

The Pennsylvania State University

The Graduate School

Instructional Systems Program

**ASSESSING STUDENT EXPECTATIONS AND PREFERENCES  
FOR THE DISTANCE LEARNING ENVIRONMENT:  
ARE CONGRUENT EXPECTATIONS AND PREFERENCES A  
PREDICTOR OF HIGH SATISFACTION?**

A Thesis in

Instructional Systems

by

Karen I. Ritter Pollack

© 2007 Karen I. Ritter Pollack

Submitted in Partial Fulfillment  
of the Requirements  
for the Degree of

Doctor of Philosophy

August 2007

The thesis of Karen I. Ritter Pollack was reviewed and approved\* by the following:

Francis M. Dwyer  
Professor of Education  
Thesis Advisor  
Chair of Committee

Kyle L. Peck  
Professor of Education

Melody M. Thompson  
Assistant Professor of Education

William L. Harkness  
Professor Emeritus of Statistics

Susan M. Land  
Associate Professor of Education  
Professor in Charge of Instructional Systems

\* Signatures are on file in the Graduate School.

## ABSTRACT

In the last five to ten years, innovations in educational technology and enthusiasm for perceived gains in cooperative learning behaviors, instructional variation, larger and more distributed course projects, and learning that occurs through peer tutoring (Duffy and Cunningham 1996) have caused distance educators to move away from individualistic forms of study and toward collaborative learning environments. Historically, independent learning has offered learners “any time, any place” and “own pace,” access to distance education. Distance education is using new technologies to maximize collaboration and increase learning, actually resulting in a reduction in the amount of learner control and flexibility. If these new collaborative environments don’t meet learner expectations and preferences, what is the impact on learning in general and satisfaction in particular? This study was designed to assess whether student expectations and preferences for distance learning environments are associated with high satisfaction. The independent variables are congruence of *expectations* for the learning environment distance learners thought they would be placed in and congruence of *preferences* with the learning environment in which they were placed. A single measure of satisfaction was summed from student responses on five dimensions of learner satisfaction: overall satisfaction, the meeting of educational goals, degree of difficulty with learning course ideas and concepts, the promptness of instructor response, and satisfaction with the course itself. This study tested the hypothesis that students who are placed in a distance learning environment that is congruent with their expectations and preferences will have higher satisfaction levels. Although prior research does show that satisfaction with the

course structure and materials does correlate with greater satisfaction and knowledge gains, no significant differences in satisfaction were found between learners with congruent preferences and expectations versus incongruent preferences and expectations, based on the way that students responded in this particular study. The finding of significance in prior studies may be related to differences in the types of subjects recruited, the types of courses selected, or differences in the course delivery models.

## TABLE OF CONTENTS

List of Figures.....	vii
List of Tables .....	viii
Acknowledgements.....	ix
Chapter 1. Introduction .....	1
Background of the Problem .....	1
Statement of the Problem.....	3
Purpose of the Study.....	7
Research Questions .....	8
Null Hypotheses .....	8
Significance of the Study.....	9
Conceptual Framework.....	10
Learner Satisfaction .....	10
Learner Expectations.....	10
Learner Preferences.....	11
Collaboration .....	11
Learning Styles .....	12
Theoretical Framework.....	12
Keller’s ARCS Model.....	12
Kirkpatrick’s Four Levels of Evaluation.....	13
Definition of Terms .....	15

Chapter 2. Review of the Literature.....	18
Keller’s ARCS Model of Motivation .....	18
Kirkpatrick’s Four Levels of Evaluation .....	24
Learner Satisfaction.....	29
Learner Expectations .....	33
Learner Preferences .....	35
Collaboration.....	37
Learning Styles.....	39
Summary .....	41
Chapter 3. Methodology.....	43
Subjects.....	43
Self-Report As a Research Methodology .....	44
Procedure .....	44
Experimental Design .....	49
Chapter 4. Results .....	50
Chapter 5. Discussion.....	67
Conclusion .....	75
References .....	78
Appendix A: Code Book, Pre-Course Survey .....	98
Appendix B: Code Book, Post-Course Survey.....	103
Vita.....	105

## LIST OF FIGURES

Figure 1: Keller’s Model of Motivation, Performance, and Instructional Influence .....	20
Figure 2: Kirkpatrick’s Four Levels of Evaluation Modified by Kaufman, Keller and Watkins (1995).....	26

## LIST OF TABLES

Table 1: Number of Subjects by Course .....	47
Table 2: Number of Subjects, Means, and Standard Deviations of Satisfaction Scores .....	52
Table 3: ANOVA Summary Table for the Effects of Congruence of Expectations and Preferences on Satisfaction.....	55
Table 4: Correlation Matrix of All Predictor and Criterion Items.....	58
Table 5: Chi Square Analysis, Distribution of Satisfaction Scores .....	60-62
Table 6: Chi Square Analysis, Distribution of Satisfaction Scores .....	64-66
Table 7: Range of Courses Recommended for Future Research.....	69



## ACKNOWLEDGEMENTS

I extend my deepest thanks and gratitude to several individuals – both in front of, and behind the scenes. Up front, my thanks go to Dr. Frank Dwyer for his encouragement, guidance and feedback – ever present, always steady. I thank Dr. Kyle Peck for sharing his scholarly and professional wisdom and for teaching me, “the truth is usually somewhere in-between.” My thanks go to Dr. Melody Thompson for serving as a role model and a mentor. Her vast knowledge of the distance education field, both theoretical and applied has been invaluable. I thank Dr. William Harkness for his enthusiasm in using statistics to increase knowledge and improve the quality of instruction. Behind the scenes, I’d like to thank my husband, Dr. Lenny Pollack, for both his discerning eye and constructive feedback and also for his unfailing support on the home front. I thank my pre-school-aged sons, Nicholas and Joseph, for their patience, resilience, and adaptability. Finally, I thank my parents, Dolores and Glenn Ritter, and my brothers, Charles and Greg for their help and encouragement. Without the collective support of these individuals, and others, completion of this doctoral study would not have been possible.

## **Chapter 1**

### ***Introduction***

#### **Background of the Problem**

Penn State University's roots in distance learning extend back to 1892 with its program of postal mail, correspondence-based study. It offered a flexible environment for learning. Students could begin study anytime, anywhere, progressing through their coursework independently and at their own pace. Distance learning gathered momentum at colleges and universities across the United States with the expansion of the intercontinental railroad system, which made reliable cross-country postal mail service possible.

With the advent of the information age, technology began to transform and enhance distance education: early on, through instructional radio and television; later, through facsimile communication, interactive video, satellite, electronic mail, and the World Wide Web. For the first time, a truly collaborative distance education environment became possible. Students could interact with one another in small groups on projects and during online chat sessions moderated by the instructor. In the last five to ten years in particular, these technological innovations have caused colleges and universities, around the world, to think about instituting more dramatic changes in the distance education landscape — moving away from individualistic forms of study and toward collaborative learning communities. Web-based learning, e-mail, and other communications technologies greatly increase the speed with which students can communicate with their

instructor and creates a myriad of opportunities for learners to communicate with each other (Edelson and Pittman 2001).

In fact, the emphasis on collaboration and interactive learning experiences has so dominated the distance education landscape that in the United States, where web-based delivery is the dominant mode, institutions of higher education are on the verge of eliminating most of their individualistic forms of study altogether (Edelson and Pittman 2001). Eliminating the independent study format from their portfolio eliminates a good deal of the flexibility that distance learners have come to expect. The movement toward online collaborative group formats also will effectively prevent educational institutions from serving certain constituencies in the near term, such as the incarcerated, who lack Internet access, and those who cannot afford access to technology. Then there are those who simply don't have access by virtue of their geographic location, such as rural areas that may lack broadband service. Ironically, these are the same rural populations that distance education providers set out to serve 115 years ago. The movement toward collaborative online instruction presents particular financial risks as well. Independent study is a less expensive delivery mode, which has, at many institutions, provided the financial foundation for experimentation with new delivery models and programs. Are the advantages of collaborative online study sufficient to offset those of independent study? Will students who are placed in a distance learning environment that is congruent with their expectations and preferences have higher satisfaction levels? If the learning environment is incongruent with their expectations and preferences, will they be less

satisfied? Are we throwing the baby out with the bath water, or moving toward a higher pedagogical benchmark?

### **Statement of the Problem**

In addition to the more limited access and the financial implications, in at least the near-term, in moving from the independent study model of distance education to the online collaborative model, there may be more serious considerations related to student values and preferences and student expectations for the distance learning environment. These considerations may have significant impact on learning and satisfaction with the learning experience overall. Adult learners, in particular, tend to choose distance education delivery formats because they offer maximum flexibility. Adult learners can pursue their educational goals from a distance, without having to interrupt their careers. Through distance education, they are able to accomplish their educational goals with minimum disruption to their family or personal lives. Historically, independent study courses offered adult students in particular the ability to start at any time, or at several entry points, through out the year; to work at their own pace; to establish their own timelines for submitting assignments; and to set their own exam dates. Independent study formats allowed students six months or more to complete their courses — offering maximum flexibility to schedule course work around family, work, and other personal responsibilities.

In fact, “any time, any where” was an effective marketing slogan for this mode of learning for some time. With the migration to new Online Group models of delivery,

however, it is a slogan that many institutions are backing away from. Most of today's Online Group models incorporate technologies requiring broadband access — video- and audio-conferencing, phone bridges, and other synchronous activities including on-site orientation and practicum experiences. They also require collaboration with other students within a more restrictive time frame.

If learners new to the distance education experience expected an Independent Study course or preferred an Independent Study course (“any time, any where”), how would they respond to an Online Group experience? If there was a mismatch between the course they expected and preferred versus the course they received, would this impact their overall satisfaction?

The current 2006-07 Penn State World Campus course catalog shows 691 available courses and five different course delivery types:

- Online Group
- Online Individual Six Months
- Online Individual Semester Based
- Independent Learning Web Optional
- Independent Learning

A legend on page 13 of the 79-page print catalog gives a more detailed explanation:

Online Group = Web access is required to complete these courses. These courses are generally between twelve and fifteen weeks in length but may be shorter during the summer semester. For the lengths of specific courses, check the online course catalog: [www.worldcampus.psu.edu](http://www.worldcampus.psu.edu). Students interact with their instructors and other students. Group work and/or student-to-student interaction may be required.

Online Individual Six Months = Web access is required to complete these courses. Though you are encouraged to complete this course within five months, you have up to six months for course completion. These courses do not have fixed start and end dates. Students interact one-on-one with their instructors. Group work and student-to-student interaction are not required.

Online Individual Semester Based = Web access is required to complete these courses. These courses are generally between twelve and fifteen weeks in length but may be shorter during the summer semester. For the lengths of specific courses, check the online course catalog: [www.worldcampus.psu.edu](http://www.worldcampus.psu.edu). Students interact one-on-one with their instructors. Group work and student-to-student interaction are not required.

Independent Learning Web Optional = Web access is not required. An optional Web site and e-mail lesson submission may be included. Optional Web sites are intended to provide students with additional resources, though using them is not required. Though you are encouraged to complete this course within five months, you have up to six months for course completion. These courses do not have fixed start and end dates.

Students interact one-on-one with their instructors. Group work and student-to-student interaction are not required.

Independent Learning = Web access is not required, and there are no optional Web materials. E-mail lesson submission may be included. Though you are encouraged to complete this course within five months, you have up to six months for course completion. These courses do not have fixed start and end dates. Students interact one-on-one with their instructors. Group work and student-to-student interaction are not required.

Although the legend and more detailed course descriptions can be found on page 13 of the 79-page print catalog, the actual courses are labeled as follows:

OnLnGrp, OnLnIn6, OnLnInS, ILWO, or IL

(Online Group, Online Individual Six Months, Online Individual Semester Based, Independent Learning Web Optional, Independent Learning)

Are new distance education students able to de-code these labels? Even if they find and read the legend and the more detailed course descriptions, will they really understand what they signed up for? Even the most casual observers note that the adult learners of today are speaking up more frequently — and more forcefully — when they experience frustration with their distance education experience. Will learners be satisfied with their

distance education course even if it is not the model they expected or preferred? If the learners aren't satisfied, how successful can they be?

A dissatisfied student is more likely to drop the course, leave the program, discontinue his or her education, and also, potentially cast the program and institution in an unfavorable light altogether (*Quality on the Line: Benchmarks for Success in Internet-Based Distance Education* 2000). Thus, in addition to educational implications of non-matriculating students, and the financial implications of lost revenue, there is an additional concern for the damage done to an institution's name and reputation among multiple constituencies: other students, alumni, and employers.

### **Purpose of the Study**

The purpose of this study is to gain a better understanding of how learner expectations and preferences for the distance learning environment impact satisfaction with those learning environments and learner perceptions of the experience with the course overall. The Independent Study experience offers the benefit of maximum flexibility and access. Limiting factors include the lack of a collaborative learning environment and the requirement that the learner be self-disciplined in establishing his or her own pacing of assignment completion. The Independent Study experience limits students to interaction only with the instructor. The Online Group experience offers the benefit of a fully interactive and collaborative experience and more formally structured pacing. Limiting factors include less flexibility and more limited access due to technological requirements and synchronous group activities. If learners new to the distance education experience



were expecting or preferring an Independent Study experience (“any time, any where”), but actually find the course to be an Online Group experience, would this impact their overall satisfaction with the course itself?

### **Research Questions**

This study was designed to explore two primary research questions.

Research Question 1: Will students who are placed in a distance learning environment that is congruent with their expectations have higher satisfaction levels?

Research Question 2: Will students who are placed in a distance learning environment that is congruent with their preferences have higher satisfaction levels?

### **Null Hypotheses**

The null hypotheses for this study were as follows:

Ho1: There will be no significant differences in satisfaction among students when the distance learning environment is congruent, or not congruent, with their expectations.

Ho2: There will be no significant differences in satisfaction among students when the distance learning environment is congruent, or not congruent, with their preferences.

Ho3: There will be no interaction between congruent expectations and congruent preferences on satisfaction among students.

### **Significance of the Study**

In our consumer-oriented society, learners increasingly are approaching the education experience with a higher degree of sophistication and “savvy.” While university administrators and faculty members eschew the concept of education as a consumer product, we can no longer discount the expectations and preferences of our learners as they compare options. In fact, with the rising cost of higher education, outpacing inflation, students’ consumer-oriented approach seems quite rational and logical. The rising cost of education and a competitive job market may mean that fewer students will be able or inclined to leave the workforce in order to pursue their educational goals full time (U.S. Department of Education 2004). In addition, today’s fast-paced, multi-task-oriented society results in the learners’ need to find flexible programs that will best help them meet their educational goals — programs that take into account the competing interests of work, family, and personal needs. Institutions of higher education would be well-served by research that attempts to better understand the expectations and preferences of learners, particularly part-time learners, in order to gain a better understanding of how satisfied they are with the learning experience overall — with not just the content, but also the presentation, format, and structure of that content. Closer examination of these variables need not spur the commodification of education, but can help ensure better learning outcomes overall. This study represents one modest step in that direction.

