, please contact me at f.clem@att.net, or by calling me at 307-742-7034. You may also contact the Institutional Review Board at SDSU (619-594-6622) to report problems or concerns related to this study or the USD IRB: the Office of the Vice President and Provost, University of San Diego 5998 Alcalá Park, San Diego, CA 92110 (telephone: 619-260-4553).

Thanks again!

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INTERPERSONAL ASSESSMENT INVENTORY (ICIAI) [Exit this survey >>](#)

A Domain-Specific Measure of Individualistic and Collectivistic Values Related to Social Interaction

Copyright (c) June 1996
David Matsumoto, Ph.D.
Culture and Emotion Research Laboratory
Department of Psychology, San Francisco State University

[based on http://www.davidmatsumoto.info/Research_Tools/iciai1.htm © David Matsumoto, with permission]

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INTERPERSONAL ASSESSMENT INVENTORY (ICIAI) [Exit this survey >>](#)

Demographic information

* Your Identifier: please enter only your first name and the first initial of your last name. For example, I would enter Frankie C.

Your class (e.g., Edtec 670 or RHAB 5040):

Your Age:

Sex:

☐ Female ☐ Male

* What was the primary culture in which you grew up? (For example: Thai, South Korean, Mexican, Anglo-American, Swedish, African-American, Russian, etc. This is likely to be the same as your country of origin unless your childhood household embraced a culture different from the predominant one in your country of origin.)

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INTERPERSONAL ASSESSMENT INVENTORY (ICIAI) [Exit this survey >>](#)

Instructions

This is a questionnaire about your values and behaviors when interacting with others. We would like to ask you about your values and behaviors when interacting with people in two different types of relationships: (1) Colleagues; and (2) Strangers.

For the purposes of this questionnaire, we define each of these relationships as follows:

COLLEAGUES: By "colleagues," we mean those people with whom you interact on a regular basis, but with whom you may not be particularly close (for example, people at work, school, or a social group). Do not consider family or close friends on the one hand, or total strangers on the other.

STRANGERS: By "strangers," we mean those people with whom you do not interact on a regular basis, and whom you do not know (i.e., total strangers such as people in the subway, on the street, at public events, etc.). Do not consider friends, acquaintances, colleagues, or family.

You can refer to these definitions as many times as you want when completing your ratings.

We know that your values and behaviors may differ within each of these groups, depending on with whom you are interacting. Try not to be too concerned with specific individuals, but rather, try to respond to what you believe about each of these groups as general categories of social relationships.

Also, don't be concerned at all about how your responses compare to each other. There is no right or wrong, good or bad. Don't worry about whether your responses are consistent. Just tell us how you truly feel about each group on its own merits.

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INTERPERSONAL ASSESSMENT INVENTORY (ICIAI)

PART I: VALUES

[Exit this survey >>](#)

In this section, tell us about the values you have when interacting with people in the two relationship groups (Colleagues and Strangers). Values are concepts or beliefs about desirable end states or behaviors that guide our selection of behaviors and evaluation of events. Use the following rating scale to tell us how important each of the following is as a value to you. Write the appropriate number in the space provided for each of the two social groups:

Not at All Important

Very Important

0

1

2

3

4

5

6

Values

	Colleagues	Strangers
1. Maintain self-control toward them.	<input type="text"/>	<input type="text"/>
2. Share credit for their accomplishments.	<input type="text"/>	<input type="text"/>
3. Share blame for their failures.	<input type="text"/>	<input type="text"/>
4. Respect and honor their traditions and customs.	<input type="text"/>	<input type="text"/>
5. Be loyal to them.	<input type="text"/>	<input type="text"/>
6. Sacrifice your goals for them.	<input type="text"/>	<input type="text"/>
7. Sacrifice your possessions for them.	<input type="text"/>	<input type="text"/>
8. Respect them.	<input type="text"/>	<input type="text"/>
9. Compromise your wishes to act in unison with them.	<input type="text"/>	<input type="text"/>
10. Maintain harmonious relationships with them.	<input type="text"/>	<input type="text"/>
11. Nurture or help them.	<input type="text"/>	<input type="text"/>
12. Maintain a stable environment (e.g., maintain the status quo) with them.	<input type="text"/>	<input type="text"/>
13. Exhibit "proper" manners and etiquette, regardless of how you really feel, toward them.	<input type="text"/>	<input type="text"/>
14. Be like or similar to them.	<input type="text"/>	<input type="text"/>
15. Accept awards, benefits, or recognition based only on age or position rather than merit from them.	<input type="text"/>	<input type="text"/>
16. Cooperate with them.	<input type="text"/>	<input type="text"/>
17. Communicate verbally with them.	<input type="text"/>	<input type="text"/>
18. "Save face" for them.	<input type="text"/>	<input type="text"/>
19. Follow norms established by them.	<input type="text"/>	<input type="text"/>

