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COURSE SATISFACTIONS AND STUDY INSTRUCTION METHODS USED BY CLUSTER OF UNDERGRADUATE STUDENTS IN UNIVERSITI TEKNOLOGI MALAYSIA: AN ANALYSIS

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Abstract
The main purpose of this study is to identify the differences in the levels of course satisfaction of Universiti Teknologi Malaysia (UTM) students between two different methods of study instruction as well as to suggest ways to increase the students' performance. In order to help UTM to improve their students' performance, the study is conducted to identify the factors which contribute to the dissatisfaction of students so that they can be improved. With the intention of measuring the differences between conventional instruction and IT-based instruction, a survey had been conducted with 224 students from Diploma in Electrical Engineering which focused on students from Semester 1 until Semester 3. Respondents are asked to state their perception on the factors pertaining to the level of course satisfaction (Content, Delivery, Quality and Convenience, Challenge of Examination, and Enriching Environment) based on their observation, using a Likert scale of 1 to 5. Frequencies, Descriptive Statistics, One-Way ANOVA, and profile plot are used to reach the goals of the study. The survey was well received and the response return rate comprised 91.07% of the total. The results reveal that the majority of the students appear to be pleased and satisfied with the teaching and learning methods in conventional instruction practiced by UTM. The results also indicate that IT-based instruction became the most important factor that requires improvement by UTM in the aspects of quality and convenience because this scored the lowest in mean value. In conclusion there is a difference in the mean scores of course satisfaction level of students between conventional instruction and IT-based instruction.   The study also describes the limitations associated with conducting surveys and provides recommendations for further research.

Keywords: Innovation of Study Instruction, Course Satisfaction, Conventional Instruction, IT-Based Instruction, Enriching Sustainable Environment.

1.   Introduction

A study on the level of satisfaction in relation to methods of instruction involves many factors. According to Rosenfeld (2005), there are many kinds of study methods applied in any schools, private colleges and universities. Usually, students will choose the kind of study method that matches their needs, and one that they are comfortable with. Among of the study methods that are always being discussed is the conventional method of study (Benbunan-Fitch, Hiltz & Turoff, 2001). The collection of information from students about their learning environment, method of study and satisfaction level is vital and appropriate for university to understand whether it is successful in meeting their goals. Since the Universiti Teknologi Malaysia (UTM) City Campus is very young in age compared to its main campus in Skudai, it is focusing on producing glocal engineers who are highly talented in both engineering theory and practice. Therefore, UTM should be aware of the expectation of industry towards its students. Moreover, according to UTM (2007/2008), it can be seen that UTM's students have an opportunity to be employed by large companies as the students are known to be intelligent besides having had a wide exposure to the industry. Also, the university needs to be serious in considering the effectiveness of the technology it uses in relation to the learning styles and satisfaction of students. This is very important in order to maintain the good name and image of university. Moreover, UTM City Campus has invested much in programmes that lead to students' personal development. All of these efforts should eventually result in producing graduates who are not only effective in the engineering field of their choice, but are also capable of being independent entrepreneurs who possess commendable and praiseworthy traits.

The survey will help the university to improve the quality of their graduates based on the employers' feedback. It may also helps the university to realize that the level of course satisfaction among students, especially towards the management of university itself, including the teaching and learning process is very important in order to encourage a very high performance level in students. Recently, there has been a lot of debate about the effectiveness of IT-based instruction which allows students to put more effort in uploading and downloading study materials by themselves. On the other hand, there are universities that still maintain the traditional concept of learning, which provides the students with the full set of reading materials.

2.   Review on Course Satisfaction towards Study Instruction Methods

This chapter is concerned with the review of literature that has been made. The chapter explains several foundation models regarding conventional instruction and IT-based instruction theories. In addition, it also explains the perspectives and views of past researchers on the factors pertaining to the course satisfaction level, which consist of content, delivery, quality and convenience, challenge in examination and enriching environment. The models and theories explained will provide a basis for the research model of the current study which will be shown at the end of this chapter. The hypotheses of this study will also be presented at the end of the chapter.

Conventional Instruction

Support and guidance for assignment preparation in conventional instruction is given in a one-way delivery mode by way of guidance notes to assignment writing or model answers (Yatrakis & Simon, 2002). In addition, written feedback on assignments is also made available after the submission of the assignment (Quitadamo & Brown, 2001). It also involves face-to-face discussion, which is a platform to support the communication and guidance for the learners in resolving the difficulties in interpreting the requirements of written assignments and writing it appropriately (Vrasidas & McIsaac, 2000). Hence, assignments need to be designed as such that it is less interactive and non-collaborative, and so did not offer learners an opportunity to develop higher cognitive skills (Vonderwell & Turner, 2005).