## **Conceptual Framework**

This study involves several key instructional design concepts: learner satisfaction, learner expectations, learner preferences, collaboration, and learning styles.

### **Learner Satisfaction**

Learner satisfaction may be an indicator of several important learning conditions: ability of the learner to thrive and succeed, learning outcomes, and student retention (Roberts, Irani, Telg, and Lundy 2005). If a learner is placed in an environment that is congruent with his or her expectations, will he or she be more satisfied? If a learner is placed in an environment that is incongruent with his or her expectations, will he or she be less satisfied? What about congruence with learner preferences? If learner expectations are clearly established up front, through improved communications about the distance education environment or through effective orientation practices, does that overcome possible incongruence between actual and preferred learning environment? The answers to these questions have important implications for how we select course instructional design models and the time we spend preparing and orienting both students and instructors. Student satisfaction with his or her first online course is critical to successful matriculation through an entire online program (Conrad 2002).

### **Learner Expectations**

Learner expectations play an important role in “setting the stage” for the online student. In a survey of online learners, subjects reported that two of the most compelling reasons

for pursuing this form of study were career advancement and the ability to have flexibility in balancing family and work issues during week days (Aviv 2004). If the student signs up for a course expecting an independent study experience with less structure and maximum flexibility, learner satisfaction will likely be impacted when the student finds himself/herself in an online asynchronous course that is highly collaborative and quite structured with limited flexibility.

### **Learner Preferences**

Learner preferences are another important variable, distinct from expectations. A learner may expect an independent learning experience, but actually prefer an environment that is more collaborative, fulfilling a preference for social contact with other members of the learning community. Conversely, a learner may find collaborative experiences intimidating or unrewarding, instead preferring the relative anonymity and self-directed environment offered through independent study. Online learners have reported that they preferred to be more self-directed, as opposed to having structure imposed, tended to be more independent rather than collaborative, and preferred more flexibility rather than less (Brown, Kirkpatrick, and Wisely 2003).

### **Collaboration**

In collaborative learning environments there is a significant correlation between achievement and helping behaviors (Hooper 1991, 1993) — the idea that two heads are better than one (Heywood 1546). In a collaborative or cooperative learning environment,

there is a positive interdependence among students. Students perceive that they can reach their learning goals only if others reach their goals too (Deutsch 1949, 1962).

## **Learning Styles**

Learning styles refer to the cognitive strategies that individuals may employ to acquire knowledge. They are an individual's preferred strategies for gathering, interpreting, organizing, and thinking about new information (Gentry and Helgesen 1999).

Gunawardena and Boverie (1992) found that although learning styles did not affect the way students interact with educational media, their learning styles did correlate with their satisfaction levels with class discussions and other group interactions.

## **Theoretical Framework**

### ***Keller's ARCS Model of Motivation***

The field of educational communications and technology has tended to focus on the factors that contribute to well-designed instruction. The assumption has been that well-designed instruction will result in a motivated learner. In reality, studies have shown that high-quality, well-designed instruction does increase learning and improve performance when students successfully complete their coursework (Keller 1983). However, large numbers of students have also dropped out along the way and failed to meet their educational goals (Alderman and Mahler 1973; Johnston 1975; Gibson and Graff 1992; Nash 2005). Beyond the more traditional behavioral and cognitive research into *how* people learn, John Keller developed his Attention, Relevance, Confidence, Satisfaction (ARCS) theory in an attempt to better understand *why* people learn and the motivational

factors that increase the likelihood that they will learn (Keller 1979, 1983, 1987). This research study will focus on two particular aspects of Keller's model — expectancy and satisfaction — and will discuss how a third aspect, relevance, relates to the independent variable of preference, as explored in this study.

Keller's model suggests that well-designed instruction increases learning and performance when the learner is motivated to complete the instruction. The current study posits that when instruction is consistent with learner preferences, then instruction matches learner values. Matching instruction with learner preferences and values results in greater effort and satisfaction. Keller's model also suggests that if instruction is consistent with expectations, then instruction is experienced as a positive contingency or consequence leading to greater satisfaction and effort.

### ***Kirkpatrick's Four Levels of Evaluation***

Just as Keller's ARCS model provides a theoretical framework for the concepts of expectations, preferences, and satisfaction and the role they play in educational environments, Kirkpatrick's Four Levels of Evaluation provides a framework to understand and interpret the role of satisfaction in evaluating educational environments, compared to other metrics for evaluating education and education outcomes (Kirkpatrick 1959a, 1959b, 1960a, 1960b, 1994, 1996).

Again, at a minimum, assessing distance education at Kirkpatrick's Level One, satisfaction, assures that students like the Online Group courses. If they like the Online

Group courses, even when there are gaps in learner expectations and preferences, it would be one indicator that the benefits of online collaborative learning environments outweigh the costs. Though the current study will only examine Level One outcomes, future distance education studies should look at Level Three, Four, and Five outcomes.

## **Definition of Terms**

**Adult Student:** A student, typically 24 years of age or older, who is returning to school after four or more years of employment, homemaking, or other activity; assuming multiple roles such as parent, spouse/partner, employee, and student.

**Collaborative Learning:** A learning environment that facilitates group activity — a group of learners working together to explore topics, solve problems, and build meaning.

**Congruent Expectations:** A situation in which the learner's expectation for a particular type of learning environment (collaborative versus independent, structured versus flexible) is consistent with the type of learning environment he or she is placed in.

**Congruent Preferences:** A situation in which the learner's preferences for a particular type of learning environment (collaborative versus independent, structured versus flexible) is consistent with the type of learning environment he or she is placed in.

**Cooperative Learning:** A learning environment that facilitates group activity in a highly structured and formalized way. Group members have specialized and well-defined roles and are presented with a task that is highly structured and well defined. There is formal accountability for group learning.



**Distance Education Course:** A course that is taught from a distance and does not require the student to travel to a classroom building. The student is not required to meet with the instructor in the same physical space.

**Extrinsic Motivation:** Rewards that result from environmental influences on the learner or external assessments of performance.

**Independent Study:** A course environment that does not require nor facilitate collaboration with other students. There is no social context or community of practice. Individual students are isolated from one another and interact only with the course instructor. Students set their own schedules with no fixed start or end date.

**Intrinsic Motivation:** Rewards that result from the learner's internal emotional response and self-assessment of performance.

**Learning Styles:** An instructional strategy that matches instructional materials and the presentation of those materials with the learner's needs and preferences.

**Locus of Control:** A learner's expectation that rewards are the result of either internally- or externally-controlled factors.

**Motivation:** The educational choices learners make and the degree of effort they will exert in reaching their educational goals.

**Online Group Instruction:** A distance education course that requires web access.

Students interact with their instructors and other students. Group work is required.

## Chapter 2

### *Review of the Literature*

The literature reviewed in preparation for this study included motivation theory — and Keller’s ARCS Model in particular — in addition to the body of research pertaining to learner expectations and learner preferences. Within the broader topic of collaboration, research in the area of cooperative learning is reviewed. The literature on learner satisfaction is reviewed also — with specific reference to Kirkpatrick’s Four Levels of Evaluation model.

#### **Keller’s ARCS Model of Motivation**

Keller identified four major dimensions of learner motivation: attention or interest, relevance, expectancy of value or confidence, and satisfaction (Keller 1979). Attention refers to the ability of the instruction to arouse curiosity and sustain learner interest over time. Relevance refers to learner perceptions that the instruction will meet their educational needs and goals. Expectancy refers to the learner’s perceived likelihood of success and his or her perception that success is under his or her control. In later refinements of his model, Keller called this dimension “confidence” (Keller 1987). Satisfaction refers to the learner’s intrinsic motivation and his or her reaction to extrinsic rewards.

Keller’s model identifies the primary categories of learner behavior and instructional design that are related to learner effort and performance. It also leads to predictions about

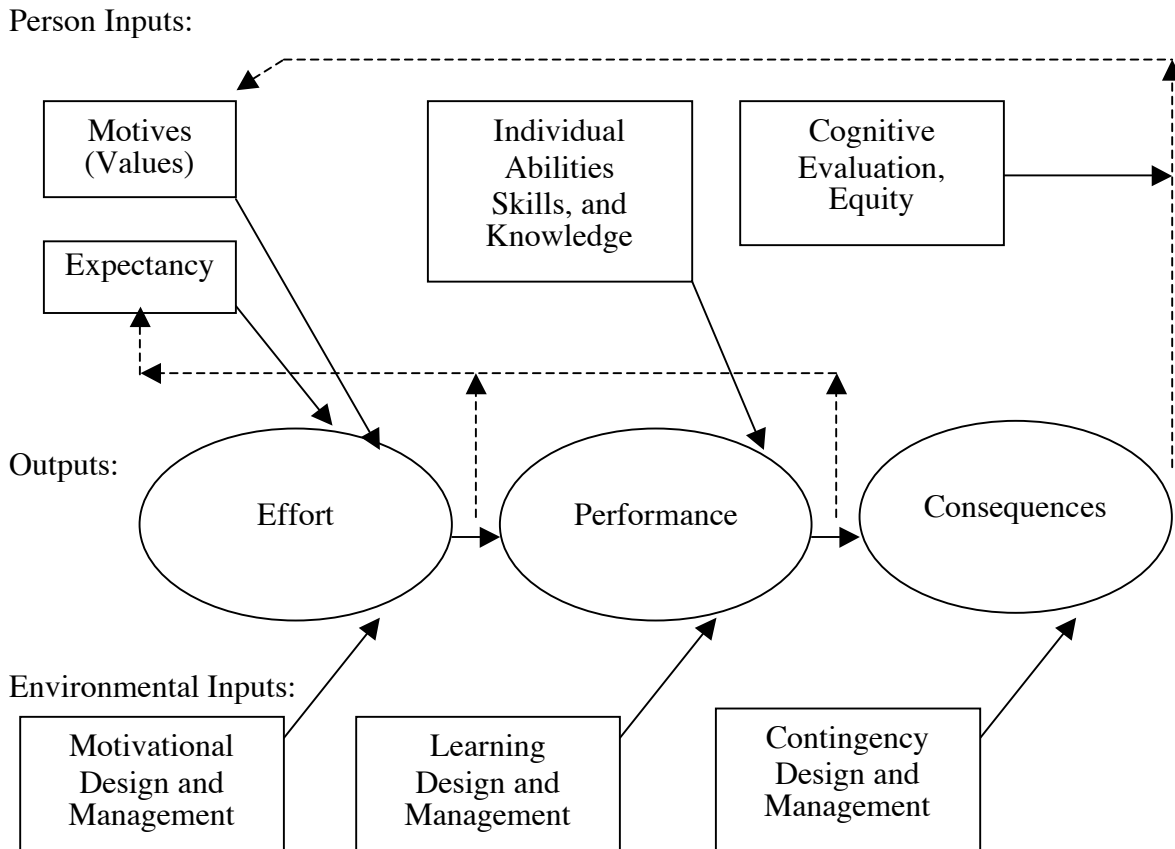
motivation, learning and satisfaction and, at a prescriptive level, enables us to make predictions about how we can influence these variables by manipulating the instructional environment, particularly with respect to the types and frequency of interaction.

Keller's model of motivational design shows that the primary influences on learner effort are motives and expectancies (see Figure 1).

**Figure 1**

**Keller's Model of Motivation, Performance, and Instructional Influence**

**(Keller 1979, page 392))**



Together, these comprise the components of Keller's expectancy-value theory (Keller 1979). Keller's theory holds that learners will approach activities and goals that are personally satisfying — goals for which the learner has a positive expectancy for success. Thus, motivation is the product of both expectancies and values. Values encompass learner dimensions such as curiosity and arousal (Berlyne 1965), needs (Maslow 1954, McClelland 1976), beliefs and attitudes (Rokeach 1973, Feather 1975). The concept of learner preferences is closely aligned with Keller's description of values. Although a learner might value an instructional tool, such as the feedback they get from a pop quiz, without necessarily preferring it, it is difficult to imagine an instructional tool that a learner would prefer, without placing some value on it.

Expectancy, in the ARCS Model, includes learner dimensions such as locus of control, attribution theory, and self-efficacy (Keller 1979). Each of these theories, in turn, attempts to explain the development and the effect of learner expectations for success or failure as they relate to learner behavior and its consequences. Self-efficacy refers to the learner's self-evaluation of his or her ability to complete a given task (Bandura 1986). Attribution theory describes how learners' expectations are determined, in part, by their attributional conclusions (Weiner 1980). For example, a learner who attributes his or her success to personal effort or ability will increase his or her expectations for success. On the other hand, a learner who attributes his or her success to luck, or some other external factor, will decrease his or her expectation for success. Locus of control refers to a learner's expectations about controlling influences on reinforcement (Rotter 1966, 1972). An internally oriented learner tends to assume that positive reinforcements, like good

grades, are most likely the result of personal effort. An externally oriented learner tends to assume that, regardless of personal ability or effort, positive reinforcements are most likely a matter of chance or circumstances.

In Keller's model, the combined impact of values and expectations determine the level of effort the learner will put into a task. Expending effort indicates some degree of motivation on the part of the learner. Effort indicates motivation.

Performance and consequences, however, are measures of actual accomplishment.

Performance is influenced by other personal inputs including individual abilities, skills and knowledge. Consequences are a measure of learning and satisfaction.

Consequences and satisfaction, in turn, provide the learner with feedback, which influences learner values and expectations.

Following an instructional activity, the learner will experience an internal, intrinsic emotional response such as excitement, fear, pride, or embarrassment. The learner may also receive an external, extrinsic response such as praise, criticism, a good grade, a poor grade, or a prize. Both categories of responses have an effect on the reinforcement of motivation — both positive and negative (Deci 1976, Condry 1977). The relationship between the two is complex. Studies have shown that there are conditions under which an extrinsic reward actually results in decreased intrinsic motivation (Deci and Porac 1978).

In Keller's model, the three opportunities to influence the overall instructional design are through motivational design, getting the learner's attention; learning design, developing the instruction that best suits the task and learner abilities, skills and knowledge; and

reinforcement contingency design, which focuses on giving the learner the appropriate kinds of feedback and interaction at the appropriate times.