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PART II: BEHAVIORS

In this section, tell us about your actual behaviors when interacting with people in the two relationship groups. That is, we want to know **how often you actually engage in each of the following when interacting with people in these relationship groups**. Use the following rating scale to tell us how often you engage in each type of behavior. Write the appropriate number in the space provided for each of the two social groups:

Not at All Important

Very Important

0

1

2

3

4

5

6

Behaviors

Colleagues Strangers

1. Maintain self-control toward them.
2. Share credit for their accomplishments.
3. Share blame for their failures.
4. Respect and honor their traditions and customs.
5. Be loyal to them.
6. Sacrifice your goals for them.
7. Sacrifice your possessions for them.
8. Respect them.
9. Compromise your wishes to act in unison with them.
10. Maintain harmonious relationships with them.
11. Nurture or help them.
12. Maintain a stable environment (e.g., maintain the status quo) with them.
13. Exhibit "proper" manners and etiquette, regardless of how you really feel, toward them.
14. Be like or similar to them.
15. Accept awards, benefits, or recognition based only on age or position rather than merit from them.
16. Cooperate with them.
17. Communicate verbally with them.
18. "Save face" for them.
19. Follow norms established by them.

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APPENDIX B

ONLINE QUESTIONNAIRE

Questionnaire for Course Participants Exit this survey >>

Thank you for helping with this research!

This is the second half of the research being conducted by Frankie Clem, a doctoral candidate in the Educational Technology Department at SDSU, under the guidance of Dr. Bernie Dodge. Its purpose is to help e-learning course designers to better understand which types of course components are most motivating for different individuals depending on their cultural background. You have been asked to participate because you are taking a distance learning course through SDSU or Interwork Institute.

PLEASE NOTE: IF YOU DID NOT COMPLETE THE INTERPERSONAL COLLECTIVIST/INDIVIDUALIST ASSESSMENT INSTRUMENT (ICIAI) EARLIER THIS SEMESTER (at <http://www.surveymonkey.com/s.asp?u=26571475051>) PLEASE DO SO BEFORE COMPLETING THIS QUESTIONNAIRE.

In the questionnaire that follows, you will be asked to answer questions regarding how you felt about various activities in the course.

If you were enrolled in more than one distance course during the semester: Please complete this form for only one course at a time. You can fill out the form more than one time, each time for a different course.

Your participation in this research is completely voluntary. Your responses will be kept completely confidential; your instructor will not know what you have said. You may stop answering the questions at any time by clicking on the Exit button.

This questionnaire normally takes about 15 minutes to complete but you may take as much time with it as you need.

If you have any questions regarding this questionnaire or the research that it is part of, please contact me at f.clem@att.net, or by calling me at 307-742-7034. You may also contact the Institutional Review Board at SDSU (619-594-6622) to report problems or concerns related to this study.

Thanks again!

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Questionnaire for Course Participants Exit this survey >>

2. General course information

* 1. Your Identifier: please enter only your first name and the first initial of your last name. For example, I would enter Frankie C.

IMPORTANT: Please use the same identifier that you used in taking the first instrument (the ICIAI).

