Chapter 9

Need We Train Online Instructors?
A Cautionary Study of Learning Outcomes and Student Satisfaction in Higher Education

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ABSTRACT

In an online setting, it is critical to understand the factors that influence learning outcomes and student satisfaction. Group work or collaborative learning is frequently prescribed as a vital part of online classes. Learning outcomes and student satisfaction in both research and anecdotal evidence show mixed results. A qualitative, multi-case study was undertaken to determine the role of instructor training on student learning outcomes and student satisfaction within the online class using group work. Data were collected via an online survey, personal interviews, and document examination. Analysis of those data revealed that those instructors using group work who had the most training and assistance in the design and facilitation of classes had the highest level of student satisfaction as well as the highest student perception of good learning outcomes. The data show that the amount of instructor training undertaken had a major impact on how students reacted to the classes.

INTRODUCTION

Online learning is now an accepted method of teaching at all levels of education. University faculty and administrations strive to provide excellent learning outcomes and high student satisfaction (Norton, 2013; Sampson, Leonard, Ballenger, & Coleman, 2010). Research suggests that instructional design and

instructor training are two areas that may affect learning outcomes and student satisfaction especially in those classes where group work or collaborative learning are used (Koh, Barbour, & Hill, 2010; Ossiannilsson, Williams, Camilleri, & Brown, 2015; Roman, Kelsey, & Lin, 2010; Scherling, 2011). Understanding the role of instructor training and instructional design in promoting satisfactory learning outcomes and high student satisfaction in these classes is essential for the future development of the field (Davies, Howell, & Petrie, 2010; Dron, 2012).

We examined online classes at a state supported university in the southwestern United States. Using four upper division classes, the students' opinion of their learning in the class and their satisfaction with the class was sought using an open-ended online survey. We interviewed the class instructors and examined the documents created for the classes. This study of instructor training as it effects online group work design and use attempts to fill a gap in the research by examining aspects of online learning, admittedly a complex problem.

LITERATURE REVIEW

Online Teaching Techniques

A 2004 meta-analysis of research done between 1985 and 2002 on meeting learning goals in face-to-face classes as compared to meeting learning goals in online classes found no significant differences between face-to-face and online classes (Bernard et al., 2004). Johnson's (2008) reevaluation of this data revealed that the techniques employed by the instructor rather than the medium in which the course was offered determined how well the instructional goals of the course were met. An analysis of more than 100 research articles resulted in the definition of three types of interaction, student-content interaction, student-instructor interaction, and student-student interaction (Lou, Bernard, & Abrami, 2006). Research into the interaction of the instructor with the students shows this as the most important pedagogy of the online class (Bailey & Card, 2009; Eom, Wen, & Ashill, 2006; Wagner, Vanevenhoven, & Bronson, 2010). Research that resulted in no significant difference in the learning outcomes between face-to-face and online avoids the issue of pedagogy (Dron, 2012). Most research concentrates of the perceived environment of the class and the students' perception of the learning outcomes rather than how the instructor uses the tools and techniques (Dron, 2012).

Instructional Design

The most common definition of instructional design is the systematic development of those methods used to facilitate knowledge transfer in an educational setting (MacLean & Scott, 2011). Instructional design for online learning is primarily the development of activities within a learning management system (LMS) that facilitate the operation and teaching of an online class (MacLean & Scott, 2011; Merrill, Barclay, & van Schaak, 2008). Good instructional design has been shown to help overcome some of the problems seen in early online learning, high attrition rates, unmet learning outcomes, and learner dissatisfaction (Koh et al., 2010; Siemens, 2002). Furthermore, recent longitudinal studies of the use of technology in post-secondary education concluded that the instructional design of the course is far more important than the technology employed (Tamim, Lowerison, Schmid, Bernard, & Abrami, 2011).