At a descriptive level, Keller's model helps instructional designers make predictions about the relationships between learning, motivation, performance and satisfaction. At a prescriptive level, it has been used to make predictions about how learner characteristics can be influenced by manipulating components of the instructional environment — several of which apply to the current study, including:

1. Intrinsic motivation decreases when locus of control shifts from internal to external. In the current study, locus of control for course structure and flexibility shifts from internal to external as the course design model shifts from independent study to online group.
2. There will be a decrease in intrinsic motivation if a person's feelings of competence and self-determination are reduced. In the current study, intrinsic motivation might be expected to decrease as the schedule and pacing of the course is more externally driven and course assessment becomes more heavily dependent on collaborative group activities or cooperative tasks that rely on peer- or instructor-determined activities and assessments.



3. Every reward, including instructor feedback, has two elements, a controlling element and an informational element (Keller 1983). If the controlling element is dominant, it will influence the learner's perceptions of locus of control and causality. The controlling influence is often responsible for the decrease in intrinsic motivation. In the current study, the online group course design might be perceived as being more controlling by the learner if the feedback is more structured, automated and general — a common strategy for managing large online groups — as opposed to being more personalized in an independent study experience.

### **Kirkpatrick's Four Levels of Evaluation**

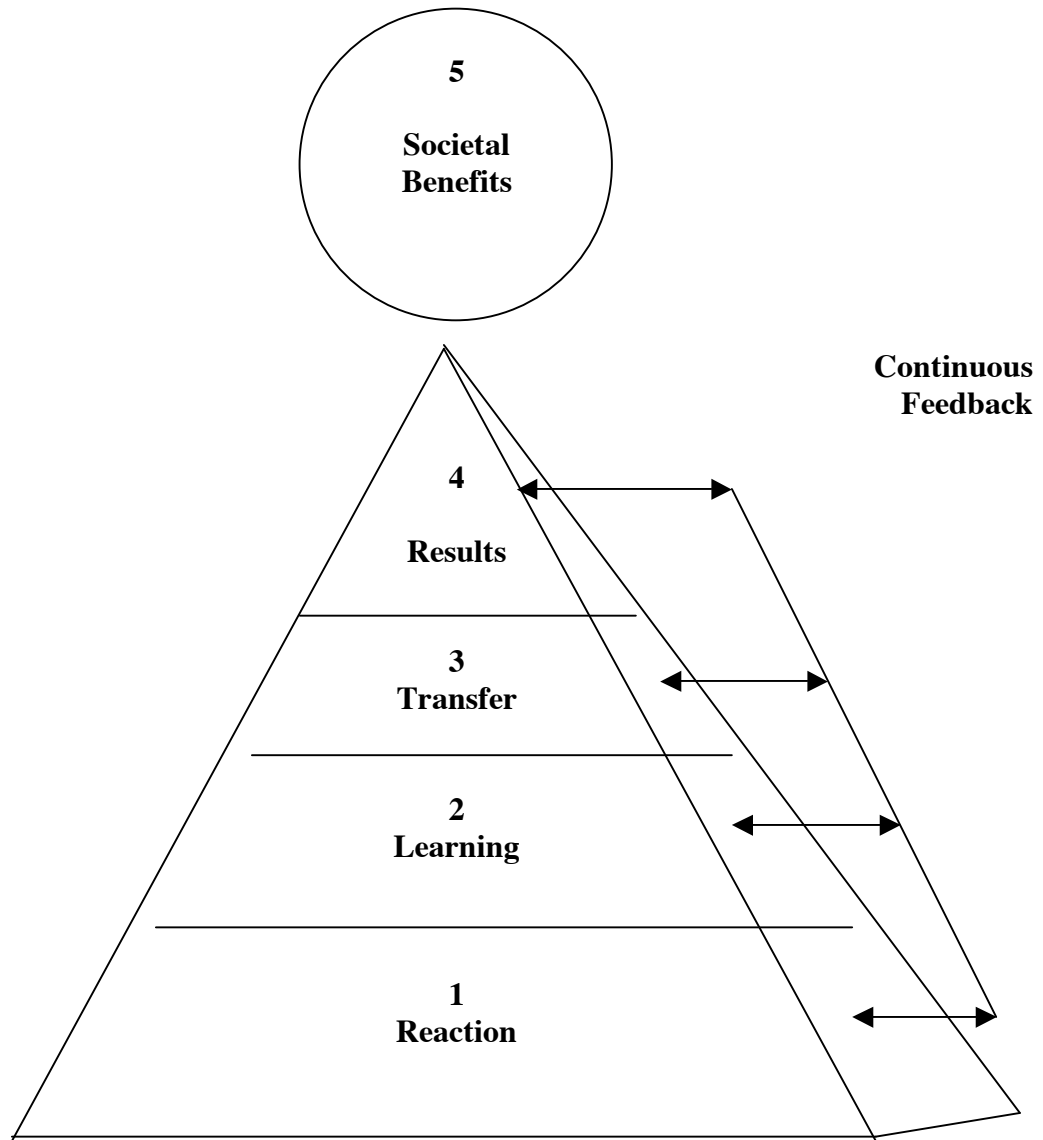
Kirkpatrick's model of evaluation suggests four levels of assessment: reactions, learning, transfer, and results. According to Kirkpatrick's model, assessment should always start with the first level – the reactions of the learners – moving up to higher levels as time and resources permit. (See Figure 2.)

At Level One, Reactions, the evaluator begins to examine learner perceptions: Did they like the course? Was the material relevant to their work? Did the delivery format fit their needs? This level has been referred to as the “smile-sheet” evaluation. Level Two Evaluation, Learning, focuses on testing. Did the material lead to mastery of learning

objectives and enable the learner to score well on a test? Level Three, Transfer, relates to measurable job improvement. Did the material improve the learner's job performance? Level Four, Results, looks at overall organizational improvement. Did the training result in higher profits, increased customer service, etc.?

**Figure 2**

**Kirkpatrick's Four Levels of Evaluation  
(Kaufman, Keller, and Watkins 1995, page 91)**



Kirkpatrick believed that effective course evaluation should always start with the base level – an assessment of learner satisfaction – to insure continuous improvement in learning outcomes. As summarized by the Encyclopedia of Educational Technology, “Although a positive reaction does not guarantee learning, a negative reaction almost certainly reduces its possibility (Winfrey 1999, page 1).”

It has been estimated that more than 90 percent of companies surveyed have used some form of the Kirkpatrick Model to evaluate their training and professional development programs at one time or another (Bassi, Benson, and Cheney 1996). Many attempts have been made to modify the model or present alternatives since the model was developed in the late 1950s, including modifications suggested by John Keller (Kaufman and Keller 1994; Holton 1996a, 1996b). An updated Organizational Elements Model (OEM) proposed by Kaufman, Keller and Watkins suggested the addition of a Level Five to evaluate contributions made to society and external clients by a given training program and also incorporated a more proactive emphasis on continuous or formative evaluation, rather than relying only on summative data as a guide to improving instruction (Kaufman, Keller, and Watkins 1995). In the current study, Level Five evaluation might encompass contributions that effective online education conveys to society. These might include: increased employment, greater productivity, scientific discoveries, and inventions — all of which contribute to our global economic engine and the betterment of society as a whole. Original or updated, Kirkpatrick’s Model has remained a standard in business and industry for almost 50 years (Cascio 1987; Alliger and Janak 1989; Kirkpatrick 1996; Boyle and Crosby 1997; Naugle, Naugle, and Naugle 2000; Abernathy 2004).

As suggested by Boyle and Crosby, numerous benefits may accrue in applying the Kirkpatrick Model of evaluation to higher education in general (Boyle and Crosby 1997). At the base, Reactions Level, measuring satisfaction with distance education courses ensures that students like the courses and programs. If learners like the courses and programs, distance education providers will be more likely to retain them as students. Evaluating courses and programs at Level Two, Learning, ensures that students are learning the material they are supposed to be learning. In Kirkpatrick's Model, this would prepare them for success at Level Three, which evaluates Transfer – the students' ability to translate the learning into applied settings such as the workplace. For higher education, this is particularly important. As tuition costs rise and job markets become more competitive, it is increasingly important for students to master the skills and competencies that they need to succeed in the job market. The quality of the learning experience and its application to the world of work are key to justifying its cost, and the pursuit of higher education as a worthwhile experience overall. Closely related to Transfer, at Level Three, is the evaluation of Results, at Level Four. Perhaps more so than in business or industry, education serves a complex group of stakeholders and constituencies. Beyond results measured from the perspective of the learner are results measured from the perspectives of faculty, parents, the community, and employers. Having mastered the skills and competencies they need to succeed and compete in the job market, results in terms of student performance translates into satisfaction among these many and diverse constituencies, including alums and donors. Satisfaction among all

these constituencies serves to enhance the value and prestige that are attributed to a particular institution or online education provider.

### **Learner Satisfaction**

A large body of research shows that numerous factors have been associated with distance education satisfaction. These factors include: learner attitudes toward instructional technology, prior experience, and skill — which all positively affect learner satisfaction. A meta-analysis of relevant empirical literature by Allen, Bourhis, Burrell, and Mabry showed that more experience and orientation also correlate strongly with positive course evaluations and learning outcomes (Allen, Bourhis, Burrell, and Mabry 2002). In their study, Allen, Bourhis, Burrell, and Mabry reviewed more than 450 manuscripts and compared student preferences for distance education versus traditional classroom formats. They also examined differences in satisfaction between the two delivery methods. The researchers found a slight preference for traditional classroom formats, but very little difference in satisfaction levels. Allen, Bourhis, Burrell, and Mabry hypothesized that learners would be more satisfied with the more collaborative and interactive communication channels, however, the research did not support that finding. Results showed that the advantage of face-to-face instruction over distance education on student satisfaction is actually greatest when the distance instruction is more fully interactive (Allen, Bourhis, Burrell, and Mabry 2002). This finding suggests the more collaborative Online Group model may not lead to increased satisfaction.

Other factors that contribute to learner satisfaction include the relative anonymity that learners enjoy in an online course, which may encourage greater freedom of expression.

Moore (2002) has reported that feelings of dissatisfaction in the online course environment arise from: lack of confidence, fear of failure, lack of experience, lack of prompt feedback, loneliness, lack of face-to-face contact, and fear of expressing a minority opinion. Learner dissatisfaction may also arise from: ambiguous course instructions, too many postings, and excessive time requirements. Ambiguous course instructions, multiple postings, and excessive time requirements are characteristics that may be shared by many Online Group course models. Orchestrating collaborative discussions and cooperative working groups tend to increase the complexity of the course design and structure — particularly when there are large numbers of students enrolled per course. Learner control is another factor that impacts learner satisfaction. Moore has found that, on the whole, online instructional environments tend to support learners who prefer to have more control and who prefer to have more time to compose their responses (Moore 2002). In the current study, Online Group course formats would tend to decrease learner control while Independent Study formats tend to increase learner control.

Research on learner satisfaction has also found that course organization is very important to online learners. Respondents to Conrad's 2002 study indicated they would be most satisfied: if they could access the course web site at least two weeks in advance so they could familiarize themselves with the navigation of the site, ensure that detailed course content was in place, and map out a timeline for themselves to complete the coursework. Seventy-eight percent of the respondents also indicated that they *did* want to see a message posted from the instructor on the course web site from one to three weeks before the start of the course. In contrast, 72-percent *did not* want to see messages posted by

other students before the start of the course and 80-percent did *not* expect to see messages posted by other students before the start of the course. Instead, learners indicated that it was their engagement with the course content and the organization of the course overall mattered most (Conrad 2002). Toward that end, Conrad found that instructors were evaluated on the degree of clarity and completeness they demonstrated in preparing that course content (Conrad 2002).

Interactions between the instructor and learner increase social presence and instructional immediacy – both of which correlate positively with learner satisfaction (Christopher 1990, Swan 2001). In a study of 1,108 students enrolled in online courses through the SUNY Learning Network, Swan asked learners 12 questions related to their perceptions of satisfaction, perceived learning, and course activity and compared this data to course design factors (Swan 2001). The results showed that learners who perceived high levels of interaction with their instructor also had high levels of satisfaction and reported higher levels of learning than students who reported less interaction with the instructor.

Although learners who also perceived high levels of interaction with their classmates reported higher levels of satisfaction and learning, interaction with instructors seemed to have a much larger effect on satisfaction and perceived learning than interaction with peers (Swan 2001).

Other studies have shown that learner satisfaction with the structure and interaction of a distance education course led to greater satisfaction with perceived knowledge gained (Gunawardena and Zittle 1997; Gunawardena and Duphorne 2000; Stein, Wanstreet,



Calvin, Overtoom, and Wheaton 2005). The Gunawardena and Zittle study was the first of a two-phase study that attempted to identify the variables related to learner satisfaction with online conferencing. The study identified social presence as a predictor of overall learner satisfaction (Gunawardena and Zittle 1997). The Gunawardena and Duphorne study examined 50 students from five universities who participated in the fall 1993 GlobalEd inter-university online conference. At the conclusion of the conference learners completed a 61-item questionnaire. The questionnaire was designed to analyze: learners' self-reported satisfaction levels, learner readiness, online features, and computer-mediated instructional approaches (Gunawardena and Duphorne 2000). Results showed that learner readiness, online features, and computer-mediated instructional approaches were all significantly related to learner satisfaction. Online features showed the strongest relationship with satisfaction. When learners understood the features of the online program they were most likely to be satisfied with the experience overall (Gunawardena and Duphorne 2000).

On the whole, the literature suggests that learner interaction with well-organized and appropriate-level content is cited as being most important to their overall satisfaction. The second most important factor, frequently cited, is the level of instructor interaction and promptness. Online learners tend to cite interactions with classmates as being the least important of the three interactions. Overall, these findings suggest that the switch from the Independent Study to the Online Group model may significantly impact satisfaction. As the levels of learner control and interaction differ substantially under these two models, so does the potential gap in learner expectations and preferences.

## **Learner Expectations**

Although there is not a large body of research on expectations, the studies that have been conducted indicate that a disconnect between learner expectations and the course environment may impact learner satisfaction in significant ways. Students new to the environment tend to approach online learning with a degree of fear and anxiety. In addition to the role of the instructor and interaction with peers, the overall course design and organization plays a primary role in learner satisfaction. In a study conducted to gain a better understanding of how learners' perceptions of their first online course contributed to their sense of engagement and satisfaction, Conrad surveyed students in a new online program and asked them how they felt about their experience logging on to an online course for the first time (Conrad 2002). Learners were asked to describe their experiences and expectations for online study through both quantitative and qualitative measures: how far in advance of the start of the course they expected the web site to be available, when they expected to find communications from their instructor or classmates, and the types of introductory instructional events they felt were important. The learners were also asked to describe their sense of engagement and the instructional events that made for "good" versus "bad" beginnings. Conrad found that many online learners described emotions of fear and anxiety, which held true whether they were novice or more experienced learners. First and foremost, learners expected an online environment that was well organized and accessible at least two weeks before the start of the course (Conrad 2002).

