LEARNING SATISFACTION OF JAPANESE ONLINE DISTANCE LEARNERS: SURVEY RESULTS

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ABSTRACT

This paper reports the findings of a mixed methods questionnaire study done with students (N=424) enrolled in a Japanese online distance university. Satisfaction with learning was explored by examining student opinions and learning preferences in regard to teacher interaction, course clarity, student interaction, computer interaction and student autonomy. Students were generally satisfied with their learning, and specifically, student satisfaction with learning was higher for students who: 1) could maintain motivation in the face of comprehension difficulties and isolation, 2) found computers easy to use, 3) found it easy to interact with instructors, and 4) did not prefer social interaction with others when learning.

INTRODUCTION

In Japan, at present about 250,000 students enroll in a total of 35 distance education programs or institutions [1]. Correspondence education or distance education was first recognized by the Ministry of Education in 1950, and since then it has been regulated differently from traditional on-campus education. Distance education in Japan relied on postal mail delivery of printed materials for a long time, and until 1998, 30 credits out of the 124 credits required for graduation had to be taken through face-to-face classroom teaching (i.e., schooling). In March 1998, this regulation was relaxed to allow the 30 credits to be taken through synchronous media such as video conferencing. Three years later, in March 2001, it was relaxed again to allow the 30 credits to be taken through the Internet. This made it possible for distance education programs to exist solely at a distance without requiring students to come to a campus or a study centre ever.

However, today most distance education programs and institutions in Japan still operate as correspondence schools with the primary mode of instructional delivery being postal mail and schooling; it seems difficult for existing distance education programs to adopt the new technology quickly. There are only a few programs in Japan that allow students to earn degrees totally online.

In this study, students of an online distance university in Japan were studied to determine the relationships between students' learning satisfaction and their opinions about distance learning, their general learning preferences, and demographic variables. The study's purpose is to increase understanding of the factors that influence the learning satisfaction of students in online programs in Japan.

BACKGROUND

Student Learning Satisfaction

Although learning itself should be the main goal of education rather than the mere attainment of degrees, learning is difficult to measure because of the inconsistencies associated with teacher's measuring and assigning grades to an internal process not directly observable. Therefore, student learning satisfaction is often used as an indicator of learning. In addition, students' grades on tests can reflect what was learned before entering a specific course of study. Accordingly, student learning satisfaction was used as the major dependent variable representing learning in this study.

In addition, using student satisfaction with learning as an indicator of learning raises questions as to whether students' perceptions reflect real learning levels. Students' perceptions of learning have been found to have reasonable validity [2], and in addition, student's perceptions are important because right or wrong, they are used by students in evaluations as to whether to continue in a program of study or to recommend one to others.

Students' level of learning satisfaction would be important to the designers of a particular learning program. However, it would more important to a broader audience to know what factors or aspects of

learning were predictors of student learning satisfaction. Information on predictors of learning satisfaction could be used to inform program design and learner support systems in related programs.

Distance Learning Variables

In order to investigate student satisfaction with learning in a distance learning context, a review of the literature was performed. Moore's [3] own seminal review of the distance learning field more than thirty years ago isolated 1) Student-Teacher Interaction, 2) Student-Content Interaction and 3) Student Autonomy as being the key variables of interest in distance learning. With the advent of the Internet and the ability to connect learners in an online learning community, 4) Student-Student Interaction was later added to the list of important distance learning variables.

Along with Student Autonomy, the three types of interaction mentioned above were selected as the main variables in the present study. According to Anderson's "Theory of Equivalency" [4], if the quality of interaction is high in any of these three main areas of interaction, "sufficient levels of deep and meaningful learning can be developed."(p. 4) Anderson's theory takes into account that in any student population individual learners may have preferences to participate in certain types of interaction and avoid others, while still achieving high learning outcomes. Finally, a fifth variable, Learner-Interface Interaction was added as a minor variable, as suggested by Hillman, Willis and Gunawardena [5].

METHODS

The population of this study was all the undergraduate students enrolled in a Japanese online university located in a major urban area. Students at this university take all or nearly all their classes via the distance mode. Approximately half the classes offered utilize synchronous lectures that students can watch and respond to from their homes in real time. Recorded versions of these lectures are also made available to students on demand, to view at times they find convenient. In addition, approximately half the classes offered are much like traditional correspondence classes in which students read textbooks, write assignments, papers and take tests at home. However, students are able to submit their work to their teachers via the Internet through a dropbox in the class website.

