

## **INTRODUCTION**

### **Research Question - Difference:**

Distance education classes utilizing collaborative groups and discussion boards would promote a more positive learning experience for online learners and contribute to the overall course effectiveness.

Online learning has proven itself to be a viable and valuable method of learning for many students. It benefits students who face time constraints, geographic accessibility to campuses, and responsibilities outside of the learning environment. With the acceptance of education through distance learning comes the need to evaluate ways to increase the value of the experience for learners. Research points towards a higher level of motivation, achievement, and engagement when students feel the presence of community in their online courses (Shin, 2003). There are many ways to create the sense of community within distance education offerings, including group projects and discussion boards used for student inquiries, reflection, and socialization. This study will compare the difference between student satisfaction and achievement through a distance education course offered in a traditional semester using two different formats. The participants in the study will be 40 graduate level students enrolled in two different course sections of the same course. One section will only give students (20) the option to complete assignments individually and converse with class members when initiated through e-mail options. The other section (of the 20 remaining students) will cover the same materials, assign the same assignments, but one of the assignments will be completed with a partner and there will be a discussion board integrated into the course portal specifically designated for students to use as a “sounding board” for their questions and concerns. It is expected that the learners involved in the collaborative class will experience a higher sense of community, which will in turn enhance their overall learning experience and the course effectiveness. Measurements will be taken of student performance on like assignments and through post course evaluations. Study results will help educators better plan and design distance education courses that will maximize learner experiences and course effectiveness.

## **Literature Review**

### **Section One:**

All five articles reviewed showed that a feeling of community between Distance Education learners resulted in more effective and positive online experiences. Each researcher hypothesized that learning experiences involving a sense of community would motivate students, produce higher student achievement, and raise the level of student satisfaction than those classes offered without the opportunity for interaction among peers. One study (Shin, 2003) was slightly skewed in favor of females (71%), which made the study more representative of female students. Another study, Hiltz (1996) had uneven group sizes resulting from attrition after the course started. When a study is conducted with a changing population, or an uneven distribution of any characteristic within a set of the population, there is a greater chance of threat to the validity due to a lack of control of the population or a change in the population over the course of the study.

The Logan study (2001) collected data on the number and type of active questions or voiced participation by face-to-face and online groups through a course evaluation. Their internal validity was threatened by a low return of course evaluations (32%). In addition, the demographic profile of this study showed that the students involved had varying amounts of personal dedication to their programs of study which made the internal validity variable and therefore, subject to speculation.

Ivers, et al, (2004) chose to base their results on an end of program survey and midpoint reflections written by students. Since this study was descriptive, they were more concerned with the options students appreciated than comparing data from group to group. This study had a moderate response rate of 84% from a group of 18 graduate students in a Master's of Science Instructional Design and Technology program. This is a small amount of students to be evaluating in order to project that the study had external implications.

The King (1995) study also had a moderate response rate of 83% including all students enrolled in distance education courses through the Off-Campus Professional Agriculture Program through Iowa State University. This study had a strong external validity since there were no limitations imposed on their sample.

The study outlined in this proposal will determine if the amount of peer interaction experienced by students in two different sections of the same online course will make a difference in their satisfaction and in the length of a research report. The same instructor will teach both course sections using the same syllabus with identical assignments and due dates. The only difference will be that in one section, one of the assignments (a research assignment) will be completed with a partner and that same section will have access to a Discussion Board on their class portal. The other section will complete the research assignment as individuals and will have to initiate any contact with peers through the e-mail feature (which will be on both portals). The populations will be similar to that of Logan, et al, (2001) in that they are both comprised of graduate level students

motivated by the considerable amount of time and money expended to gain a higher level of education. Students involved in courses with supportive learning environments have had higher student achievement and a higher rate of student course completion (Ivers, et al, 2004). In addition, social communities are integral to an effective learning process for most students (Logan, et al, 2001). The proposed study will identify how satisfied students feel while working independently and with peers and will show a difference in the length of a research assignment.

## **Section Two:**

In all of the articles reviewed, end of program surveys/questionnaires/evaluations were administered using Likert scales varying from a scale of 1-5 to a scale of 1-8. The documents measured everything from satisfaction levels in a course to comfort levels with computers. In addition, the Hiltz (1996) study measured length of reports using the word count function on the Microsoft Word program.

In this proposed study, measurements will be assessed using a post course evaluation using a Likert scale of 1-5 with 1 representing strong disagreement and 5 indicating strong agreement, similar to the study by Shin (2003). Additionally, research papers will be required to be submitted in Microsoft Word format so that a length can be determined using the word count function as done by Hiltz (1996).

## **Variables and Hypotheses**

**Independent variable:** The independent variable is a distance learning course with two categories: 1) graduate level Learning and Cognition course offered online with an accessible Discussion Board for student use built into course portal and a mandatory collaborative research assignment, and 2) graduate level Learning and Cognition course offered online with limited interaction capabilities built into the course portal and the same research assignment as stated above for collaborative work, but in this case, the assignments will be completed individually.

**Dependent Variable:** The dependent variable will be the measure of effectiveness for students working independently as compared to the effectiveness of online learning for students using collaborative learning methods. The dependent variable will be measured through comparison of like research assignments that in one group are completed individually and in the other are completed collaboratively and also will be measured through a post course questionnaire. The differences measured will be 1) length of the research papers produced on the like research assignments expressed as the total number of words contained therein and the overall satisfaction of the students'

learning experiences using a Likert type scale. The length of the aforementioned research papers can serve as comparison base, since this can be “considered to combine aspects of motivation, active participation, and quality of solution (since longer reports are more likely to be thorough)” (Hiltz, 1996).