Online Faculty Training

In 2009, 81% of all higher education institutions offering online classes provided some form of training for their online teaching faculty (Allen & Seaman, 2010). Most these opportunities were provided by internally run training courses with informal mentoring second (Allen & Seaman, 2010). Several surveys of teaching faculty at various institutions show that many faculty are self-taught using publications or informal assistance from colleagues (Dykman & Davis, 2008; Lackey, 2011; Roman et al., 2010). Being self-taught frequently results in a less than satisfactory experience and a reluctance to continue to teach online (Lackey, 2011).

RESEARCH METHOD

The research was conducted as a qualitative exploratory multi-case study. The cases chosen were fully online classes or hybrid with three or fewer classes. Online classes, while having much in common, present a multitude of variables when success or learning outcomes are considered. The use of case study provides the ability to use multiple sources of evidence to develop and corroborate a conclusion (Yin, 2009). While the cases in this study were defined as existing classes, the unit of analysis were individuals – students and instructors.

Data were collected using a descriptive online survey for students, semi-structured personal interviews of instructors, and document reviews. Data analysis, based on triangulated evidence, allowed the examination of cross case similarities better to understand the application and outcomes of the use of online group work (Stake, 2006).

The four classes were all upper division classes, two junior, and two senior. Two instructors had more than one section and included both sections in the study resulting in six class sections.

Each of the syllabi of the classes volunteered was examined for indications of best practice to promote group success. This is manifest by an instructional design that fully supports group work with appropriate content, scaffolding of assignments, online work areas, close instructor monitoring and, therefore, contributes to outcomes of the course and to student satisfaction (Anderson & Krathwohl, 2001; Johnson & Johnson, 1999, 2008, 2010). While none of the documents contained all the recommended elements, all of those examined had most of the elements. Whether the instructor facilitated what they had included in the syllabus became apparent from the students' responses to the research questions.

Research Questions

Three questions frame the research.

1. What are students' perceptions of group work within online classes, including how well instructors' support group work and how group work contributes to learning outcomes, among students?
2. What is the role of instructor training in the facilitation of online group work as perceived by students as well as indicated by successful learning outcomes and student satisfaction?
3. What are instructors' perceptions of the success of group work as well as how group work assists classes in meeting stated learning outcomes?

Results

We asked the instructors what training they had undertaken to develop the curriculum, write the syllabus, and facilitate the class. Three of the instructors had voluntarily attended classes provided by the university as well as consulted with members of the Instructional Technology Services (ITS) staff. The fourth instructor has read several books while participating in an internal workshop on assessing online class results (Instructor SrB, personal communication, Dec. 14, 2012). This instructor may have taken a class with the ITS but could not remember anything about it. The instructors' responses are illustrated in Table 1.

Online Survey Answers

The six open-ended questions in the online survey were designed to provide data related to research questions one and two. These questions relate to the students' perception of how each class was taught, their satisfaction with the class, and their perception of what they learned. Each table provides a summary of the answers given in each class.

- **Text of Online Survey Question One:** This class used group work. Did you feel your group worked well together? If yes, why do you feel it was a good experience? If no, what do you think went wrong?

Answers to question one were generally positive in two of the classes. Classes JrA and JrB both had very high levels of satisfaction with the group work in their classes as shown by the totals in Table 2. Both groups of students seemed to recognize the usefulness of group work to the content of the class.

Table 1. Summary of training and experience of instructors

Class	Years Teaching in Higher Education	Years Teaching Online	Training to Teach Online
JrA	28	6	Two-week seminar, other consultations with ITS
Jobs	36	7	Two-week seminar, extensive consultations with ITS
SrA	8	4	Consultations with ITS
SrB	30	5	Self-taught

Note: ITS = Instructional Technologies Services

Table 2. Student answers to online survey question one

Class	Total Responses	Positive Answers	Neutral or Mixed Answers	Negative Answers
JrA	13	10	1	2
JrB	22	15	4	3
SrA	15	6	3	6
SrB	9	1		8

The only negative answers to question one in JrA came from students who would have preferred a face-to-face class with less group work.