IT-based Instruction

The roles of the teacher and students change in a technology-supported and mediated learning environment (Nicholson & Sarker, 2002). The teacher changes from one who transmits content and directs students to a mentor and a guide. The teacher helps students develop skills (Nicholson, & Sarker, 2002). IT-based instruction is flexible in that the instructional style can take a conventional method of study where content is delivered to students through on-line systems. For example, weekly class attendance can be replicated in an online environment by weekly online postings and presentation of materials (Vonderwell & Turner, 2005). On the other hand, to cater to individual interests and styles, students are allowed access to course materials and content all the time. Furthermore, according to Sheard and Markham (2005), instructors should interact and communicate with students at any time. For example, working students that require communication in the evenings and weekends should obtain the same instructional support as their weekday counterparts (Nunn, 1998). Online students have independence and convenience that classroom learning students do not have (Bryant, Kahle, & Schafer, 2005).

A Comparative Analysis of Conventional Instruction and IT-based Instruction

The education literature is full of comparative studies of traditional versus technologically-mediated instruction. Bourne and Moore (2000) taught both methods of study using the same content, activities, and assignments. Data on student perceptions of course quality were captured using a hybrid instrument developed from the Distance and Open Learning Scales (Harrison, Seeman, Behm, Saba, Molise, & Williams, 1991) and the Dimensions of Distance Education (Jegede, Fraser, & Curtin, 1995). Course grades and a student self-assessment of skills were used to measure learning outcomes. Study results revealed no significant difference in learning outcomes between the traditional and the on-line formats (Hannay & Newvine, 2006). However, students in the traditional class tended to be more satisfied with the course and instructor than did their on- line counterparts.

Course Satisfaction

Measuring student satisfaction within the context of comparisons between conventional instruction and IT-based instruction becomes closely related to discussions on how interactive is technology-mediated IT-based instruction if compared to conventional instruction (Bryant, Kahle & Schafer, 2005).

Contents
Chong (1998) defines students' course satisfaction as the students' perception pertaining to their college experience and perceived value of the learning attained while attending an educational institution. Satisfaction that influences the students' level of motivation has been found to be an important psychological factor in academic success (Chute, Thompson & Hancock, 1999), in which level of satisfaction has impacts on the retention rate (Grant, Stanfield & Land, 2000). Therefore, information on students' course satisfaction is useful to improve the course (Chute, Thompson & Hancock, 1999).

Delivery
The relationship between course-delivery mode and course satisfaction has been poorly understood. Roach and Lemasters (2006) found that the end results of online education may be similar or might be better than traditional on-site formats.

Quality, Challenge in Examination and Enriching Environment
Watkins, Leigh and Triner (2004) found that the increased levels of software mediated interaction in online classes resulted in higher quality and convenience in the learning environment. There are also other elements that can be used to measure the level of students' course satisfaction, which is based on their convenience in studying, the feeling towards the challenge of examination and the learning environment itself (Bourne & Moore, 2000). The subject matter and challenge in examination also influenced students' satisfaction, which differs between online and traditional courses (Grinnel, 2001).

3.   Methodology

Research Design

The study investigated the differences between one variable and one categorical group, thus the type of investigation is a comparative analysis study. A comparative study attempts to investigate the differences between one variable to another variable (Sekaran, 2006). All data in this study were gathered at one time. It is a cross-sectional study.

Sampling Frame

The sampling frame is a list of population members from which a sample is selected (Richardson, Balachander, Cheng, Khong & Leo, 2005). The sampling frame for this study was selected from the list of the students from the Diploma of Electrical Engineering (DEE), UTM City Campus.

Population

Population refers to the target people, events, or things of interest that the researcher wants to investigate (Sekaran, 2006). The population of this study comprised the total number of students in the Diploma of Electrical Engineering in Universiti Teknologi Malaysia (UTM), City Campus, Kuala Lumpur. The list obtained from UTM indicated that there were 195 students from Semester 1, 123 students from Semester 2 and 130 students from Semester 3. Therefore, the population of this study was the total number of students from three semesters in Diploma of Electrical Engineering in UTM, which were 448 students.

Sampling Technique

According to Sekaran (2006), a stratified sampling technique is the most suitable when differentiated information is needed regarding various strata within the population. This study used the stratified sampling technique to select the subjects for the study. A survey was carried out to identify the differences in the level of satisfaction between classroom instruction and on-line instruction.

Sample Size

According to Roscoe (1975), a sample size larger than 30 and less than 500 is most appropriate for researchers. Therefore the researcher took 50% from the population out of 448 students, so the total sample size was 224 students from Diploma of Electrical Engineering.