Studies have consistently shown that online learners expect the instructor to respond to e-mail messages and return assignments in a timely manner (Caswell 1999, Hara and Kling 2000, Vonderwell 2003, Muirhead 2004, Dahl 2004.). In one study, 87 percent of students said they expected the instructor to respond to their e-mails within 24 hours (Jensen, Riley, and Santiago 2004). In the same study, 31 percent of students said they expected the instructor to respond within 24 hours even on the weekends (Jensen, Riley, and Santiago 2004).

Learner expectations do appear to be changing over time. As the cost of higher education has shifted from the government to the student, so has the students' expectations shifted from passive recipient to involved consumer (Stevenson and Sander 1998, Davis 2002, Tricker 2003).

In general, online learners expect convenience and flexibility and want to pursue their studies independently (Garrison and Anderson 2003). They want interactivity with the instructor, in particular, along with a sense of community, sufficient direction, and empowerment (Pallof and Pratt 2003). They want: flexibility and choice, access to the latest technology, a two-way conversation with the university, full information about course requirements, quality and professionalism in content delivery, and access to information about career pathways and employment opportunities (Tricker 2003; Tennet, Becker, and Kehoe 2005).

## **Learner Preferences**

The body of literature on learner preferences is more robust — particularly as it relates to preferred learning strategies and amount of learner control. Matching students with preferred amounts, elements, or sequencing of instruction has been shown to yield significant positive attitudes (Gray 1987; Kinzie, Sullivan, and Berdel 1988; Ross, Morrison, and O’Dell 1988; Freitag and Sullivan 1995; Hannafin and Sullivan 1996). However, students’ preferences and judgments often may not be good indicators of how they learn best (Schnackenberg, Sullivan, Leader, and Jones 1998). A study by Schnackenberg, Sullivan, Leader, and Jones explored the effect of program mode — a lean version of an online teacher preparation program with limited practice, versus a longer version of the same program with more practice. A total of 204 juniors at a large southwestern university responded to a pre-course questionnaire consisting of 10 items that asked learners about their preference for amounts of information and practice in learning new concepts both online and in the physical classroom environment. The leaner version of the online teacher preparation program contained two practice items per objective. The longer version of the online teacher preparation program contained four practice items per objective. Subjects indicating a preference for the low or lean version were randomly assigned to either the lean version (matched preference) or long version (unmatched preference) of the course. The results showed that subjects in the longer version that contained more practice scored significantly higher on a posttest than those containing less practice. Assigning subjects to their preferred amount of practice did not show a significant achievement difference over assigning them to their less preferred

amount. Learners preferred the shorter version even though the longer version resulted in higher achievement (Schnackenberg, Sullivan Leader, and Jones 1998). Studies have found that learners had more positive attitudes toward instructional environments that allowed them a greater degree of learner control (Hintze, Mohr, and Wenzel 1988; Kinzie and Sullivan 1989; Igoe 1993). There is also evidence that giving learners partial control over the learning environment results in more favorable attitudes than giving them full program control (Schnackenberg, Sullivan, Leader, and Jones 1998). In the current study, the Online Group model would tend to decrease learner control while the Independent Study model would tend to increase learner control.

One study found that an unequal distribution of learner expertise within the online learning environment prevented equal participation in group projects. Technology novices were learning to use the tools while experts were busy using them. Learners suggested the need for better training and orientation on not only the use of web tools, but also on effective collaboration (Murphy and Cifuentes 2001). In this case study, Murphy and Cifuentes conducted a content analysis of postings in an online discussion forum and the results of a focus group discussion about collaboration with other students in online courses. The subjects were 13 graduate students enrolled in an educational technology course. None of the subjects had participated in an online course before. Results indicate that learners prefer to get to know each other and need to learn to respect individual differences, negotiate meaning and self-regulate – imposing their own structure, time lines, and due dates (Murphy and Cifuentes 2001).

On the whole, learners tend to have more positive attitudes toward the instructional environment if they are given a greater degree of control. In addition to some degree of control, learners prefer to have some form of advanced training or preparation. This could take the form of a formalized orientation experience — or be as simple as providing them full access to the instructional content well in advance of the course start date.

### **Collaboration**

The pedagogical movement away from Independent Study models of course design toward Online Group models is based largely on empirical research in the field of educational technology. This research has repeatedly shown that collaborative, computer-based learning groups, structured in a way that encouraged cooperation and interdependence among group members, significantly out-performed individuals engaged in computer-based learning (Johnson and Johnson 1989). In their 1989 study, Johnson and Johnson did a meta-analysis of more than 750 research studies on collaborative versus independent learning and found strong positive correlations between cooperation and achievement and productivity, stronger interpersonal relationships, and psychological health and well being (Johnson and Johnson 1989). In more recent studies Johnson and Johnson found that college-level learners engaged in cooperative learning groups — collaborative learning environments that created positive interdependence between group members — engaged in significantly more interaction, were more supporting of each other's learning, and achieved higher scores on a series of weekly electronic quizzes on human anatomy and physiology (Johnson and Johnson 2002).

Whether the cooperative groups were heterogeneous or homogeneous in terms of ability, researchers generally found that two — or more — heads were better than one. Students working in cooperative groups tend to be more supportive of each other's feelings and generate more ideas. (Hooper and Hanafin 1988). Studies have shown that low-achieving students can benefit from working cooperatively with high-achieving students (Hooper 1992, Singhanayak and Hooper 1998). In their 1998 study, Singhanayak and Hooper assigned 92 sixth-grade students to group or individual learning treatments, stratified by scores on the Stanford Achievement Test. They found that both low- and high-achieving students assigned to cooperative work groups performed significantly better and had more positive attitudes toward collaborative learning than students working individually, regardless of the amount of learner control. Low achievers showed the greatest improvement in the program-controlled condition. However, high achievers showed the greatest improvement in the learner-controlled condition (Singhanayak and Hooper 1998). Other studies have shown that both low- and high-achieving students can benefit significantly from cooperative learning, when working in teams on a computer-oriented task (Hooper and Temiyakarn 1993).

The current study will further explore how high levels of interaction with the instructor and other students, and reduced flexibility — all traits of the collaborative Online Group model — may impact learner satisfaction.

## **Learning Styles**

One of the largest and most significant bodies of literature on learner satisfaction and achievement relates to learning styles. Studies have found that field-independent learners, who are accustomed to structuring their learning environment, do not need or want much social interaction. They tend to be intrinsically motivated and also tended to score higher on examinations when enrolled in a distance education course (Childress and Overbaugh 2001). Childress and Overbaugh explored the relationship between learning styles and achievement. The subjects, pre-service teachers, were evaluated and sorted into field dependent and field independent conditions. The subjects were then enrolled in either a one-way video or two-way audio course. Childress and Overbaugh found that the field independent learners, those who could impose their own structure to the learning task, did not require the same level of interaction, were more intrinsically motivated, and scored higher on the final exam (Childress and Overbaugh 2001). In the current study, the Online Group model would tend to be more structured, while the Independent Study model would tend to be less structured with respect to pacing and level of interaction.

Differences in learning styles and learning preferences may suggest the need for providing instructional material in multiple formats. However, a learner may erroneously choose one format over another thinking that it will be easier or more flexible than another format. Also, developing and maintaining multiple instructional formats would likely be cost prohibitive (Allen, Bourhis, Burrell, and Mabry 2002).



In another study of 92 students enrolled in either satellite-based synchronous study and 73 students enrolled in a combination of synchronous satellite and asynchronous online instruction, the researchers were surprised to find that both the synchronous satellite and asynchronous mixed groups rated the interaction components as not very important or contributing to their overall learning experience. Students chose the synchronous satellite instruction, but that didn't mean they wanted to take advantage of the opportunity to interact with the classmates (Beth-Marom, Saporta, and Caspi 2005). In their study, Beth-Marom, Saporta, and Caspi administered a learning-habit inclinations questionnaire to 288 subjects enrolled in a synchronous satellite-based research methods course and a mixed learning group of both synchronous satellite-based and an independent study form with pre-recorded discussion. Subjects were asked to respond to items related to: rate of attendance; attitude toward the instructor and the lessons; attitudes toward interacting, or not interacting, with peers; and their attitudes toward distance delivery compared to face-to-face delivery. Subjects in the synchronous satellite course were also asked about their attitudes toward an independent study option. Results showed that: most learners preferred a face-to-face environment over an online environment and two-thirds preferred the flexibility of an independent mode of study over a synchronous, group-based satellite delivery. In both the independent (asynchronous) and satellite group-based (synchronous) versions, subjects said the interaction components were not highly valued or beneficial (Beth-Marom, Saporta, and Caspi 2005).

Results of the Beth-Marom, Saporta, and Caspi study also seem to indicate that subjects did not particularly value the interaction with the instructor — at least in the manner in

which they were conducted by synchronous satellite delivery or asynchronous tape-based delivery. However, in moving the content from live, satellite-based delivery to tape-based delivery, subjects may have viewed their interactions to be learner-content based rather than learner-instructor based. In this study, subjects reported that the highest interaction score was between the learner and the content and was also reported as being the most useful (Beyth-Marom, Saporta, and Caspi 2005).

A study by Gunawardena and Boverie looked at distance education courses that were delivered via audio-graphic and computer-mediated instruction, compared to a traditional face-to-face classroom. The interaction of learning styles, media, method of instruction, group functioning, and support were examined after the Kolb Learning Styles Inventory (1985). A questionnaire was administered to 74 students in a mix of distance education and traditional classrooms (Gunawardena and Boverie 1992). The researchers concluded that learning styles did not impact learners' interaction with media and methods of instruction. Learning styles did impact their satisfaction with the collaborative learning activities, however (Gunawardena and Boverie 1992).

## **Summary**

In summary, the literature shows that learners are motivated by their expectation for success and the perception that success is under his or her control (Keller 1987). Values or preferences, and expectations, determine the amount of effort a learner will put forth. Performance, however, reflects actual accomplishment (Keller 1979). Keller's model suggests that performance is measured through an examination of learning and

satisfaction —the learner’s intrinsic motivation and his or her reaction to extrinsic rewards (Keller 1987). Kirkpatrick’s evaluation model, a standard in business and industry, similarly supports the notion that satisfaction should be the foundation of program assessment (Kirkpatrick 1959, 1960, 1970, 1994, 1996). The body of research on learner satisfaction tells us that learner attitudes toward technology, prior experience, and skill have all been correlated with distance education satisfaction (Allen, Bourhis, Burrell, and Mabry 2002). Learner interaction with well-organized content is consistently cited as being most important (Gunawardena and Duphorne 2000; Conrad 2002; Stein, Wanstreet, Calvin, Overtom, and Wheaton 2005). Learner interaction with the instructor correlates positively with satisfaction (Christopher 1990, Swan 2001, Moore 2002). The literature also suggests that learner interaction with classmates doesn’t always lead to increased satisfaction (Allen, Bourhis, Burrell, and Mabry 2002), and in fact, can decrease satisfaction (Conrad 2002). Similarly, learners expect a well-organized course and expect the instructor to respond in a timely manner (Caswell 1999, Hara and Kling 2000, Conrad 2002, Vonderwell 2003, Dahl 2004, Muirhead 2004). Finally, learners expect and prefer a high degree of flexibility in their distance education course (Garrison and Anderson 2003; Tricker 2003; Aviv 2004; Tennen, Becker, and Kehoe 2005). The body of research on learner preferences suggests that the amount of learner control is another significant variable (Gray 1987; Kinzie, Sullivan, and Berdel 1988; Ross, Morrison, and O’Dell 1988; Freitag and Sullivan 1995; Hannafin and Sullivan 1996; Moore 2002).

## Chapter 3

### *Methodology*

#### **Subjects**

Within the Penn State World Campus, as of June 30 2006, there were approximately 4,000 learners enrolled in independent study courses that are primarily print based. There were another 3,300 learners enrolled in online group courses that require a high level of collaboration and interaction with the instructor and with other students in the course. Subjects for this study were selected from eleven introductory, online group courses: Adult Education 460, Curriculum and Instruction 550, Educational Psychology 421, Educational Technology 400, Geography 482, Instructional Systems 415, Information Sciences and Technology 110, Language and Literacy Education 502, Meteorology 101, Nursing 390, and Turfgrass 230. The courses selected for the current study were all Online Group and highly collaborative. They were also introductory courses — the first course in a program sequence — minimizing the possibility that the learners had previous exposure to the Online Group environment. Seven courses were graduate level. Four courses were undergraduate level. Subjects were recruited through e-mail postings in the eleven Online Group courses.

A total of 106 subjects participated in the study out of a possible 313 enrolled in introductory, online group courses during the summer 2006 semester. Twenty-four of those subjects were eliminated from the study due to their previous distance education experience. Another 19 were eliminated because their pre-course scores were at the

median when subjects were assigned to the congruent or incongruent condition of both variables.

### **Self-Report As a Research Methodology**

Because the population involved in this study did not have the option to select one delivery format over another (independent study versus online group instruction), it was not possible to randomly assign subjects to one condition over another. Instead, learners were sorted into conditions on the basis of their self-reported expectations and preferences in a pre-course survey. It is the nature of learner “expectations,” “preferences,” and “satisfaction” to be self-defined (Smith 2005). Berg summarized that the individual seeks meaning from what he or she observes (Berg 1998). Phenomenology, as a research methodology, is grounded in the belief that “the relationship between perception and its objects is not passive” (Holstein and Gubrium 1994, page 263).

### **Procedure**

Subjects were contacted by e-mail and telephone at the beginning of the academic semester. They were asked to read and sign the consent document and return it by e-mail or fax. They were assured that their participation in the study was optional, their responses would be confidential, and they could elect to drop out of the study at any time. A pre-course survey was developed to explore congruence of learner expectations and preferences for three dimensions of the distance education course: amount of interaction with other students, amount of interaction with the instructor, and flexibility of the course schedule (Appendix A). Based on learner responses to the

pre-course survey, subjects were sorted into the following four conditions: congruent expectations and congruent preferences, congruent expectations and incongruent preferences, incongruent expectations and congruent preferences, incongruent expectations and incongruent preferences.

The pre-course, Likert-type survey was administered to approximately 106 subjects who agreed to participate in eleven Online Group courses during the summer 2006 semester (Table 1). Fourteen subjects, who did not complete the post-course survey (Appendix B), were eliminated from the study. Another 24 subjects were eliminated from the study due to their previous distance education experience.

The final number of valid subjects who participated in the study was 82.

Seven items on the pre-course survey measured student expectations for: level of interaction with other students, level of interaction with the instructor, and flexibility. Another seven items on the pre-course survey measured student preferences for: level of interaction with other students, level of interaction with the instructor, and flexibility. Items with 5-point Likert-type scales were used to measure both expectations and preferences. Learner ratings for each group of seven items were added so that the possible score range was 7 to 35 for each of the two measures. The median score was calculated for both expectations (24) and preferences (22). Subjects with expectation scores greater than 24 were assigned to the congruent expectations condition. Subjects with expectation scores less than 24 were assigned to the incongruent expectations condition. Subjects with preference scores greater than 22 were assigned to the congruent

preferences condition. Subjects with preference scores less than 22 were assigned to the incongruent preferences condition. Learners with scores at the median were dropped from the data set.