Students in JrA found the use of group work as helpful in learning the content of the class but one student objected to the grading of the group work and another found that the lack of face-to-face interaction caused confusion. One student, however, wrote, "Yes, the digital forum allowed us to explore our discussions without being talked over."

Students in JrB were positive in the value of group work to the class but a few struggled with a common problem of the non-participatory members: "Group started with 4 but 1 disappeared so we only had 3." Most the students found the class to be excellent and the only negative answers for question one were directed more at nonparticipation and group dynamics rather than the design of the class.

In class SrA, students were divided with a balance of students disliking the group work and students liking the group work as seen by the totals in Table 2. The negative answers centered on issues of communication and non-participation rather than the use of the group work being useful to the content of the class. Students in SrA had serious issues with non-participation and a reluctance to conduct the class online. "No. My group did not work well together, just because we all have different schedules and never see each other."

Students in SrB were almost uniformly negative about the class. Only one student in SrB found their group worked well and he/she had a good experience in the class. The instructor's instructional design of three groups drew the most negative comments as well as the common problem of non-participation: "We changed groups 3 times, it was difficult to coordinate with so many different schedules throughout the semester."

- **Text of Online Survey Question Two:** Can you describe how the group functioned and what if any problems you had in the group.

Question two provoked mixed answers from class JrA. As a group of the whole, some students were impatient with the time necessary for feedback from other students while one other questioned the quality. However, most the class found the group work helpful: "We communicated through forums together, there were times I felt we were required to communicate to [*sic*] many times with each other." Students in JrA were almost evenly divided between positive and mixed or negative answers for this question as reported in Table 3. The negative answers were primarily about timing of responses from other participants rather than the group itself: "Just didn't like waiting on others [*sic*] critiques."

In class JrB, most the students, 17, answered positively about how their group functioned and what problems they experienced. Students provided information on how they conducted the group and what

Table 3. Student answers to online survey question two

Class	Total Responses	Positive Answers	Neutral or Mixed Answers	Negative Answers
JrA	13	7	3	3
JrB	22	17	2	3
SrA	15	7	1	7
SrB	9		1	8

means they used to stay on track with the project. Instructor JrB built considerable structure into the class by requiring weekly progress reports that several of the groups expanded upon.

Students in JrB found the working of the groups successful but some mentioned that having the group meet face-to-face created a hardship for some. Others could conduct the entire project online as suggested by the instructor. Non-participation and a reluctance to share responsibility also created problems for some groups: "The group did not function well as we assigned a group leader and she did not divide up the work equally she let herself do most of the work."

Class SrA was again divided in answers to question two with just as many students giving negative answers as those giving positive as reported in Table 3. Issues were typical group problems such as nonparticipation and poor communication among group members. "Everyone is confused and I think there's a lack of communication between the teacher and students, on both parts. We have questions, but we're all too busy to ask and wait for answers."

In class SrB, no one answered question two positively. One student gave a neutral answer and the other eight were negative: "The only problem was conflicting schedules at times, there were not problems about opinions." Students in SrB expressed frustration with timely communication: "People would not respond in a timely manner which made the whole group suffer. Meeting in person seemed to be the only way to get work done. It was difficult to find a time where everyone could meet." One student requested permission to work alone and was allowed to drop out of the group activity by the instructor (Instructor SrB, personal communication, Dec. 14, 2012).

- **Text of Online Survey Question Three:** What kind of directions did the instructor give your group at the beginning of the project? How did the instructor support the group during the process of completing the project?

Students in JrA were clear that all the directions and support from the instructor were helpful and made the class a positive experience. There were no negative responses to question three. One student appreciated the frequent reminders from the instructor but said he/she personally needed more detail from the instructor.