A questionnaire, the Distance Learning Questionnaire (DLQ), was developed by the researchers for use in this study and contained Likert five-point scale items, open-ended question items and demographic items. The DLQ contained the following three main sections:

1) Opinions of Distance Learning
2) General Learning Preferences
3) Demographic Information

The main scale in this study was the Opinions of Distance Learning Scale, which consisted of 20 items. Four items were written for each of the four main study variables, and two items were written for the Computer Interaction variable and the Learning Satisfaction variable. The General Learning Preferences scale consisted of eight items; two items being written for each of the four main study variables. In addition, there were two open-ended items at the end of the Opinions of Distance Learning scale, and one open-ended item at the end of the General Learning Preferences scale.

Questionnaire development began in 2005 based on a review of the literature and the distribution of an exploratory open item questionnaire, as well as interviews with students and staff at the university. Finally, a Japanese translation of the questionnaire was made available to students on the university's website near the beginning of 2007.

FINDINGS

Quantitative Analysis

There were 1,414 students enrolled in the university at the time the questionnaire was made available to students, and 424 students completed the questionnaire, resulting in a 30.3% response rate. This volunteer sample was predominantly female (74.0%), with an average age of 36.1 years. 8.6% of students were traditional aged students 19-22, and 9.9% of students were 50-72 years of age. 46.5 % of students reported having had distance learning experience previous to entering this school.

A separate factor analysis was performed on each of the two scales in the questionnaire, and the following factors were identified: (Cronbach's alpha values indicating reliability are in parenthesis after each subscale)

A. Opinions of Distance Learning Subscales
   1) Motivation Challenges (.749)
   2) Student Interaction (.774)
   3) Course Clarity (.685)
   4) Teacher Interaction (.739)
   5) Computer Interaction (.451)

B. General Learning Preferences Subscales
   1) Preference for Course Clarity Facilitating Autonomy (.716)
   2)Preference for Social Interaction when Learning (.750)

The findings for the two research questions related to student learning satisfaction were as follows:

Research Question 1 - In general, how satisfied are students with their learning in this online distance education program?

Student learning satisfaction was measured by the following two items, using Likert-scale responses (ranging from 1=Strongly Disagree to 5=Strongly Agree):

Item 10 - All in all, I am satisfied with my learning in this distance learning program. (M=4.01)

Item 21 - All in all, based on my own experience, I would not recommend distance learning to my friends. (Reversed M=3.93)

Although the means of these two items were very similar (See Table 1), they only had a moderate Pearson correlation of .433 (p<.001). The average mean of the two items was 3.97, indicating that students were satisfied overall with their experience with this distance learning program. It should be noted that no students out of 422 chose to strongly disagree with Item 10.

Table 1
Student Learning Satisfaction Variable Means

Variable	N	Min.	Max.	SD	Mean
Item 10	422	2	5	.757	4.01
Item 21 (reversed)	421	1	5	.885	3.93
Items 10 & 21	419	1.5	5	.695	3.97

Research Question 2 - To what extent is student satisfaction predicted by a regression model containing the questionnaire subscales, and the demographic variables?

In order to answer this research question, a simultaneous multiple regression was performed to determine the relationship between the subscales, demographic variables and the two indicators of student satisfaction, Items 10 and 21 above. The results of the multiple regression with Item 10 are presented first.

Multiple Regression Results - Item 10

With Item 10 there was a significant result for three of the Opinions of Distance Learning subscales: Motivation Challenges, Computer Interaction, and Teacher Interaction and one of the Learning Preference subscales; Preference for Social Interaction in Learning,. However, none of the demographic variables were found to be statistically significant predictors of student learning satisfaction. Overall, the regression model was significantly different from the null model (i.e. no predictor model) (F(15, 298)=11.81, p<.001). In the following, each of the predictors is explained:

Predictor 1) Motivation Challenges – As agreement that students could maintain motivation in the face of comprehension difficulties and isolation grew stronger, student learning satisfaction increased. (Beta = 2.44, t(313) 4.14, p<.001). This indicated that for every 1-unit increase in the Motivation Challenges scale, student learning satisfaction increased by 2.44 units, holding all other predictors constant.

Predictor 2) Computer Interaction – As agreement that Computer Interaction was an advantage of distance learning grew stronger, student learning satisfaction increased. (Beta = .222, t(313) 4.26, p<.001). This indicated that for every 1-unit increase in the Computer Interaction scale, student learning satisfaction increased by .222 units, holding all other predictors constant.

Predictor 3) Teacher Interaction – As agreement that Teacher Interaction was an advantage of distance learning grew stronger, student learning satisfaction increased. (Beta = .154, t(313) 2.39, p=.017). This indicated that for every 1-unit increase in the Teacher Interaction scale, student learning satisfaction increased by .154 units, holding all other predictors constant.