**Table 1**  
**Number of Subjects by Course**

<b>Course</b>	<b>Total Enrolled</b>	<b>Total Respondents</b>	<b>Total Participants (No Previous Distance Education Experience)</b>
ADTED 460	16	6	4
CI 550	15	2	2
EDPSY 421	22	13	9
EDTEC 400	19	8	3
GEOG 482	78	33	33
INSYS 415	20	5	2
IST 110	17	4	3
LLED 502	49	13	8
METEO 101	36	15	12
NURS 390	14	5	4
TURF 230	27	2	2
<hr/>			
	313	106	82



At the end of the summer 2006 semester the subjects were contacted by e-mail and telephone and asked to respond to five Likert scale-type items related to satisfaction. This post-course survey (Appendix B) measured subjects' responses on five dimensions of learner satisfaction: satisfaction with distance learning through the World Campus, whether the course met the subjects' educational goals, difficulty in learning course ideas and concepts, instructor responsiveness, and overall satisfaction. These five ratings were summed to construct a single dependent measure of satisfaction and analyzed to determine the impact of learner expectations (congruent versus incongruent) and preference (congruent versus incongruent).

The post-course survey was based on the Flashlight Program, an award-winning project sponsored by the non-profit Teaching and Learning with Technology (TLT) Group (TLT Group 2007, <http://www.tltgroup.org/flashlightP.htm>). The project, which consists of a bank of items measuring student satisfaction, won the 2001 Instructional Telecommunications Council (ITC) Award for Outstanding Innovation in Distance Education. The five items were chosen were the same five items chosen by the Rochester Institute of Technology, Online Learning to assess overall course satisfaction. The Rochester Institute of Technology selected these items from The Flashlight Current Student Inventory. Because the inventory is an item bank, it can't have true validity and reliability — the items may be used by institutions in any order) (TLT Group 2007, <http://www.tltgroup.org/flashlightP.htm>). However, the items do have content validity, having been reviewed by a panel of experts from five pilot institutions. The items were tested for face validity with more than 40 surveys created by five institutions and used

with approximately 2,000 subjects. One of the standard templates created from the bank, Evaluating Educational Uses of the Web in Nursing, was pilot tested at three Nursing programs and was tested for validity and internal reliability. Over a three-year period, the instrument maintained a consistent Cronbach's alpha of .85 to .90.

### **Experimental Design**

The hypothesis was tested by a 2 x 2 factorial design that crossed two levels of learner expectations (congruent versus incongruent) with two levels of learner preference (congruent versus incongruent). The independent variables were congruence of expectations and congruence of preferences for the distance learning environment. The dependent measure was satisfaction. The impact of congruence of expectations and preferences was assessed by a 2 x 2 analysis of variance.

## Chapter 4

### *Results*

This study used a 2 x 2 factorial design to test the hypothesis that learner satisfaction is increased when students are in a distance learning environment that is congruent with their expectations and preferences. The independent variables were congruence of expectations with the learning environment and congruence of preferences, as measured by the pre-course survey. The dependent variable in this study was learner satisfaction, as measured by the post-course survey. This study was piloted in spring 2000. A total of thirteen students participated out of a possible sixty-six. In the pilot study, however, students with previous distance education experience were not screened out. In addition, subjects in the pilot study were contacted only once, toward the end of the course. They were asked to reflect back and report on their expectations and preferences, rather than contacting them at two points — at the beginning of the course and the end of the course — as they were in the current study. In the pilot study previous distance education experience was the only variable that was significant as a predictor of satisfaction with a distance education course. Pilot study subjects who reported that they had taken a distance education course before, in either a collaborative online or an individualistic print-based format, reported that they learned more in the online course ( $r = .684$ ). This may suggest is that those students who had taken distance education courses before may be highly motivated and predisposed to being high performers in online courses. As a result, subjects with previous distance education experience were eliminated from the current study.

In the current study, the results of the pre-course survey were used to sort subjects into two levels (low and high) for both congruence of expectations and congruence of preferences. More specifically, the median was used to separate low and high groups for both variables. The median for congruence of expectations was 24, and the median for congruence of preferences was 22. For both congruence of expectations and preferences, scores below the median were assigned to the low condition, and scores above the median were assigned to the high condition. Learners with scores at the median were dropped from the data set. Nine pre-course scores were at the median for congruence of expectations, and ten pre-course scores were at the median for congruence of preferences. After discarding subjects whose pre-course scores were at the median, data for 63 subjects were retained to test the hypotheses of this study.

The five satisfaction items used in this study were selected from The Flashlight Current Student Inventory. Over a three-year period, the instrument maintained a consistent Cronbach's alpha of .85 to .90 (TLT Group 2007, <http://www.tltgroup.org/flashlightP.htm>). The five items selected for this study from this item bank had a Cronbach's alpha of .73.

Table 2 shows the number of subjects as well as the means and standard deviations of the satisfaction scores for each of the four conditions of the study.

**Table 2**

**Number of Subjects, Means, and Standard Deviations  
of Satisfaction Scores**

*Congruence of Preferences*

<i>Congruence of Expectations</i>	<b>Incongruent Preferences</b>  [Overall Congruence of Preferences < 22]	<b>Congruent Preferences</b>  [Overall Congruence of Preferences > 22]	<b>Total</b>
<b>Incongruent Expectations</b>  [Overall Congruence of Expectations < 24]	Mean = 21.72 SD = 2.51  (n = 25)	Mean = 20.36 SD = 2.16  (n = 11)	Mean = 21.31 SD = 2.46  (n = 36)
<b>Congruent Expectations</b>  [Overall Congruence of Expectations > 24]	Mean = 20.00 SD = 2.94  (n = 5)	Mean = 20.82 SD = 3.29  (n = 22)	Mean = 20.67 SD = 3.14  (n = 27)
<b>Total</b>	Mean = 21.43 SD = 2.56  (n = 30)	Mean = 20.67 SD = 2.93  (n = 33)	Mean = 21.03 SD = 2.76  (n = 63)

Examination of the means in Table 2 indicates incremental differences. A 2 x 2 analysis of variance was used to determine whether any of the differences among the means were significant. The purpose of this analysis was to identify the main and interactive effects of congruence of expectations and congruence of preferences for a distance learning environment on satisfaction. Alpha was set at .05. The results of the ANOVA indicated that none of the differences among the means were significant ( $F = 1.01, p = 0.40$ ). An overview of these results is presented in Table 3. Examination of Table 3 indicates:

- Main effect of congruence of expectations:  $t = 1.35$  ( $p = 0.18$ )
- Main effect of congruence of preferences:  $t = 1.46$  ( $p = 0.15$ )
- Interaction:  $t = 1.28$  ( $p = 0.20$ )

These results indicate that the following null hypotheses for this study should be retained.

More specifically:

Ho1: There will be no significant differences in satisfaction among students when the distance learning environment is congruent, or not congruent, with their expectations.

Ho2: There will be no significant differences in satisfaction among students when the distance learning environment is congruent, or not congruent, with their preferences.

Ho3: There will be no interaction between congruent expectations and congruent preferences on satisfaction among students.

The absence of an interaction indicates that the impact of congruent expectations on satisfaction was not significantly different for students with congruent preferences, relative to students with incongruent preferences.

**Table 3**

**ANOVA Summary Table for the Effects of Congruence of  
Expectations and Preferences on Satisfaction**

<b>Source</b>	<b>df</b>	<b>Sum of Squares</b>	<b>Mean Square</b>	<b>F</b>	<b>Probability</b>
Regression	3	23.08	7.69	1.01	0.40
Residual	59	450.86	7.64		
Total	62	473.94			

<b>Source</b>	<b>t</b>	<b>Probability</b>
Congruence of Expectations	1.35	0.18
Congruence of Preferences	1.46	0.15
Congruence of Expectations x Congruence of Preferences	1.28	0.20



Since the ANOVA did not reveal any significant differences among the mean satisfaction scores, a *post hoc* analysis was conducted to better understand possible relationships between congruence of expectations and preferences and learner satisfaction. More specifically, a correlation matrix of all predictor and criterion measures was examined to identify possible relationships among predictor items that comprised the pre-course survey and the satisfaction items used in the post-course survey. (See Table 4.)

Examinations of the correlations in Table 4 indicates the following significant relationships:

- a. Congruence of expectations for the amount of instructor interaction is related to learner ratings that the course met learner goals ( $r = 0.30$ ).
- b. Congruence of expectations for the amount of instructor interaction is related to learner ratings of satisfaction with the course ( $r = 0.22$ ).
- c. Congruence of expectations for the amount of instructor interaction is related to learner ratings that they were satisfied with the course experience in total ( $r = 0.25$ ).
- d. Congruence of preferences for the amount of instructor interaction is related to learner ratings that the course met learner goals ( $r = 0.22$ ).
- e. Congruence of preferences for the ability to complete assignments on the learner's own time schedule is related to learner ratings that they were satisfied with the course overall ( $r = .30$ ).

- f. Congruence of preferences for the ability to complete assignments on the learner's own time schedule is related to learner ratings that the course met learner goals ( $r = 0.26$ )
- g. Congruence of preferences for the ability to complete assignments on the learner's own time schedule is related to learner ratings that they were satisfied with the course experience in total ( $r = .23$ ).

Considering the number of correlations examined as part of this *post hoc* analysis, these findings must be interpreted with caution. That is, with alpha set at 0.05, it might be expected that six of the 120 correlations shown in Table 3 would be significant simply as a result of chance. Nevertheless, significant correlations in this matrix may suggest hypotheses about potential relationships between learner expectations and preferences and learner satisfaction that may be tested in subsequent controlled studies.

**Table 4**

**Correlation Matrix of All Predictor and Criterion Items**

	Overall Experience	Met Goals	Satisfaction Difficult to Learn	Instructor Promptness	Course Satisfaction	Total [Dependent Variable]
<b>Expectations</b>						
Collaborate Group	.10	.18	.02	.05	.00	.07
Student Interaction	.14	.11	.09	.05	.02	.03
Amount Student Interaction	.03	.05	.05	.10	.02	.04
Amount Instructor Interaction	.12	<b>.30*</b>	.20	.00	<b>.22*</b>	<b>.25*</b>
My Pace	.16	.03	.10	.12	.03	.11
Flexible Assignments	.14	.18	.10	.12	.14	.12
Own Time Schedule	.11	.15	.06	.03	.20	.09
Overall Student Interaction	.09	.15	.05	.04	.00	.06
Overall Flexibility	.07	.02	.11	.02	.02	.04
Overall Congruence [Independent Variable No. 1]	.15	.15	.10	.04	.04	.13
<b>Preferences</b>						
Collaborate Group	.20	.20	.11	.10	.10	.14
Student Interaction	.12	.03	.14	.18	.09	.08
Amount Student Interaction	.07	.10	.02	.10	.10	.02
Amount Instructor Interaction	.10	<b>.22*</b>	.21	.05	.17	.18
My Pace	.14	.10	.00	.20	.10	.12
Flexible Assignments	.13	.07	.06	.10	.10	.10
Own Time Schedule	<b>.30*</b>	<b>.26*</b>	.00	.10	.18	<b>.23*</b>
Overall Student Interaction	.13	.08	.01	.07	.10	.10
Overall Flexibility	.04	.10	.02	.01	.02	.03
Overall Congruence [Independent Variable No. 2]	.07	.04	.05	.02	.07	.07

\* p < 0.05

After the *post hoc* analysis was conducted to better understand possible relationships between congruence of expectations and preferences and learner satisfaction, a series of ten chi square analyses were performed to better understand the spread of scores for each of the five individual satisfaction measures that were combined in the dependent variable for both congruent versus incongruent expectations and congruent versus incongruent preferences. More specifically, a chi square analysis was performed on the following post-course survey items: overall satisfaction, met goals, difficult to learn, instructor promptness, and the course satisfaction rating. (See Table 5.)

**Table 5**  
**Chi Square Analysis**  
**Distribution of Satisfaction Scores**

**Overall Satisfaction x Congruence of Expectations**

	1	2	3	4	5	
Overall Congruent Expectations (>24)	2	1	1	11	12	= 27
Overall Incongruent Expectations (<24)	0	0	1	23	12	= 36
$X^2 = 6.07$ df = 4						p > 0.05

**Overall Satisfaction x Congruence of Preferences**

	1	2	3	4	5	
Overall Congruent Preferences (>22)	0	2	1	19	11	= 33
Overall Incongruent Preferences (<22)	1	0	1	15	13	= 30
$X^2 = 3.50$ df = 4						p > 0.05

**Met Goals x Congruence of Expectations**

	1	2	3	4	5	
Overall Congruent Expectations (>24)	1	1	0	15	10	= 27
Overall Incongruent Expectations (<24)	0	0	1	23	12	= 36
$X^2 = 3.65$ df = 4						p > 0.05

**Met Goals x Congruence of Preferences**

	1	2	3	4	5	
Overall Congruent Preferences (>22)	1	1	1	18	12	= 33
Overall Incongruent Preferences (<22)	0	0	0	20	10	= 30
$X^2 = 3.15$ df = 4						p > 0.05

**Table 5**  
**Chi Square Analysis**  
**Distribution of Satisfaction Scores (*continued*)**

**Difficult to Learn x Congruence of Expectations**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Expectations (>24)	0	3	0	16	8	= 27
Overall Incongruent Expectations (<24)	0	2	1	22	11	= 36
$X^2 = 1.36$ df = 4						p > 0.05

**Difficult to Learn x Congruence of Preferences**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Preferences (>22)	0	4	1	19	9	= 33
Overall Incongruent Preferences (<22)	0	1	0	19	10	= 30
$X^2 = 2.72$ df = 4						p > 0.05

**Instructor Promptness x Congruence of Expectations**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Expectations (>24)	1	1	2	12	11	= 27
Overall Incongruent Expectations (<24)	1	0	2	17	16	= 36
$X^2 = 1.53$ df = 4						p > 0.05

**Instructor Promptness x Congruence of Preferences**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Preferences (>22)	1	0	2	16	14	= 33
Overall Incongruent Preferences (<22)	1	1	2	13	13	= 30
$X^2 = 1.21$ df = 4						p > 0.05

**Table 5**  
**Chi Square Analysis**  
**Distribution of Satisfaction Scores (*continued*)**

<b>Satisfaction Rating x Congruence of Expectations</b>						
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Expectations (>24)	0	1	3	14	9	= 27
Overall Incongruent Expectations (<24)	0	1	4	17	14	= 36
$X^2 = 0.24$ $p > 0.05$ $df = 4$						

<b>Satisfaction Rating x Congruence of Preferences</b>						
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Preferences (>22)	0	1	6	16	10	= 33
Overall Incongruent Preferences (<22)	0	1	1	15	13	= 30
$X^2 = 3.86$ $p > 0.05$ $df = 4$						

The results of the chi square analysis did not show any significant differences in the spread of scores between the congruent versus incongruent conditions for either expectations or preferences. For each of the five items that comprised the dependent measure, examination of the distribution of ratings indicates that the majority of subjects tended to have congruent expectations and congruent preferences regardless of whether they were in the congruent or incongruent conditions.