In JrB, most the students had positive things to say about the support they received from the instructor and the directions that were given. Of the negative answers, the students' concern reflected the instructor's expectation of self-direction, as a few of the students were traditional and inexperienced with self-directed learning (Instructor JrB, personal communication, Dec. 19, 2012). In addition, a few negative answers came from students who expressed negative answers on almost all the questions. Class JrB also met twice to discuss the assignments and this may have contributed to the overall success of the class.

Table 4. Student answers to question three

Class	Total Responses	Positive Answers	Neutral or Mixed Answers	Negative Answers
JrA	13	11	2	
JrB	22	18	1	3
SrA	15	8	1	6
SrB	9	6	1	2

Identification of group members and the exchange of contact information can contribute to the building of trust in groups (Liu, Magjuka, & Lee, 2008; Mitchell & Zigurs, 2009).

While the instructor in SrA wrote a syllabus with extensive suggestions as to how online group work could be conducted, most the students' answers to question three complained of difficulty in organizing face-to-face meetings. The dynamics of the groups created most of the difficulties according to the answers of the students and is reflected in Table 4. "The instructor informed everyone that a lot of the assignments would be in a 'group' form but didn't give us any contact information. We had to find emails on our own and it took forever for people to respond."

The issue of instructor to student interaction was also mentioned by several students: "Yes and no. I feel the instruction was effective, but I have taken online classes before where the instructor is more communicative in the forums as well as throughout the class." Research has shown that the interaction of student and instructor is one of the most powerful factors in student satisfaction with online classes (Bailey & Card, 2009; Eom, et al., 2006; Gaytan & McEwen, 2007; Wagner et al., 2010). This class had an assigned grader, who according to the instructor, interacted with the students more (Instructor SrA, personal communication, Dec. 14, 2012). Four times during the semester, SrA met face-to-face for written assessments and that afforded the possibility of student interaction. The students were almost evenly divided between those who felt the class was very successful and group work contributed to that and those for whom both the group work and the factor of online were negative factors: "Yes, the group work was essential to undersatnding [*sic*] the course information." "I don't think the group helped me learn any better than I could have on my own."

Students in SrB found the instructions from the instructor helpful for the most part: "The directions were in the syllabus, as they came up, the professor would send emails and post on the website." "The professor gave us directions on what to do w/ the projects and what to do if we have problems working with our groups. … [*He/She*] gave everyone a fair shot." "The instructor gave limited directions. [*He/She*] was always in [*his/her*] office."

- **Text of Online Survey Question Four:** Do you feel that your group received the kind of directions and assistance needed? If yes, why do you feel the directions and assistance were effective? If no, what could the instructor have done to provide directions that are more effective and support to your group?

Question four had two negative answers of a more personal nature in JrA. One student wanted more details as to what was expected and another was hesitant and unsure of his/her own ability to do the work required in the class. Aside from those two comments, the students found the directions by the instructor

Table 5. Student answers to question four

Class	Total Responses	Positive Answers	Neutral or Mixed Answers	Negative Answers
JrA	13	11		2
JrB	22	16	2	4
SrA	15	9	3	3
SrB	9	2	2	5

clear and helpful. "Yes, the instructions were clear. The instructor gave examples and answered questions promptly." Two students gave negative answers that may have revealed their own insecurity and need for more details. "I would have like [*sic*] instructions that were more clear of what was expected from me."

In class JrB, students had few problems with the way the instructor supported the group work. The few negative answers seem to show a misunderstanding of how the class was designed: "No. I believe there should have been a mandated group communication protocol. It was a free for all and there was no accountability required." "I think the instructor could have helped us and gave [*sic*] us better and more precise instructions when he initially assigned the project." Most of the comments were highly favorable and showed that the students were satisfied with how the class was conducted. Negative answers came from the student who disliked the class but also from several who were concerned for other members of their group. "The professor provided everything we need to complete the project, but I think some members needed more step by step instruction to access this info." [*Referring to information in the class LMS*].