Predictor 4) Preference for Social Interaction in Learning - As preference for social interaction grew stronger, student learning satisfaction decreased. (Beta = -.114, t(313) –2.36, p<.019). This indicated that for every 1-unit increase in the Preference for Social Interaction in Learning, student learning satisfaction decreased by .114 units, holding all other predictors constant.

Multiple Regression Results - Item 21

Item 21 was also designed to measure the degree of student learning satisfaction, however, it was negatively worded. With Item 21 there was a significant result for one of the Opinions of Distance learning subscales, Motivation Challenges, and one of the demographic variables, Year of Entry. Overall, the regression model that resulted was significantly different from the null model (i.e. no predictor model)(F=(15,300) =6.198, p=.001).

Predictor 1) Motivation Challenges – As agreement that students could maintain motivation in the face of comprehension difficulties and isolation grew

stronger, student learning satisfaction increased (Beta = .361, t(315) =5.54, p<.001). This indicated that for every 1-unit increase in the Motivation Challenges scale, student learning satisfaction increased by .361 units, holding all other predictors constant.

Predictor 2) Year of Entry (Fall 2006) – Being a Fall 2006 entrant, compared to three other groups - Spring 2006 entrants, 2005 entrants and 2004 entrants, led to increases of .258 point on Item 21 after controlling all the other predictors. (Beta = .135, t(315)= 2.04, p =. 042). This indicated that for Fall 2006 entrants, student learning satisfaction increased by .135 units, holding all other predictors constant.

Qualitative Analysis

A separate qualitative analysis was performed on the 840 student responses to the three open-ended items used in the questionnaire. None of the three items addressed student learning satisfaction directly; however, there were findings relevant to this research question.

1) In the open-ended item (Item 11) that asked students about the advantages of distance learning, the largest number of student responses (69.3%) concerned the convenience of being able to study at times and places of students' choosing.

Responses such as these were common:

"Because of work it is very difficult for me to attend school, so this school is very helpful."

"It is convenient to study when you have a break from childrearing duties."

2) In the open-ended item (Item 22) that asked students about the disadvantages of distance learning the largest number of responses (42.5%) concerned the difficulties of interacting socially with the teacher and other students.

Responses such as these were common:

"It is difficult to communicate with the teachers. They are slow to answer my email"

"Making friends is difficult. When you attend a traditional school, you can meet people your own age. Via the internet it is difficult to connect or feel an affinity with others."

3) Particularly with distance learning courses that were text based, it was important to students that course content and assignments was easy to understand because this facilitated independent study in this learning context. Many comments mentioned that difficulties understanding content lead to inertia and trouble maintaining a study schedule. For example, one student wrote,

"It is difficult to be sure you are understanding the text, which causes uneasiness when studying alone. It becomes difficult to move forward with study."

DISCUSSION

The quantitative findings in regard to student satisfaction indicated that students were generally satisfied with their learning in this program. Mean scores for the two closed questionnaire items designed to measure student satisfaction were both close to 4.0. This finding differed from that of Kubota and Fujikawa [5] who found that student satisfaction tended to be low in the distance learning courses they developed. There are several possible reasons for the differences in student satisfaction found in the two studies. Kubota and Fujikawa attributed the low level of student satisfaction they found, in part, to the difficult and technical nature of the course, Introductory Finance, which they did not feel their students were prepared to succeed at without ample opportunities for clarification, best provided in a face to face setting.

Another likely factor was that Kubota and Fujikawa's research took place with students taking just one distance course within a traditional face to face degree program. Learners in this sample, on the other hand, self-selected this university with its unique mode of online distance delivery. Self-selection of online classes was found to lead to greater student satisfaction in a study done with American learners [7].

In regard to the predictors of student satisfaction, it should first be noted that gender, age or previous distance learning experience did not emerge as significant predictors of student satisfaction. This finding was consistent with Hiltz and Shea's [8] observation that "demographic characteristics such as age and gender are weak predictors of success in ALNS" (i.e., asynchronous learning systems), compared to pedagogical factors. In this study, four pedagogical factors: Motivation Challenges, Computer Interaction, Teacher Interaction and Preferences for Social Interaction when Learning, did emerge from the multiple regression analysis as significant predictors of student learning satisfaction.

The strongest predictor of student learning satisfaction was the Motivation Challenges subscale, which positively correlated with both student satisfaction items (Item 10, r = .499, Item 21, r = .433). This was the only subscale that was a significant predictor of student satisfaction as measured by both Item 10 and Item 21. Students who thought they could maintain motivation in the face of

comprehension difficulties and isolation were more satisfied with their learning than those who did not. This subscale contained two items originally designed to measure student autonomy, and can be considered a perseverance related aspect of autonomy. This finding supported Mielke's[9] finding that perseverance was the most important success factor in online learning.