Examination of the frequencies for each step of the ratings scale for satisfaction revealed an uneven distribution of scores for all of the items, with relatively few ratings at the low end of the scale. Consequently, ratings of 1, 2, and 3 were collapsed and an additional series of 10 chi squares were computed for each item in order to determine whether the distribution of ratings differed for congruent versus incongruent expectations and congruent versus incongruent preferences. The results, shown in Table 6, indicate that none of the chi squares were significant (see Table 6), so the null hypothesis was retained for all of the 10 pre-course survey items, indicating that the distribution of ratings was not significantly different for learners with congruent versus incongruent expectations and congruent versus incongruent preferences.



**Table 6**  
**Chi Square Analysis**  
**Distribution of Satisfaction Scores**

**Overall Satisfaction x Congruence of Expectations**

	<b>1-3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Expectations (>24)	4	11	12	= 27
Overall Incongruent Expectations (<24)	1	23	12	= 36
$X^2 = 4.85$ $p > 0.05$ $df = 2$				

**Overall Satisfaction x Congruence of Preferences**

	<b>1-3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Preferences (>22)	3	19	11	= 33
Overall Incongruent Preferences (<22)	2	15	13	= 30
$X^2 = 0.70$ $p > 0.05$ $df = 2$				

**Met Goals x Congruence of Expectations**

	<b>1-3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Expectations (>24)	2	15	10	= 27
Overall Incongruent Expectations (<24)	1	23	12	= 36
$X^2 = 0.93$ $p > 0.05$ $df = 2$				

**Met Goals x Congruence of Preferences**

	<b>1-3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Preferences (>22)	3	18	12	= 33
Overall Incongruent Preferences (<22)	0	20	10	= 30
$X^2 = 3.15$ $p > 0.05$ $df = 2$				

**Table 6**  
**Chi Square Analysis**  
**Distribution of Satisfaction Scores (*continued*)**

**Difficult to Learn x Congruence of Expectations**

	<b>1-3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Expectations (>24)	3	16	8	= 27
Overall Incongruent Expectations (<24)	3	22	11	= 36
$X^2 = 0.14$ $p > 0.05$ $df = 2$				

**Difficult to Learn x Congruence of Preferences**

	<b>1-3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Preferences (>22)	5	19	9	= 33
Overall Incongruent Preferences (<22)	1	19	10	= 30
$X^2 = 2.58$ $p > 0.05$ $df = 2$				

**Instructor Promptness x Congruence of Expectations**

	<b>1-3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Expectations (>24)	4	12	11	= 27
Overall Incongruent Expectations (<24)	3	17	16	= 36
$X^2 = 0.66$ $p > 0.05$ $df = 2$				

**Instructor Promptness x Congruence of Preferences**

	<b>1-3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Preferences (>22)	3	16	14	= 33
Overall Incongruent Preferences (<22)	4	13	13	= 30
$X^2 = 0.35$ $p > 0.05$ $df = 2$				

**Table 6**  
**Chi Square Analysis**  
**Distribution of Satisfaction Scores (*continued*)**

**Satisfaction Rating x Congruence of Expectations**

	<b>1-3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Expectations (>24)	4	14	9	= 27
Overall Incongruent Expectations (<24)	5	17	14	= 36
$X^2 = 0.21$ $p > 0.05$ $df = 2$				

**Satisfaction Rating x Congruence of Preferences**

	<b>1-3</b>	<b>4</b>	<b>5</b>	
Overall Congruent Preferences (>22)	7	16	10	= 33
Overall Incongruent Preferences (<22)	2	15	13	= 30
$X^2 = 3.07$ $p > 0.05$ $df = 2$				

## **Chapter 5**

### ***Discussion***

In this study, no significant differences in learner satisfaction were found for congruence of expectations or preferences for the online learning environment. These results are not consistent with prior research exploring the impact of congruent learner expectations and preferences on satisfaction. For example, in a study that examined learning styles, media, instructional design models, and collaboration, Gunawardena and Boverie found that although learning styles did not affect the way students interacted with each other, learning styles did have an impact on satisfaction. Students with a learning style that was more congruent with a preference for class discussions and group collaboration were more satisfied with their distance education course (Gunawardena and Boverie 1992). In addition, Stein, Wanstreet, Calvin, Overtoom, and Wheaton found that when learners were satisfied with the course structure, they reported greater satisfaction with the course overall and with the knowledge gained (Stein, Wanstreet, Overtoom, and Wheaton 2005).

Failure to obtain significance in the current study may be related to several factors including: design of the experiment, instrumentation, the subjects, instructional content, and instructional technology. With respect to experimental design, the current study may have been limited by the homogeneity of courses. That is, courses selected for this study were uniformly high in terms of learner interaction with both other students and the instructor. Substantial prior research indicates that learner satisfaction generally increases with greater interaction with both the instructor and other students (Moore and Kearsley

1996; Kanuka, Collett, and Caswell 2002; Stein, Wanstreet, Calvin, Overtoom, and Wheaton 2005). The high level of interaction found in the courses used in this study may have had such a large positive impact on learner satisfaction that it masked the effect of differences in congruence of expectations and preferences. To control for this possible effect in future research, courses should sample the entire range of possibilities in terms of interaction with both the instructors and other students. For example, courses should systematically represent each cell in Table 7.

**Table 7**

**Range of Courses Recommended for Future Research**

<b>Level of Student Interaction</b>	<b>Level of Instructor Interaction</b>		
	Low	Medium	High
Low	X	X	X
Medium	X	X	X
High	X	X	X

A second shortcoming of the design may have involved the homogeneity of the subjects. More specifically, subjects assigned to the congruent or incongruent condition were separated only by the median. As a result, learners with a score just one point below the median were assigned to the low group while learners one point above the median were assigned to the high group. So learners just two points apart were in different groups. The low and high groups for each independent variable were not sufficiently dissimilar. In future research, to increase sensitivity to independent variable effects, pre-course data should be gathered from enough students so that they can be separated into about three equal-sized groups for each independent variable. Then, learners in the middle group could be discarded. With such a design, the low and high groups would be substantially different from one another. Presumably, this experimental design would maximize sensitivity to detecting the differential impact between low and high learner expectations and preferences on satisfaction.

Failure to obtain significance may also be related to at least three aspects of the instrumentation used in the current study. First, there may have been a problem with the construction of the instrument used to measure both the independent and dependent variables. Perhaps the seven items used to measure congruence of expectations and congruence of preferences are not additive. Likewise, perhaps learner ratings of the five items used to assess satisfaction do not sum in an additive fashion to reflect overall satisfaction as defined in this study. That is, perhaps congruence of expectations and/or preferences for some aspects of the course had a differential impact on learners' ratings for some of the items purported to measure satisfaction, but not others. In order to

examine these relationships, the correlations between all items from the pre-course survey (predictor measures) and the post-course survey (dependent measures) were computed and examined as part of a *post hoc* analysis.

Examination of these correlations suggests seven potential relationships: between congruence of expectations for the amount of instructor interaction and learner ratings that the course met learner goals ( $r = 0.30$ ); between congruence of expectations for the amount of instructor interaction and learner ratings of course satisfaction ( $r = 0.22$ ); between congruence of expectations for instructor interaction and learner ratings that they were satisfied with the course experience in total ( $r = 0.25$ ); between congruence of preference for the amount of instructor interaction and learner ratings that the course met learner goals ( $r = 0.22$ ); between congruence of preferences for the ability to complete assignments on the learner's own time schedule and learner rating that they were satisfied with the course overall ( $r = 0.30$ ); between congruence of preferences for the ability to complete assignments on the learner's own time schedule and learner ratings that the course met learner goals ( $r = 0.26$ ); and between congruence of preferences for the ability to complete assignments on the learner's own time schedule and learner ratings that they were satisfied with the course experience in total ( $r = 0.23$ ).

Four of these seven significant correlations suggest that future studies might focus on the effect of learner expectations and preferences for amount of instructor interaction on satisfaction with meeting learner goals. These correlations are consistent with extensive prior research showing that higher levels of instructor interaction are positively correlated



with learner satisfaction and learning outcomes (Moore and Kearsley 1996; Kanuka, Collett, and Caswell 2002; Stein, Wanstreet, Calvin, Overtoom, and Wheaton 2005).

Likewise, future studies might also explore the impact of preferences for completing assignments on the learner's own time schedule on satisfaction in general, and more specifically, on learner ratings that the course met their goals. Three correlations in the current study suggest relationships that are consistent with several prior studies that show course flexibility and convenience is highly correlated with learner satisfaction and with learner goals (Conrad 2002; Brown, Kirkpatrick, and Wrisley 2003; Aviv 2004; Beyth-Marom, Saporta, and Caspi 2005).

A second problem with the instrumentation in the current study may involve the sensitivity of the items on the pre-course survey. More specifically, failure to achieve significance may also have occurred because the pre-course expectations and preferences items were not sensitive enough to tease out subtle differences in expectations and preferences for the types of interaction with the instructor and fellow students and the amounts of flexibility in the online course. For example, learners may have an expectation or preference for certain types of interaction, perhaps related to the instructional content, but not other types such as social or administrative (Conrad 2002).

Future studies might explore more dimensions of learner expectations and preferences for the amount of instructor interaction as they relate to learner satisfaction. How frequently do learners expect or prefer to interact with their instructor? How lengthy or detailed

should those interactions be? Should the quantity and quality of the instructor interaction be the same at the beginning, middle, and end of the course?

A third concern about instrumentation involves questions about the reliability of the expectation and preference measures used in the current study. The Gunawardena and Boverie study (1992) selected measures from existing, validated research on learning styles. Childress and Overbaugh (2001) selected measures from the research on field dependence, which is also well established in the literature. Stein, Wanstreet, Calvin, Overtoom, and Wheaton (2005) established content validity on their measures through a field test. All three studies chose independent measures, with established reliabilities based on a review of the literature. The pre-course survey used for this study was developed rather than selected because existing instruments were not available due to the very limited body of prior research on congruence of expectations and preferences.

In addition to design and instrumentation concerns, failure to achieve significance may also have occurred due to differences in the types of subjects recruited. Subjects in the Childress and Overbaugh (2001) study were pre-service teachers who had completed, or nearly completed, undergraduate degree programs. These subjects were more homogeneous in terms of academic discipline and education level than the subjects in the current study. Subjects in the Childress and Overbaugh (2001) study also may have been more experienced learners, better able to discern and articulate their expectations and preferences for distance learning. Twenty-six percent of the subjects in the current study were undergraduate students. The subjects for the Stein, Wanstreet, Calvin, Overtoom,

and Wheaton (2005) study were a mix of undergraduate and graduate students, as were the subjects in the current study. However, the attrition rate for the Stein, Wantreet, Calvin, Overtoom, and Wheaton (2005) study was high with only 34 subjects completing the survey instrument out of a possible 201 (17 percent response rate). The response rate for the current study was twice as high, with 106 respondents out of 313 – a 34 percent response rate – although 24 subjects were later dropped from the current study due to their previous distance education experience and 19 subjects were dropped whose pre-course scores were at the median. It is possible that students whose learning styles were not congruent with the course format also chose not to participate in or complete the Stein, Wanstreet, Calvin, Overtoom, and Wheaton (2005) study. If fewer incongruent or dissatisfied students participated in the Stein, Wanstreet, Calvin, Overtoom, and Wheaton (2005) study, the likelihood of obtaining significance might have been increased.

A final possible explanation for the failure to obtain significance in the current study may involve differences in instructional content and/or instructional technology. The Gunawardena and Boverie (1992) study examined the relationship between learning styles, media, method of instruction, and group functioning for the same material in an audio-conference format. The Childress and Overbaugh (2001) study compared subjects in different versions of the same course: one-way video versus two-way audio computer literacy course. In contrast, the present study featured several different courses. As a result, by holding instructional content constant, the two prior studies might have better controlled for variance attributed to differences in the instructional content itself.

It is also possible that the learners' familiarity or comfort-level with instructional technology may have been a factor. Learners with better technology skills may have more easily overcome any gaps in their expectations and preferences for the online learning environment. Numerous studies have shown that learners with a high degree of apprehension or negative experiences or attitudes toward instructional technology report lower levels of satisfaction levels (Beyth-Marom, Saporta, and Caspi 2005; Allen, Bourhis, Burrell, and Mabry 2002). Familiarity or comfort-level with technology was not a variable that was controlled in this study. Future research might examine the impact of learner technology skills in bridging any possible gaps in congruent expectations or preferences.

## **Conclusion**

Key studies have shown that students with a learning style that was congruent with group collaboration strategies were more satisfied with their distance education course (Gunawardena and Boverie 1992) and that satisfaction with course structure was related to overall satisfaction and knowledge gained (Stein, Wanstreet, Overtom, and Wheaton 2005). Despite these findings, in the current study, no significant differences in learner satisfaction were found for congruence of expectations or preferences for the online learning environment. Failure to obtain significance in the current study may be related to the design of the experiment, instrumentation, the selection of subjects, and differences in the types of instructional content and technology.

*A post hoc* analysis of the correlations between the predictor and dependent measures did suggest seven potential relationships. Four of these correlations suggest that there is a relationship between learner expectations and preferences for the amount of instructor interaction and learner ratings of satisfaction and met learner goals. These correlations are consistent with prior research that shows that high levels of instructor interaction correlate positively with satisfaction and learning outcomes (Moore and Kearsley 1996; Kanuka, Collett, and Caswell 2002; Stein, Wanstreet, Calvin, Overtom, and Wheaton 2005). Another three correlations in the current study suggest a relationship between learner preferences for completing assignments on their own time schedule and learner ratings of satisfaction and met learner goals. These correlations are also consistent with previous studies (Conrad 2002; Brown, Kirkpatrick, and Wisely 2003; Aviv 2004; Beyth-Marom, Saporta, and Caspi 2005).

Keller's ARCS Model (Keller 1979, 1983, 1987) suggests that well-designed instruction increases learning and performance when the learner is motivated to complete the instruction. Keller's model also suggests that if instruction is consistent with learner expectations, is relevant, and learners have confidence in their ability to succeed — they will put forth more effort and will be more satisfied with the outcome. Although the current study did not find significant differences in learner satisfaction when learner expectations or preferences were congruent, these findings do not necessarily invalidate Keller's model.