In class SrA, the positive answers were more common than the negative answers as reported in Table 5. Students found the support adequate for the most part: "I feel the assistance was very adequate. It helped point me in the right directions." "Yes because we didn't encounter problems." Some students found the directions inadequate: "It was hard to decipher the directions sometimes but overall the group worked together to try and determine what was needed to complete the assignment." The common theme of the answers showed struggles with communication and the basic design of the class.

Students in SrA again had mixed reactions to the way in which the instructor supported the group work in the class. Some were pleased with the support and direction: "We are in college I feel like we dont [*sic*] need much assistance. So thats [*sic*] effective to make us grow." "I feel that all the assignments are done well from the instructor." While others were clear, they did not: "No. I think that the powerpoints [*sic*] and quizes [*sic*] are flawed, which leads us to a very dazed and confused type of learning environment. One on one instruction would be much better for all types of learners."

Class SrB had more negative than positive answers to question four. Only two of the students had a positive answer: "Yes we received the right direction and guidance, because like myself, this was the first time any of us had an online class and I believed that it worked out well and we had a wonderful teacher." Most the class answered negatively in how they perceived the way the instructor supported and conducted the class. "No, I was in 3 different groups and we all struggled." "Course could have used one mode of announcements. There were lots of changes in due dates and they were communicated through email sometimes; tracs [*LMS*] at other times." "I think it was as good as it could be for an online class." Few of the students in any of these classes provided answers to the final questions of the set, the request to provide suggestions as to how the instructors' direction or support could be improved.

- **Text of Online Survey Question Five:** Describe how satisfied you are with what you learned in this class. Did you learn what you expected and did the group work help with that learning?

The students in JrA for the most part stated they learned what they expected to learn even when it was not the content they anticipated. "The class was not what I expected but I was satisfied with what I did do." In JrA, students found the class met their expectations and most learned what they felt they needed in the class. One student did not believe the group work contributed to the knowledge gained and another only took the class for a certain kind of credit.

In JrB, most students found the class excellent and was satisfied with what they learned. A few students believed they would have learned more had it not been an online class. Another has a very mixed

Table 6. Student answers to question five

Class	Total Responses	Positive Answers	Neutral or Mixed Answers	Negative Answers
JrA	13	11	1	1
JrB	22	18	1	3
SrA	15	10	1	4
SrB	9	4		5

reaction to the class: "I feel as if what I learned will really benefit me in the future. Although I can not say the group project helped me learn anything other than I hate them." Two students answered negatively but one because of the medium, online, and one disliked the class in general: "I honestly don't feel like I learned much from this class. It felt like a waste of time and money." A student with this attitude would be a challenge no matter how the class was designed. As indicated in Table 6, the learning goals of most the students were met.

Students in SrA broke their previous pattern in their answers to question five, ten found the class satisfactory and five did not and one student was not sure because the survey was taken before the end of semester. "Overall, doing the individual assignments and doing the assignments for group projects helped me understand this material a lot more." "I don't think the group helped me learn any better than I could have on my own. We made time to meet each week but we split up the assignment each time so there weren't any conflicts." The students' perception seems to be that learning goals were met. "I am satisfied with what I learned in class, but the group work was not a part of helping me learn." The attitude of this final student may be why Instructor SrA is considering dropping the use of group work from the instructional design (personal communication, Dec. 14, 2012). Some students, however, were emphatic that the group work was "essential to understanding the course information" but others: "I feel like I could have learned more in this class if I had taken the face to face section."

Students in SrB seemed to indicate they learned more about working in groups than about the content of the class. "I didn't learn what I expected but I did learn the reality of communicating with a group of people and how not everyone is going to be on the same page and see eye to eye." and "I felt like I learned more about working in groups than I did actual course material." While one student was emphatic, "Not satisfied at all. No the group did not help. No I am not satisfied with the way this class was carried." The positive answers also provide insight into how the class was perceived:

I am very satisfied. I did not know this was a group-work course. (I wish I had known ahead of time so I made sure I had time during the week to devote to meet with the group.) Working in groups did help so much, but I also felt that I could have done some assignments by myself and made better grades.