The second strongest predictor of student satisfaction was Computer Interaction. The correlations with Item 10 and 21 were both significant (Item 10, r = .391, Item 21, r = .318). Students who thought computers were easy to use tended to be more satisfied with their learning than those who did not. It seems logical that ease of use of computers would have an influence on levels of student satisfaction with learning in an online course. This supports findings by Miller, Rainer & Corley [10] who found a positive relationship between student comfort with technology and student success and satisfaction with online courses.

The finding for the importance of student autonomy in student satisfaction was further supported by the third finding that emerged from the multiple regression that the Preference for Social Interaction when Learning subscale negatively correlated with Student Satisfaction Item 10 (r = -.195), indicating that students who did not prefer social interaction when learning were more satisfied with their learning than those who did. Clearly, having a preference for an aspect of learning that is not easy to obtain in a particular context would lead to less satisfaction.

Finally, Teacher Interaction also emerged as a significant predictor of student satisfaction. Students who thought instructors are easy to interact with were more satisfied with their learning than those who did not. Of the seven subscales, this subscale had the second highest correlation with Item 10 (r = .455). In fact, the item in questionnaire that had the highest correlation with student satisfaction (Item 10) was:

Item 6: "It is easy to ask my teachers questions about assignments."

This finding lends support to the studies by Chen and Willits [11], and Fredricksen et al [12], which found interaction with the teacher to be the main predictor of perceived learning in distance learning programs. Finally, recent entrants were somewhat more satisfied with learning than students with more experience, indicating that perhaps a "honeymoon" period exists for recent entrants to the program.

To summarize, three of the four predictors of student learning satisfaction that emerged from this analysis emphasized the importance of personal factors for learning satisfaction in this educational context. 1) Motivation Challenges stressed personal perseverance and 2) Computer Interaction stressed personal abilities. In addition, the Preference for Social Interaction in Learning subscale was negatively correlated with student learning satisfaction, indicating a preference for personal independence in learning. The other important predictor of student learning satisfaction was Teacher Interaction, not surprising due to the fact that several studies have found interaction with the teacher to be important to learners in other countries as well as in Japan, where a teacher-centered approach to learning and appreciation of authority figures is common.

Clearly it is a challenge to provide large numbers of students with opportunities for interaction with the teacher. The learning system at this university, which allows for synchronous and asynchronous viewing of lectures as well as communication via the Internet is an attempt to meet student needs for interaction with the teacher in a cost effective manner.

The findings for Course Clarity and Student Interaction were neutral in the prediction model. However, in the qualitative responses Course Clarity was mentioned as a feature of learning that facilitated independent learning as it can be difficult to proceed with study in a distance learning program if the content or the assignments are unclear. In regard to Student Interaction, some students mentioned the positive influence of interaction with other students on morale and motivation. Other students mentioned a lack of interest in interacting with other students or reticence to interact with unknown others in an online environment.

It should be noted that professors at this university do not typically require students to work together on projects or ask them to engage in online asynchronous threaded discussions as is common in American distance learning courses. It is interesting to consider whether personal experience with a more "constructivist" mode of learning might convince students of the benefits of social interaction in learning. Responses indicated that students may need encouragement as well as help developing skills for interaction in a "low context" online environment where information about others is lacking.

CONCLUSION

The findings of this study indicated this learning context attracts predominantly older, female learners, almost half of whom had previous distance learning experience. This learning context was most satisfying for independent, computer competent learners who were able to take advantage of the opportunities for interaction with the teacher that were provided. Students appreciated clear course content and assignments as this facilitated independent study. More interaction with other students would be

preferred by some students. Devising activities that encouraged interaction between students would be a way to increase satisfaction for these learners.

The learners who have selected this university appear different from traditional Japanese university students in several regards; however, the reasonably high level of student satisfaction in the sample indicated that this university is able to attract students that are suited to the demands of this learning context.

Online distance learning programs are relatively new to Japan, and attract people who don't fit the profile of traditional college students. It is different than in the U.S. where online programs and online universities have become more common, and people don't distinguish as much between online programs and traditional programs. In Japan many still choose to enroll in distance learning programs because there are no other choices due to their work or domestic responsibilities. In addition, the mode of instruction in Japan still follows a predominantly transmission model of instruction in which interaction between teachers and students and also between students is not emphasized as much as the packaging and delivery of course content.

In future studies, it would be interesting to compare the learning satisfaction of distance learning students with that of on-campus students in relation to attitudinal and learning style variables. It would also be valuable to examine how pedagogical factors (such as the transmission model of education vs. the constructivist model of education) affect the learning satisfaction of students in distance education programs.

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