Future studies might further explore motivation as it relates to various learner demographics: adult learners versus traditional-age students, undergraduate students versus graduate students, full-time students versus part-time students. Are there a set of characteristics related to any of these groups that might reliably measure expectations, preferences, or motivation and predict effort or satisfaction? It is possible that adult learners, for instance, may be so innately motivated that any gap in learner expectations or preferences has a marginal effect on effort? Future studies might also probe the constancy of expectations and preferences. To what extent might they change over time for various learners? The body of established research on expectations, overall, is very slim. The current study is one modest step in that direction.

## References

- Abernathy, D.J. (2004). Thinking outside the evaluation box. Eli Jones & Associates.
- Alderman, D.L. and Mahler, W.A. (1973). The evaluation of PLATO and TICCIT: Educational analysis of the community college components. Princeton Educational Testing Services.
- Allen, M., Bourhis, J., Burrell, N., and Mabry, E. (2003). Comparing student satisfaction with distance education to traditional classrooms in higher education: A meta-analysis. *The American Journal of Distance Education*, 16 (2): 83-97. Lawrence Erlbaum Associates, Inc.
- Alliger, G. and Janak, E. (1989). Kirkpatrick's levels of training criteria: Thirty years later. *Personnel Psychology*, 42 (3): 331-342.
- Anderson, Reynolds, Schallert, and Goetz. (1977). Frameworks for comprehending discourse. *The American Educational Research Journal*, 14, 367-381.
- Aviv, R. (2004). Why do students take online courses? *Sloan-C View* 3 (10): 5. Sloan Consortium.
- Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of Social and Clinical Psychology*, 4: 359-373.

- Bartlett, F.C. (1932). *Remembering: A Study in Experimental and Social Psychology*.  
London: Cambridge University Press.
- Bassi, L.J., Benson, G., and Cheney, S. (1996). The top ten trends. *Training and Development*, 50 (11): 28-42.
- Beatty, M.J. (1987). Communication apprehension as a determinant of avoidance, withdrawal, and performance anxiety. *Communication Quarterly*, 35: 202-207.
- Beatty, M.J. (1988). Situational and pre-dispositional correlates of public speaking anxiety. *Communication Education*, 37: 28-39.
- Berg, B.L. (1998). *Qualitative Research Methods for the Social Sciences*. (Third edition).  
Boston, MA: Allyn and Bacon.
- Berlyne, D. E. (1965). Motivational problems raised by exploratory and epistemic behavior. In S. Koch (Ed.), *Psychology: A Study of Science*, (5). New York: McGraw-Hill.
- Beyth-Marom, R., Saporta, K., and Caspi, A. (2005). Synchronous vs. asynchronous tutorials: Factors affecting students' preferences and choices. *Journal of Research on Technology in Education*. Spring 2005, 37 (3): 245-262.



Blignaut, S. and Trollip, S.R. (2003). Developing a taxonomy of faculty participation in asynchronous learning environments – An exploratory investigation. *Computers & Education*, 41 (2): 149-172. Elsevier, Ltd.

Boring, E.G. (1950.) *A History of Experimental Psychology*. New York: Appleton-Century-Crofts.

Boyle, M.A. and Crosby, R. (1997). Academic program evaluation: Lessons from business and industry. *Journal of Industrial Teacher Education*, 34 (3).

Bransford, J.D. and Johnson, M.K. (1972). Contextual prerequisites for understanding: some investigations of comprehension and recall. *Journal of Verbal Learning and Verbal Behavior*, 11, 717-726.

Brown, S.T., Kirkpatrick, M.K., and Wisely, C. (2003). Evaluative parameters of a web-based nursing course from the learners' perspectives. *Journal of Nursing Education*, 42 (3): 134-137. Thorofare.

Bruner, J. (1990). *Acts of Meaning*. Cambridge, MA: Harvard University Press.

Burgoon, J.K. and Le Poire, B.A. (1993). Effects of communication expectancies, actual communication, and expectancy disconfirmation on evaluations of communicators and their communication behavior. *Human Communication Research*, 20: 67-96.

Cascio, W. (1987). *Applied Psychology in Personnel Management* (Third Edition). Englewood Cliffs: Prentice-Hall.

Childress, M.D. and Overbaugh, R.C. (2001). The relationship between learning style and achievement in a one-way video, two-way audio pre-service teacher education computer literacy course. *International Journal of Educational Telecommunications*, 7 (1): 57-71.

Christopher, C. (1990). The relationship among teacher immediacy behaviors, student motivation, and learning. *Communication Education*, 39 (4): 223-240.

Cobb, P. (1994). Where is the mind? Constructivist and socio-cultural perspectives on mathematical development. *Educational Researcher*, 23: 13-20.

Condry, J. (1977). Enemies of exploration: Self-initiated versus other-initiated learning. *Journal of Personality and Social Psychology*, 35: 459-477.

Conrad, D.L. (2002). Engagement, excitement, anxiety, and fear: Learners' experiences of starting an online course. *The American Journal of Distance Education*, 16 (4): 205-226. Lawrence Erlbaum Associates, Inc.

Davies, S. (2002). Marketing in higher education: Matching promises and reality to expectations. *Responding to Student Expectations, OECD Report*: 103-114.

Dahl, J. (2004). Strategies for 100 percent retention: Feedback, interaction. *Distance Education Report*, 8 (16): 1-4. Retrieved July 16, 2005, from Gallileo.

Deci, E.L. (1975). *Intrinsic Motivation*. New York: Plenum Press.

Deci, E.L. and Porac, J. (1978). Cognitive evaluation theory and the study of human emotion. In M.R. Lepper and D. Greene (Eds.) *The Hidden Costs of Reward*. Hillsdale, N.J.: Lawrence Erlbaum Associates.

Deutsch, W. (1949). A Theory of cooperation and competition. *Human Relations*, 2: 129-159.

Deutsch, W. (1962). Cooperation and trust: Some theoretical notes. In M.R. Jones, (Ed.) *Nebraska Symposium on Motivation*: 275-319. Lincoln, NE: University of Nebraska Press.

Dobos, J.A. (1992). Collaborative learning: Effects of student expectations and communication apprehension on student motivation. *Communication Education*, 45 (April): 118-134.

Duffy, T.M. and Cunningham, D.J. (1996). Constructivism: Implications for the design and delivery of instruction. In D.H. Johnassen (Ed.) *Handbook of Research for Educational Communications and Technology*: 186-187. Simon & Schuster Macmillan: New York.

Edelson, P.J. and Pittman, V.V. (2001). E-learning in the United States: New directions and opportunities for university continuing education. Professional Development Research Center at the State University of New York at Stony Brook. February 2001, from [http://www.sunysb.edu/spd/dean\\_papers/newdelhi.rtf](http://www.sunysb.edu/spd/dean_papers/newdelhi.rtf)

Erickson, K.A. and Simon, H.A. (1984). *Protocol Analysis: Verbal Reports as Data*. Cambridge, MA: MIT Press.

Feather, N.T. (1975). *Values in Education and Society*. New York: The Free Press.

Freitag, E.T. and Sullivan, H.J. (1995). Matching learner preference for amount of instruction: An alternative form of learner control. *Educational Technology Research and Development*, 43 (2): 5-12.

Garrison, D.R. and Anderson, T. (2003). *E-learning in the 21<sup>st</sup> Century: A Framework for Research and Practice*. London, UK: RoutledgeFarmer.

Garrison, J.W. (1994). Realism, Deweyan pragmatism, and educational research. *Educational Researcher*, 23 (1): 5-14.

Gentry, J. and Helgesen, M. (1999). Using learning style information to improve the core financial management course. *Financial Practice and Education*, (Spring/Summer): 59-69.

Gibson, C. C. and Graff, A. O. (1992). Impact of adults' preferred learning styles and perception of barriers on completion of external baccalaureate degree programs. *Journal of Distance Education*, 7 (1).

Gray, S.H. (1987). The effect of sequence control on computer assisted learning. *Journal of Computer-Based Instruction*, 14 (2): 54-56.

Gunawardena, C.N. and Boverie, P.E. (1992). Interaction of learning style and media, method of instruction, and group functioning in distance learning. *Proceedings of the Eighth Annual Conference on Distance Teaching and Learning*: 65-69.  
Madison, WI: University of Wisconsin, Madison.

Gunawardena, C.N. and Zittle, F.J. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *The American Journal of Distance Education*, 11 (3): 8-25.

Gunawardena, C.N. and Duphorne, P.L. (2000). Predictors of learner satisfaction in an academic computer conference. *Distance Education*, 21 (1): 101-117.

Hannafin, R.D. and Sullivan, H.J. (1996). Preferences and learner control over amount of instruction. *Journal of Educational Psychology*, 88 (1): 12-173.

Hara, N. and Kling, K. (2002). Student distress with a web-based distance learning course: An ethnographic study of participants' experiences. Available: <http://www.slis.indiana.edu/CSI/WP/wp00-01B.html>

Heywood, J. (1546). *The proverbs of John Heywood*. Julian Sharman (Ed.).

Hintze, H., Mohr, H., and Wenzel, A. (1988). Students' attitudes towards control methods in computer-assisted instruction. *Journal of Computer-Assisted Learning*, 4 (1): 3-10.

Holstein, J.A. and Gubrium, J.F. (1994). Phenomenology, ethnomethodology, and interpretive practice. In N.K. Denzin and Y.S. Lincoln (Eds.), *Handbook of Qualitative Research*: 262-272. Thousand Oaks, CA.: Sage Publications, Inc.

- Holton III, E. (1996a). The flawed four-level evaluation model. *Human Resource Development Quarterly*, 7 (1): 15-21.
- Holton III, E. (1996b). Final word: Response to reaction to Holton article. *Human Resource Development Quarterly*, 7 (1): 27-29.
- Hooper, S. and Hanafin, M.J. (1988). Cooperative CBI: The effects of heterogeneous versus homogeneous grouping on the learning of progressively complex concepts. *Educational Computing Research*, 4 (4): 413-424.
- Hooper, S. (1991). The effects of group composition on achievement, interaction, and learning efficiency during computer-based cooperative instruction. *Educational Technology Research and Development*, 39 (3): 27-40.
- Hooper, S. (1992). Cooperation, learning and computer-based instruction. *Educational Technology Research and Development*, 40 (3): 21-38.
- Hooper, S. and Temiyakarn, C. (1993). The effects of cooperative learning and learner control on high- and average-ability students. *Educational Technology Research and Development*, 41 (2): 5-12.

- Igoe, A.R. (1993). Learner control over instruction and achievement goals in computer-assisted instruction. Unpublished doctoral dissertation, Arizona State University, Tempe.
- Jensen, M., Johnson, D.W., and Johnson, R.T. (2002). Impact of positive interdependence during electronic quizzes on discourse and achievement. *The Journal of Educational Research*, 95 (3): 161-166.
- Jensen, T., Riley, E., and Santiago, J. (2005). Student expectations of instructor availability in the online classroom. Available: [http://sscel.maconstate.edu/proceedings\\_2005/proceedings\\_05/student\\_expectations.pdf](http://sscel.maconstate.edu/proceedings_2005/proceedings_05/student_expectations.pdf)
- Johnson, D.W. and Johnson, R.T. (1994). Effects of cooperative versus individualized instruction on student pro-social behavior, attitudes toward learning, and achievement. *Journal of Educational Psychology*, 64 (4): 446-452.
- Johnston, J.E. (1975). *Behavior Research and Technology in Higher Education*. Charles C. Thomas (Ed.). Springfield, Ill.
- Kanuka, H., Collett, D., and Caswell, C. (2002). University instructor perceptions of the use of asynchronous text-based discussion in distance courses. *The American Journal of Distance Education*, 16 (3): 151-167.



Kaufman, R. and Keller, J. (1994). Levels of evaluation: Beyond Kirkpatrick. *Human Resource Development Quarterly*, 5 (4): 371-380.

Kaufman, R., Keller, J., and Watkins, R. (1995). What works and what doesn't: Evaluation beyond Kirkpatrick. *Performance and Instruction*, 35 (2): 8-12.

Keller, J. M. (1979). Motivation and instructional design: A theoretical perspective. *Journal of Instructional Development*, 2 (4): 26-34.

Keller, J.M. (1983). Motivational design of instruction, in C. Reigeluth (Ed.), *Instructional Design Theories and Models: An Overview of the Current Status*, 383-434. New Jersey: Lawrence Erlbaum Associates, Inc.

Keller, J.M. (1987a). Development and use of the ARCS model of instructional design. *Journal of Instructional Development*, 10 (3): 2-10.

Keller, J.M. (1987b). Strategies for stimulating the motivation to learn. *Performance and Instruction*, 26 (8): 1-7.

Keller, J.M. (1987c). The systematic process of motivational design. *Performance and Instruction*, 26 (9): 1-8.

Keller, J.M. and Kopp, T. (1987). An application of the ARCS model of motivational design. In C.M. Reigeluth (Ed.) *Instructional Theories in Action: Lessons Illustrating Selected Theories and Models*, 289-320. Hillsdale, N.J.: Lawrence Erlbaum Associates, Inc.

Keller, J.M. and Suzuki, K. (1987). Use of the ARCS motivation model in courseware design. In D.H. Jonassen (Ed.) *Instructional Designs for Microcomputer Courseware*, 409-434. Hillsdale, N.J.: Lawrence Erlbaum Associates, Inc.

Kinzie, M.B. and Sullivan, H.J. (1989). Continuing motivation, learner control, and CAI. *Educational Technology Research and Development*, 37 (2): 5-14.

Kinzie, M.B., Sullivan, H.J., and Berdel, R.L. (1988). Continuing motivation, learner control, and CAI. *Educational Technology Research and Development*, 37 (2): 5-14.

Kirkpatrick, D.L. (1959a). Techniques for evaluating training programs. *Journal of ASTD*, 13 (11): 3-9.

Kirkpatrick, D.L. (1959b). Techniques for evaluating training programs: Part 2 – Learning. *Journal of ASTD*, 13 (12): 21-26.

- Kirkpatrick, D.L. (1960a). Techniques for evaluating training programs: Part 3 – Behavior. *Journal of ASTD*, 14 (1): 13-18.
- Kirkpatrick, D.L. (1970b). Techniques for evaluating training programs: Part 4 – Results. *Journal of ASTD*, 14 (2): 28-32.
- Kirkpatrick, D.L. (1994). *Evaluating Training Programs: The Four Levels*. Berrett-Koehler Publishers.
- Kirkpatrick, D.L. (1996). Evaluation. In R.L. Craig and L.R. Bittel (Eds.), *Training & Development Handbook*. American Society for Training and Development, New York: McGraw-Hill.
- Lave, J. and Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge University Press.
- Magnusson, D. (1998). The logic and implications of a person-oriented approach. In R. Cairns, L. Bergman and J. Kagan (Eds.), *Methods and Models for Studying the Individual: Essays in Honor of Marian Radke-Yarrow*: 33-64. Thousand Oaks, CA: Sage.