2. The class for which you are filling out this questionnaire:
 IMPORTANT: PLEASE FILL OUT THIS FORM FOR ONLY ONE CLASS AT A TIME. IF YOU ARE REGISTERED FOR MULTIPLE DISTANCE COURSES THIS SEMESTER AT SDSU OR INTERWORK INSTITUTE, PLEASE COMPLETE THE FORM ONCE FOR EACH CLASS.

- ☐ ARP645b/PHAB5900/HR5581 Assessment and Vocational Development
- ☐ ARP685b/PHAB5230/HR5706 Medical and Psychological Aspect of Disability
- ☐ ARP710b/RHAB5900 Seminar in Rehabilitation - Grant Writing
- ☐ ARP745b/RHAB5812/HR5692 Internship
- ☐ EDTEC561 Advanced Web-based Multimedia Development
- ☐ EDTEC670 Educational Simulation and Games
- ☐ RA602 Introduction to Food and Drug Law
- ☐ RA779 International Medical Regulations
- ☐ Other (please specify) _____

3. At the beginning of the class, what percentage of your classmates were strangers to you (as opposed to colleagues or classmates that you had previously worked or studied with)?

- ☐ All were strangers - I had never previously worked/studied with any of them.
- ☐ About 90% were strangers - I had previously worked/studied with only a few of them.
- ☐ About 75% were strangers - I had previously worked/studied with some, but not a majority.
- ☐ About 50% were strangers - I had previously worked/studied with about half of them.
- ☐ About 25% were strangers - I had previously worked/studied with a majority of them.
- ☐ About 10% were strangers - I had previously worked/studied with almost all of them.
- ☐ None of them were strangers - I had previously worked/studied with all of them.

4. What were your goals/reasons for taking this particular course?

5. After completing this course, what is your interest level in taking more courses on the same subject?
 0=Not at all, 5=Very interested

0 1 2 3 4 5

Now you will be asked about your reactions to four different components of your course:

1. Synchronous interactions (telesessions, WebTalks, chats)
2. Asynchronous interactions (listserv/emails, blogging, discussion boards)
3. Individual projects/assignments
4. Group projects/assignments

You will be asked the same eight questions about each component to determine how much it helped you meet your goals in taking the course and what your personal reaction to the activity was.

If the course for which you are completing this questionnaire did not contain a component mentioned above (Synchronous activities, asynchronous activities, group work, and individual work) please skip the section dealing with that component and go to the next section.

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Questionnaire for Course Participants [Exit this survey >>](#)

3. Component #1: Synchronous interactions

This section asks about your reaction to various synchronous interactions such as telesessions, WebTalks, chats, and "online meetings." Please think of your reaction to these specific course activities only when answering the following questions.
NOTE: If the course for which you are now completing this form did not include any synchronous activities, PLEASE SKIP THESE QUESTIONS AND GO ON TO THE NEXT PAGE.

6. Did you find this component motivated you?
0=Not at all, 5=Very much

0 1 2 3 4 5

7. Did this element help you further your goals in this class?
0=Not at all, 5=Very much

0 1 2 3 4 5

8. Which of your goals were relevant to this course activity?

9. How did this component help you reach the relevant goal(s)?

10. What was your main feeling about this course activity?
It was:

☐ Satisfying/pleasurable
☐ Discouraging/depressing
☐ Exciting/interesting/curiosity-provoking
☐ Boring/uninteresting/apathy-inducing

11. Did you feel this activity was a reasonable challenge? I.e., did it provide enough supports for you to use it effectively?

☐ Yes
☐ No
☐ Not sure

12. Did it support your learning? I.e., did it help you feel more competent in the course subject matter?

☐ Yes
☐ No
☐ Not sure

13. How did this component affect your belief that you could successfully complete the course?

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Questionnaire for Course Participants Exit this survey >>

4. Component #2: Asynchronous interactions

This section asks about your reaction to various asynchronous interactions such as blogging, listserv use, other email communication, and/or use of discussion boards. Please think of your reaction to these specific course activities only when answering the following questions.
NOTE: If the course for which you are now completing this form did not include any asynchronous activities, PLEASE SKIP THESE QUESTIONS AND GO ON TO THE NEXT PAGE.