- **Text of Online Survey Question Six:** Would you recommend this class to a friend? Why or why not?

The willingness to recommend a class to a friend shows a level of satisfaction and favorable perception of the class (Eom et al., 2006). Students in JrA were almost unanimous in their answers with only one student making the proviso, "If they really liked [the content of the class]."

While students in JrB were not quite as willing to recommend the class, only a few had reservations. The same student who found the class a "waste of time" found the content of the class "pointless and

Table 7. Student answers to online survey question six

Class	Total Responses	Positive Answers	Neutral or Mixed Answers	Negative Answers
JrA	13	12	1	
JrB	22	18	2	2
SrA	15	10	1	4
SrB	9	3		6

redundant" and would not recommend it. Several recommended that the class be taken online rather than face-to-face: "Yes. Online classes save a lot of time commuting." "I would, given the option between lecture and online, I would recommend online. It was a heavy workload but the assignments were reasonable."

Class SrA had more positive answers than negative to question six with more than half the class recommending it to a friend as reported in Table 7. Negative answers centered more on the teaching environment, online, than on the actual structure of the class: "No. I believe this class is very interesting and would much rather have been in class for it." "No. One on one instruction would be much better. Online instruction is just too confusing and communication is the main factor."

As has been the pattern, students in SrB answered more negatively than positively to question six. Only four of the students would recommend the class to a friend and one would put a large caveat on that recommendation: "I would because I learned a lot. I wouldn't recommend this course to someone who hates working with groups." The negative answers centered around the environment and the difficulty of the group work: "NO. This class needs to change to an in class course before I would recommend it." Many of the negative answers revealed that the groups felt it necessary to meet face-to-face and this caused serious difficulty for the students as stated here.

I think the class has the potential to be a great learning opportunity but as a college student with a job and internship it became difficult to find the time to meet up with the groups and time became very limited.

CONCLUSION

To address research question one, students were asked questions whose answers provide insight into the perception of instructor support and learning outcomes. The answers showed that while two of the instructors supported the classes well and the students learned what they expected, two did not. Instructor support and interaction have been shown to be two major factors in both reaching learning goals and student satisfaction (Eom et al., 2006). Students in JrA and JrB expressed the highest levels of satisfaction with their classes and the highest levels of positive answers. Classes SrA and SrB had lower levels of satisfaction and perception of satisfactory learning. The presence of graduate assistants or graders in these two classes may have affected the perception of the students. When asked if they would recommend the class, those classes where the instructor had sought help for both the design and facilitation of the class had more positive answers. Issues with how the classes were designed and taught interfered with learning in SrA and SrB. The students struggled with the online environment in both classes. In SrA, it was due to a reluctance to use the tools suggested by the instructor but the lack of monitoring by the

instructor could have contributed to this. It must also be noted that merely suggesting which means may be used does not lead to acceptance. In SrB, the lack of scaffolding or structure within the class as well as the lack of monitoring and assistance from the instructor were contributing factors.

Instructors who need to include group work due to the content of the course, as was the case in all four of these classes, need assistance in both the design and facilitation of those classes. Higher education administrations with the goal of successful online educational programs should insure that all faculty and auxiliary personnel have training in both the design of online group work and its facilitation. Further research is needed on the presence of auxiliary personnel, such as graduate assistant and graders; how their presence affects the student satisfaction and learning outcomes in online classes, both those using group work and those without group work.

Research question two addressed the issue of the relationship between the training undertaken by the instructors and the levels of student satisfaction. When the students' answers are compared to the levels of training undertaken by the instructors, it is clear that the more training an instructor has, the higher the levels of student satisfaction. The most successful classes were designed and taught by instructors who sought assistance in both the design and facilitation of their classes. As in research question two, the administration of an institution of higher education needs to insure that their faculty has this training if they desire high levels of student satisfaction and good learning outcomes. More research is needed to determine if these results are similar in lower division undergraduate classes and graduate classes.