Magnusson, D. and Stattin, H. (1998). Person-context interaction theories. In W. Damon (Series Ed.) and R. M. Lerner, *Handbook of Child Psychology*, Vol. 1, *Theoretical Models of Human Development* (Fifth Edition): 685-759. New York: Wiley.

Maslow, A.H. (1954). *Motivation and Personality*. New York: Harper & Row.

McClelland, D.C. (1976). *The Achieving Society*. New York: Irvington Publishers.

McCroskey, J.C. (1984). The communication apprehension perspective. In J.A. Daly (Eds.), *Avoiding Communication: Shyness, Reticence, and Communication Apprehension*: 13-38. Beverly Hills, CA: Sage.

McCroskey, J.C. and Beatty, M.J. (1984). Communication apprehension and accumulated communication state anxiety experiences: A research note. *Communication Monographs*, 51: 79-84.

Moore, M. G. and Kearsley, G. (1996). *Distance Education: A Systems View*. Belmont, CA: Wadsworth.

Moore, M.G. (2002). What does research say about the learners using computer-mediated communication in distance learning? *The American Journal of Distance Education* 16 (2): 61-64. Lawrence Erlbaum Associates, Inc.

Murphy, K.L. and Cifuentes, L. (2001). Using web tools, collaborating, and learning online. *Distance Education*, 22 (2): 285-306. Melbourne.

Muirhead, B. (2004). Research insights into interactivity. Available:  
[http://www.itdl.org/Journal/Mar\\_04/article05.htm](http://www.itdl.org/Journal/Mar_04/article05.htm)

Nash, R. D. (2005). Course completion rates among distance learners: Identifying possible methods to improve retention. *Online Journal of Distance Learning Administration*, 8 (4): Winter 2005. University of West Georgia, Distance Education Center.

Naugle, K.A., Naugle, L.B., and Naugle, R.J. (2000). Kirkpatrick's evaluation model as a means of evaluating teacher performance. *Education*, 121 (1): 135-144.

Neisser, U. (1976). *Cognition and Reality*. San Francisco, CA: Freedman.

Palloff, R.M. and Pratt, K. (2003). *Virtual Student: A Profile and Guide to Working with Online Learners*. San Francisco, CA: Jossey-Bass.

Palmgreen, P. and Rayburn, J.D. (1985). A comparison of gratification models of media satisfaction. *Communication Monographs*, 52: 334-346.

- Pavio, A. (1974). Language and knowledge of the world. *Educational Researcher*, 3 (9): 5-12.
- Piaget, J. (1968). The role of the concept of equilibrium. In D. Elkind (Ed.), *Six Psychological Studies by Jean Piaget*. New York: Vintage.
- Piaget, J. (1977). *The Development of Thought: Equilibrium of Cognitive Structures*. New York: Viking.
- Pintrich, P. (2000). *Journal of Educational Psychology*. American Psychological Association, Inc. 92 (3), Sept. 2000: 544-555.
- Pittman, V.V. (2002). Interview: Speaking personally with Von Pittman. *The American Journal of Distance Education*, 16 (2): 115-123. Lawrence Erlbaum Associates, Inc.
- Quality on the Line: Benchmarks for Success in Internet-Based Distance Education*. (2000). A Report by The Institute for Higher Education Policy. Supported by Blackboard and the National Education Association, April 2000.
- Richmond, V.P. and McCroskey, J.C. (1989). *Communication: Apprehension, Avoidance, and Effectiveness* (Second Edition). Scottsdale: AZ. Gorsuch Scarisbrick.

Roberts, T.G., Irani, T.A., Telg, R.W., and Lundy, L.K. (2005). The development of an instrument to evaluate distance education courses using student attitudes.

*The American Journal of Distance Education*, 19 (1): 51-64.

Rokeach, M. (1973). *The Nature of Human Values*. New York: The Free Press.

Ross, S.M., Morrison, G.R. and O'Dell, J.K., (1989). Uses and effects of learner control of context and instructional support in computer-based instruction. *Educational*

*Technology Research and Development*, 37(4): 29-39.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*.

Rotter, J.B. (1972). An introduction to social learning theory. In J.B. Rotter, J.E. Chance, and E.J. Phares (Eds.) *Applications of a Social Learning Theory of Personality*.

New York: Holt, Rinehart and Winston.

Rubin, A.M. and Rubin, R.B. (1985.) Communication apprehension and satisfaction in interpersonal relationships. *Communication Research Reports*, 6: 13-20.

Schnackenberg, H.L., Sullivan, H.J., Leader, L.F., and Jones, E.K. (1998). Learner preferences and achievement under differing amounts of learner practice.

*Educational Technology, Research and Development*, 46 (2): 5-15. Washington.

Singhanayak, C. and Hooper, S. (1998). The effects of cooperative learning and learner control on students' achievement, option selections, and attitudes. *Educational*

*Technology, Research and Development*, 46 (2): 17-33.

Smith, D.W. (2005). Phenomenology. *The Stanford Encyclopedia of Philosophy*.

E.N. Zalta (Ed.)

Stein, D.S., Wanstreet, C.E., Calvin, J., Overtoom, C., and Wheaton, J.E. (2005).

Bridging the transactional distance gap in online learning environments. *The American Journal of Distance Education*, 19 (2): 105-118. Lawrence Erlbaum Associates, Inc.

Stevenson, K. and Sander, P. (1998). Improving service quality in distance education.

Available: <http://www.eurodl.org/materials/contrib/1998/stevenson/index.html>

Swan, K. (2001). Building learning communities in online courses: The importance of interaction. Paper presented at the 7<sup>th</sup> Sloan-C International Conference on Online Learning, Orlando, FL.



Teaching and Learning with Technology (TLT) Group, (2001). Flashlight Program.

Available: <http://www.tltgroup.org/flashlightP.htm>

Tennent, B., Becker, K., and Kehoe, J. (2005). Technology-enabled delivery and assessment methods: Are we addressing student expectations and learning preferences? Available:

[http://www.ascilite.org.au/conferences/brisbane05/blogs/proceedings/75\\_Tennent.pdf](http://www.ascilite.org.au/conferences/brisbane05/blogs/proceedings/75_Tennent.pdf)

Thorndyke, P.E. and Hayes-Roth, B. (1979). The use of schemata in the acquisition and transfer of knowledge. *Cognitive Psychology*, 11: 82-106.

Tricker, T. (2003). Student expectations – How do we measure up? Available:

<http://www.inter-disciplinary.net/tricker%20paper.pdf>

U.S. Department of Education (2004). *Part-Time Undergraduates in Postsecondary*

*Education: 2003-04*. Postsecondary Education Descriptive Analysis Report.

National Center for Education Statistics, Institute of Education Sciences.

Vonderwoll, S. (2003). An examination of asynchronous communication experiences and perspectives of students in an online course: A case study. *Internet and Higher*

*Education*, 6: 77-90. Retrieved August 2, 2005 from

[http://faculty.washington.edu/jcstone/vonderwell\\_asynchronous.pdf](http://faculty.washington.edu/jcstone/vonderwell_asynchronous.pdf)

Vygotsky, L. (1962). *Thought and Language*. Cambridge, MA: MIT Press.

Weiner, B. (1974). An attributional interpretation of expectancy-value theory. In B. Weiser (Ed.) *Cognitive Views of Human Motivation*, 51-69. New York: Academic Press.

Winfrey, E.C. (1999). Kirkpatrick's four levels of evaluation. In B. Hoffman (Ed.), *Encyclopedia of Educational Technology*. Retrieved April 5, 2007, from <http://coe.sdsu.edu/eet/Articles/k4levels/start.htm>

**Appendix A  
Code Book  
Pre-Course Survey**

**Assessing Students' Expectations and Preferences  
for Distance Learning Environments**

**Student code:**

---

*Use the following definition to respond to the items below:*

***Distance education course*** — a course that is taught from a distance and does not require the student to travel to a classroom building. The student is not required to meet with the instructor in the same physical space.

**Part I**

1. **(Q1)** Which distance education course(s) are you currently enrolled in?

---

2. **(Q2)** When did you enroll in the distance education course you are currently taking?

- Spring 2006
- Summer 2006
- Fall 2006

3. **(Q3)** Is this your first distance education course?

- Yes
- No

## Part II

Respond to the next three items to describe **your expectations** for the distance education course(s) in which you are currently enrolled:

4. (Q4) *I expect to collaborate with other students on group projects.* (**Independent 1: Collaborate Students**)

- 1 Strongly disagree
- 2 Disagree
- 3 Undecided
- 4 Agree
- 5 Strongly agree

5. (Q5) *I expect to interact with other students enrolled in the course.* (**Independent 2: Interact Students**)

- 1 Strongly disagree
- 2 Disagree
- 3 Undecided
- 4 Agree
- 5 Strongly agree

6. (Q6) *The amount of interaction I expect to have with other students is* (**Independent 3: Interact Amount**)

- 1 Very low
- 2 Low
- 3 Moderate
- 4 High
- 5 Very high

7. (Q7) *The amount of interaction I expect to have with the instructor is* (**Independent 4: Interact Instruct**)

- 1 Very low
- 2 Low
- 3 Moderate
- 4 High
- 5 Very high

8. (Q8) *The amount of flexibility I expect to have to complete the course at my own pace (as opposed to a fixed schedule) is* **(Independent 5: Flexibility)**

- 5 Very low
- 4 Low
- 3 Moderate
- 2 High
- 1 Very high

9. (Q9) *I expect to turn my assignments in whenever I want.* **(Independent 6: Assignments)**

- 5 Strongly disagree
- 4 Disagree
- 3 Undecided
- 2 Agree
- 1 Strongly agree

10. (Q10) *I expect to complete the course on my own time schedule.* **(Independent 7: Own Schedule)**

- 5 Strongly disagree
- 4 Disagree
- 3 Undecided
- 2 Agree
- 1 Strongly agree

## **Part II**

*Respond to the next three items to describe **your preference** for the distance education course(s) in which you are currently enrolled:*

11. (Q11) *I prefer to collaborate with other students on group projects.* **(Independent 8: Collaborate Students)**

- 1 Strongly disagree
- 2 Disagree
- 3 Undecided
- 4 Agree
- 5 Strongly agree

12. (Q12) *I prefer to interact with other students enrolled in the course.* (**Independent 9: Interact Students**)

- 1 Strongly disagree
- 2 Disagree
- 3 Undecided
- 4 Agree
- 5 Strongly agree

13. (Q13) *The amount of interaction I prefer to have with other students is* (**Independent 10: Interact Amount**)

- 1 Very low
- 2 Low
- 3 Moderate
- 4 High
- 5 Very high

14. (Q14) *Amount of interaction I prefer to have with the instructor is* (**Independent 11: Interact Instruct**)

- 1 Very low
- 2 Low
- 3 Moderate
- 4 High
- 5 Very high

15. (Q15) *The amount of flexibility I prefer to have to complete the course at my own pace (as opposed to a fixed schedule) is* (**Independent 12: Flexibility**)

- 5 Very low
- 4 Low
- 3 Moderate
- 2 High
- 1 Very high

16. (Q16) *I prefer to turn my assignments in whenever I want.* (**Independent 13: Assignments**)

- 5 Strongly disagree
- 4 Disagree
- 3 Undecided
- 2 Agree
- 1 Strongly agree

17. (Q17) *I prefer to complete the course on my own time schedule.* (**Independent 14: Own Schedule**)

- 5 Strongly disagree
- 4 Disagree
- 3 Undecided
- 2 Agree
- 1 Strongly agree

**Appendix B  
Code Book  
Post-Course Survey**

**Assessing Students' Expectations and Preferences  
for Distance Learning Environments**

**Student code:**

---

*Use the following definition to respond to the items below:*

***Distance education course*** — a course that is taught from a distance and does not require the student to travel to a classroom building. The student is not required to meet with the instructor in the same physical space.

**Part I**

1. **(Q1)** Which distance education course(s) are you currently enrolled in?

---

2. **(Q2)** When did you enroll in the distance education course you are currently taking?

- Spring 2006  
 Summer 2006  
 Fall 2006

**Part III**

*Rate the following aspects of your distance education course.*

*For each of the following statements, indicate the response that applies.*

3. **(Q3)** Overall, I am satisfied with distance learning through the Penn State World Campus: **(Dependent 1: Overall)**

- 1 Strongly disagree  
 2 Disagree  
 3 Undecided  
 4 Agree  
 5 Strongly agree



4. **(Q4)** *The distance education course has met my educational goals so far. (Dependent 2: Goals)*

- 1 Strongly disagree
- 2 Disagree
- 3 Undecided
- 4 Agree
- 5 Strongly agree

5. **(Q5)** *I have found it difficult to learn the course ideas and concepts in the distance education environment. (Dependent 3: Learned)*

- 5 Strongly disagree
- 4 Disagree
- 3 Undecided
- 2 Agree
- 1 Strongly agree

6. **(Q6)** *The distance education instructor has responded promptly to my questions and concerns. (Dependent 4: Instructor)*

- 1 Strongly disagree
- 2 Disagree
- 3 Undecided
- 4 Agree
- 5 Strongly agree

7. **(Q7)** *How would you rate your satisfaction with this distance education course? (Dependent 5: Satisfaction)*

- 5 Very satisfied
- 4 Satisfied
- 3 Neutral
- 2 Dissatisfied
- 1 Very dissatisfied

8. **(Q8)** *Do you have any other feedback that you would like to share with me on your overall experiences as a distance education student in this course?*

## VITA

**Karen I. Pollack**

### EDUCATION

2007	Ph.D.	The Pennsylvania State University Instructional Systems
1996	M.A.	The Pennsylvania State University Telecommunications Studies
1987	B.A.	The Pennsylvania State University Journalism

### HIGHER EDUCATION EXPERIENCE

2005-Present	Associate Director, Inter-Campus Relationships and Blended Learning Program Planning and Management, World Campus Continuing and Distance Education The Pennsylvania State University
1998-2005	Senior Program Manager Program Planning and Management, World Campus Continuing and Distance Education The Pennsylvania State University
1997-1998	Public Information Office Office of the President University Relations The Pennsylvania State University
1991-1997	Manager of Marketing and Customer Service Office of Business Services The Pennsylvania State University

### PUBLICATIONS

1998	Intellectual Property: Copyright Implications for Higher Education <i>The Journal of Academic Librarianship</i> , Vol. 22, No. 5: 11-19.
------	---