14. Did you find this component motivated you?
0=Not at all, 5=Very much

0 1 2 3 4 5

15. Did this element help you further your goals in this class?
0=Not at all, 5=Very much

0 1 2 3 4 5

16. Which of your goals were relevant to this course activity?

17. How did this component help you reach the relevant goal(s)?

18. What was your main feeling about this course activity?
It was:

☐ Satisfying/pleasurable
☐ Discouraging/depressing
☐ Exciting/interesting/cunosity-provoking
☐ Boring/uninteresting/apathy-inducing

19. Did you feel this activity was a reasonable challenge? I.e., did it provide enough supports for you to use it effectively?

☐ Yes
☐ No
☐ Not sure

20. Did it support your learning? I.e., did it help you feel more competent in the course subject matter?

☐ Yes
☐ No
☐ Not sure

21. How did this component affect your belief that you could successfully complete the course?

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Questionnaire for Course Participants Exit this survey >>

5. Component #3: Individual Assignments

This section asks about your reaction to various individual activities such as readings and individual research/projects. Please think of your reaction to these specific course activities only when answering the following questions:

22. Did you find this component motivated you?
0=Not at all, 5=Very much

0 1 2 3 4 5

23. Did this element help you further your goals in this class?
0=Not at all, 5=Very much

0 1 2 3 4 5

24. Which of your goals were relevant to this course activity?

25. How did this component help you reach the relevant goal(s)?

26. What was your main feeling about this course activity?
It was:

☐ Satisfying/pleasurable
☐ Discouraging/depressing
☐ Exciting/interesting/curiosity-provoking
☐ Boring/uninteresting/apathy-inducing

27. Did you feel this activity was a reasonable challenge? I.e., did it provide enough supports for you to use it effectively?

☐ Yes
☐ No
☐ Not sure

28. Did it support your learning? I.e., did it help you feel more competent in the course subject matter?

☐ Yes
☐ No
☐ Not sure

29. How did this component affect your belief that you could successfully complete the course?

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Questionnaire for Course Participants Exit this survey >>

6. Component #4: Group Activities

This section asks about your reaction to various group activities, such as team projects, group-based research, etc. Please think of your reaction to these specific course activities only when answering the following questions. NOTE: If the course for which you are now completing this form did not include any group or team activities, PLEASE SKIP THESE QUESTIONS AND GO ON TO THE FINAL PAGE.

30. Did you find this component motivated you?
0=Not at all, 5=Very much

0 1 2 3 4 5

31. Did this element help you further your goals in this class?
0=Not at all, 5=Very much

0 1 2 3 4 5

32. Which of your goals were relevant to this course activity?

33. How did this component help you reach the relevant goal(s)?

34. What was your main feeling about this course activity?
It was:

☐ Satisfying/pleasurable

☐ Discouraging/depressing

☐ Exciting/interesting/cunosity-provoking

☐ Boring/uninteresting/apathy-inducing

35. Did you feel this activity was a reasonable challenge? I.e., did it provide enough supports for you to use it effectively?

☐ Yes

☐ No

☐ Not sure

36. Did it support your learning? I.e., did it help you feel more competent in the course subject matter?

☐ Yes

☐ No

☐ Not sure

37. How did this component affect your belief that you could successfully complete the course?

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Questionnaire for Course Participants

7. Untitled Page

One final question...

38. was there anything else that you feel may have affected your motivation in this course?

Thank you very much for your help with this study!