The answer to research question three was not as clear. Each of the four instructors believed that group work was a necessary teaching methodology for the content of their class. While each of the instructors believed the learning goals of the classes had been met, the responses from some of the students contradicted this conclusion. Students in one class, JrA, agreed with the instructor's perception that the learning goals had been met, but a few students in JrB were not as positive. Students in classes SrA and SrB had mixed reactions to how much they had learned. The common conclusion on the success of learning outcomes in a class is what grade the students earn. The data show that this may not be a valid measure when online group work is assessed. The many comments of the students that some members of the group did not fully participate in the work indicate possible disparity in learning especially if only a group grade is awarded. Online instructors should consider using more than one type of assessment for group work to insure not only fair grading but for a better understanding of learning outcomes (Mulcahy et al., 2002). Additional research is needed on the facilitation and design of online group work to assist instructional designers and faculty in determining what designs can best assist in forming effective and successful group to insure good learning outcomes.

In considering the instructional design of the classes, three of the instructors had sought help with the design and facilitation of both the class and the syllabus. Those instructors had higher levels of student satisfaction than the instructor who was primarily self-taught. Even though one of the three trained instructors had a lower level of satisfaction within the class perhaps due to lack of student contact, the satisfaction levels were higher than those of the self-taught instructor. The design of a class and the writing of the syllabus to explain that class to the students were personal tasks for the four instructors in this study. While three sought assistance, one based the design and syllabus on previous teaching in the face-to-face environment.

While it was not possible in this study, research needs to be done on the instructor teaching an online class using group work they did not design or develop. This common occurrence in online education needs investigation. Many areas of possible research can be seen following this exploratory study. The

issue of graduate assistants, teaching aides, or grading assistants and their effect on student satisfaction is an important factor not recognized prior to the study. Data are needed on lower division undergraduate classes as well as graduate classes as pertains to online group work and instructor training.

Recommendations

Students in all four classes expressed their dissatisfaction with the presence of group work in these online classes. Students do not like group work in part because of bad experiences in both face-to-face and on-line classes where collaborative learning is used (Smith, Sorensen, Gump, Heindel, & Martinez, 2010). Research has shown and this study confirmed that class structure and instructor monitoring are important factors in student perceptions and student satisfaction (Eom et al., 2006). In these four classes, the level of student satisfaction is directly related to how well the instructor designed and conducted the class.

The question of instructional design and its impact on the facilitation of group work is clearly answered. Two of the classes were designed with scaffolding and structured assignments. These showed the highest levels of student satisfaction as predicted by Eom, Wen, and Ashill (2006). The design of three of the classes utilized the LMS effectively but one of those instructors failed to monitor closely the students leading to less than satisfactory results. One class was designed without stated means of collaborations or directions as to how the LMS could be utilized to facilitate the class work. The data show that class had the lowest levels of student satisfaction and perceptions of learning outcomes. While at least three of the instructors consulted with experts on both the design of the class and the facilitation of the class, at least one of those classes had issues. In this case, the presence of a grader who had more contact with the students may have affected the perceptions of satisfaction. Research has shown definitively that interaction between the student and the instructor is one of the most powerful determinants of satisfaction in the online class (Dixon et al., 2007; Eom et al., 2006; Gaytan & McEwen, 2007).

All four instructors were directly involved in the development of both the instructional design and the syllabus for the classes. The issue of non-participation in the instructional design and writing of the syllabus as in when an adjunct accepts a contract to teach an online course was not addressed. Since this situation is becoming more common in both public and private institutions, this is an area of possible future research (Bedford, 2009).

The data in this study are clear. Online instructors need to have training in both how to design and how to teach an online class using group work if higher education administrations expect to have high student satisfaction and good learning outcomes.

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