**Hypothesis:** The collaborative group will develop longer papers on the average. The collaborative group will have more positive ratings in terms of frustration level and overall satisfaction.

## **METHOD**

### **Population and Sample**

The population for this study is composed of graduate students enrolled in two different sections of a Learning and Cognition course. When students register, they will not be aware that one section will involve collaborative work and the other will not. The results will only generalize to graduate students, who seem to be more motivated by the amount of time and money expended to earn a graduate degree and more goal oriented than undergraduate students. The two sections being studied will only be open to the first 20 graduate students who sign up for each. Since registration is online, assignment will be random as designated by the registration software, or as specifically chosen by the student, although there should be no preference for one or the other section since both will be taught by the same professor. Our main DV is measured by a Likert scale with 1 being very dissatisfied and 5 being very satisfied and previous studies have shown that a change of 1 point or more is associated with a change in levels of satisfaction. Internal validity should be moderately reliable since we are using the same assignments and instructor for the course.

### **Methodology/data gathering process**

The research question for this study, “Will distance education classes utilizing collaborative groups and discussion boards promote a more positive learning experience for online learners and contribute to the overall course effectiveness?” is a difference question. The research design used for this question is best represented by an adapted form of Design Five in *The Whole Art of Deduction*.

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Event	1	2
Group One	X	X
Group Two	X	X

Both groups will be given a research paper assignment that will be measured by word count (treatment 1). Group one will represent the course section working independently and without the assistance of a discussion board and group two will represent the collaborative course section with the discussion board (treatment 2) built into the class portal. At the end of the 16-week course, students in both course sections will complete a course evaluation to determine ratings in terms of frustration level and overall satisfaction. Possible limits to the study will include students not completing assignments and/or end of course evaluations. The internal validity of the study could be threatened by no shows to either class section, which could result in skewed results for either section.

### Data Analysis

Students will complete a research assignment appropriate to the Learning and Cognition course either independently or with a partner, depending on their course section, submitting it in Microsoft Word format. The length of the papers will be determined using the word count feature of Microsoft Word software. Means and standard deviations will be computed on the length of the papers. The means will be tested by a t-test for independent means to see if there is a significant difference. If the two groups are the same (non-significant differences) or if the collaborative group has significantly longer papers, then the hypothesis will be supported. If the collaborative group has significantly shorter papers, then the hypothesis will not be supported.

Additionally, students will complete a standard course evaluation with questions inserted randomly pertaining to satisfaction of the course portal, interaction with peers, and independent work scenarios vs. collaborative work scenarios. This will be completed at the end of the 16-week course. The means from the frequency ratings (Table 2) will be computed on the scores obtained from these evaluations and will be tested by a t-test for independent means to see if there is a significant difference. If the two groups are the same (non-significant differences) or if the collaborative group has more positive ratings in terms of frustration level and overall satisfaction, then the hypothesis will be supported. If the collaborative group has significantly more negative ratings in terms of frustration level and overall satisfaction, then the hypothesis will not be supported.

**Table 1 – Length of Research Papers**

	<b>Student or Pair #</b>	<b>Word Count</b>	<b>Mean</b>	<b>Standard Deviation</b>
<b>Group 1 Individuals</b>	<b>1</b>			
	<b>2</b>			

	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			
	15			
	16			
	17			
	18			
	19			
	20			
<b>Group 2 Collaborative Pairs</b>	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			

The second event will include a standard course evaluation with questions added as shown in Appendix A. The Mode would be shaded after filling in Table 2.

**Table 2** – Frequency Rating of Questions added to course evaluation  
(Complete one for each group)

Answers ranked on the following scale  
 1 = Very Dissatisfied/Strongly Disagree  
 2 = Somewhat Dissatisfied/Disagree  
 3 = Somewhat Satisfied/Agree  
 4 = Satisfied/Agree  
 5 = Very Satisfied/Strongly Agree

Question	1	2	3	4	5	N	Mean
1. Ability to access peer assistance through course web portal							
2. Distance education developed a strong bond between peers and myself							
3. My peers are approachable							
4. I would take another distance education course							
5. I feel that collaborating with my peers on projects is valuable to my learning experience							
6. Having a positive comradeship with my peers added to my learning experience							
7. I believe that if I ask my peers to help me with my schoolwork, they will do so willingly							
8. I would not hesitate to have an informal conversation with peers if I have the chance to do so							
9. I feel that my interaction with my peers helped me to understand course materials							
10. I believe that my peers will promptly answer my questions.							

## References

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#### Appendix A – Questions to add to course evaluation

Answers ranked on the following scale

1 = Very Dissatisfied/Strongly Disagree

2 = Somewhat Dissatisfied/Disagree

3 = Somewhat Satisfied/Agree

4 = Satisfied/Agree

5 = Very Satisfied/Strongly Agree

Question	1	2	3	4	5
1. Ability to access peer assistance through course web portal					
2. Distance education developed a strong bond between peers and myself					
3. My peers are approachable					
4. I would take another distance education course					
5. I feel that collaborating with my peers on projects is valuable to my learning experience					
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chance to do so					
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