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APPENDIX C
VARIABLE LIST

Key:

Questionnaire: SYN = Synchronous; ASYN = Asynchronous; IND = Individual; GP = Group

ICIAI: Val = Values; Behav = Behavior; Coll = Colleagues; Stran = Strangers

Variable Name	Original Source	Description
Class	ICIAI; Questionnaire	Class identifier (e.g., EDTEC561 or ARP685)
ClassType	Re-coded based on Class	1 = Non-blended (no synchronous component) 2 = Blended (synchronous component present in class design) Used to eliminate certain types of classes from a statistical process, based on whether that class contained the component being analyzed.
Strangers	Questionnaire	Respondents could choose one of the following categories for each class for which they responded: <ul style="list-style-type: none"> • All were strangers - I had never previously worked/studied with any of them • About 90% were strangers - I had previously worked/studied with only a few of them. • About 75% were strangers - I had previously worked/studied with some, but not a majority. • About 50% were strangers - I had previously worked/studied with about half of them • About 25% were strangers - I had previously worked/studied with a majority of them • About 10% were strangers - I had previously worked/studied with almost all of them • None of them were strangers - I had previously worked/studied with all of them. Used in partial correlations to control for effect of how well the respondent was acquainted with classmates.
ContInterest	Questionnaire	"After completing this course, what is

		<p>your interest level in taking more courses on the same subject? 0=Not at all, 5=Very interested”</p> <p>Used to compute the TOTAL_MOTIV variable.</p>
<p>The following variables were repeated for each component (SYN, ASYN, IND, GP). The component identifier preceded the variable name, e.g., SYNMotiv/ASYNMotiv/INDMotiv/GPMotiv.</p>		
Motiv		<p>Did you find this component motivated you?</p> <p>0=Not at all, 5=Very much</p>
Goals	Questionnaire	<p>Did this element help you further your goals in this class?</p> <p>0=Not at all, 5=Very much</p>
Feelings	Questionnaire	<p>What was your main feeling about this course activity?</p> <p>Exciting/interesting/curiosity-provoking = 2</p> <p>Satisfying/pleasurable = 1</p> <p>Boring/uninteresting/apathy-inducing = -1</p> <p>Discouraging/depressing = -2</p>
Challenge	Questionnaire	<p>Did you feel this activity was a reasonable challenge? I.e., did it provide enough supports for you to use it effectively?</p> <p>Yes = 1, Not sure = 0, No = -1</p>
Support	Questionnaire	<p>Did it support your learning? I.e., did it help you feel more competent in the course subject matter?</p> <p>Yes = 1, Not sure = 0, No = -1</p>
<p>Each component was summed across the preceding variables to arrive at a TOTAL, i.e., TOTAL_SYN, TOTAL_ASYN, TOTAL_IND, TOTAL_GP</p>		
TOTAL_XXX	Computed	<p>Summation of motivation variables for that component. Value range: 0-14 for each component.</p>
TOTAL_MOTIV_WITH_SYN	Computed	<p>The total of TOTAL_SYN, TOTAL_ASYN, TOTAL_IND, TOTAL_GP for each case. Indicates grand total motivational score for the course for each case.</p>
TOTAL_MOTIV_NO_SYN	Computed	<p>The total of TOTAL_ASYN, TOTAL_IND, TOTAL_GP for each case. Indicates grand total motivational score for the course for</p>

		each case if the course did not have a synchronous component, or if the synchronous component is not considered.
V37	ICIAI	Age of respondent; used to determine if IC score was age-dependent
V38	ICIAI	Gender; used to determine if IC score was gender-dependent
V39	Cultural Group	Required for the ICIAI by its author. Not used in this study.
ValColl	Computed from ICIAI values	Total IC scores for Values and Colleagues. Range: 0-114.
ValStran	Computed from ICIAI values	Total IC scores for Values and Strangers. Range: 0-114.
BehavColl	Computed from ICIAI values	Total IC scores for Behavior and Colleagues. Range: 0-114.
BehavStran	Computed from ICIAI values	Total IC scores for Behavior and Strangers. Range: 0-114.
TotalVal	Computed from ICIAI values	Total IC scores for Values. Range: 0-228.
TotalBehav	Computed from ICIAI values	Total IC scores for Behavior. Range: 0-228.
TotalColl	Computed from ICIAI values	Total IC scores for Colleagues. Range: 0-228.
TotalStran	Computed from ICIAI values	Total IC scores for Strangers. Range: 0-228.
TotalTotal	Computed from ICIAI values	Total IC score for all categories. Range: 0-456

Note: this table does not include qualitative variables.