4.   Result and Analysis

Response Return Rate

From a total of 224 questionnaires sent out, using a combination of self-distributed and the student's representative assistance, 204 questionnaires were returned and this was equivalent to 91.07% of the response return rate.

Respondents' Demographic Profile

This section tabled the demographic information of the respondents involved in this study. The presentation of the respondents' gender, age, semester, method of study instruction and courses were in the form of frequency and percentage. Table 4.1 shows the gender of the students who were taking Diploma in Electrical Engineering. It was found that the majority of the students were male, which were 105 (47.3%). Meanwhile the female percentage was 99 students with the percentage of 44.6%.   It was also found that the percentage of the students from age 18 – 25 years old was 184 (82.9%), followed by the students from age 26 – 35 years old 20 (9.8%) who responded to the questionnaire. It was found that the percentage of the students from Semester 1 was 44 (19.8%), followed by 96 (43.2%) students from Semester 2, and 64 (28.8%) students from Semester 3 who responded to the questionnaire. Meanwhile, the percentage of students from Semester 1 who were taking the Conventional Instruction course was 24 (11.76%) students, followed by 44 (21.57%) from Semester 2, and 34 (16.67%) from Semester 3. However, for IT-based Instruction, there were only 20 (9.80%) and 52 (25.49%) students from Semester 2, and last but not least 30 (14.71%) students from Semester 3 who responded to the questionnaire.

Research Question 1

What are the levels of student course satisfaction on method of study instruction in UTM?

This section discusses the findings for the RQ 1: to investigate the levels of students' course satisfaction towards two methods of study instruction.   The five statements related to the students' course satisfaction were developed based on the related literature review. The respondents were asked to rate the level of satisfaction of each of the statements using the scale of: (1) Strongly Disagree, (2) Disagree, (3) No Opinion, (4) Agree and (5) Strongly Disagree. The data were calculated for overall mean, standard deviation, minimum and maximum rate.
1. *Descriptive Statistics of Students' Course Satisfaction Level towards both methods of study instructions*
        Table 4.2 shows that the mean score for satisfaction towards contents of study was 3.0677 (*SD*=.60708). The mean score of more than 3.000 indicates that the level of satisfaction was positive. For satisfaction on delivery of study, the mean score was 3.0941 (SD=.69127) indicating a slightly positive satisfaction on the method of study instruction. The table shows that overall respondents had enriching learning environment factors (Mean = 3.0735, SD = 1.12713). However, for satisfaction on quality and convenience of the study, the mean score was 2.9020 (SD=.81787) indicating a lack of positive the mean score was less than 3.000 that indicates that the level of satisfaction was somewhat negative. Again, the table shows that satisfaction towards the challenge in examination was also slightly negative (Mean = 2.9616, SD = .70071)
Based on the findings, it shows that the mean score for classroom instruction was 3.6834 (*SD*=.20549). The mean score of more than 3.000 indicates that the satisfaction towards classroom instruction was positive. However, for on-line instruction, the mean score was 2.3567 (SD=.25859) indicating a lack of positive the mean score was less than 3.000 that indicates that the level of satisfaction towards on-line instruction was somewhat negative. Again, the table shows that satisfaction towards the challenge in examination was also slightly negative (Mean = 2.9616, SD = .70071). Students from UTM are prefer classroom instruction where the level of satisfaction toward the classroom instruction is greatly differ compare to on-line instruction.

Discussion
The moderate response from the respondents in Table 4.2 indicates that the aspects in study instruction are not fully acceptable and agreed by the respondents; the finding shows that contents, delivery and enriching learning environment seem to be more relevant for the students in receiving the instruction of study from both of the method of study instruction.

Research Question 2
Is there any significant difference in the levels of Students' Course Satisfaction for Method of Study Instruction (Conventional Instruction vs. IT-based Instruction)?

This section discusses the findings for the RQ 2: to identify the significant differences in the levels of students' course satisfaction towards two methods of study instruction. The respondents were asked to rate the level of course satisfaction of according to the method of study instruction taken using the scale of: (1) Strongly Disagree, (2) Disagree, (3) No Opinion, (4) Agree and (5) Strongly Disagree. The data were calculated by conducting One-Way ANOVA test.

The reason for conducting the One-Way ANOVA was because ANOVA has the advantage that it can be used to analyze situations in which there are several independent variables. In these situations, One-Way ANOVA tells us how these independent variables interact with each other and what effects these interactions have on dependent variable. ANOVA is a way of comparing the ratio of systematic variance to unsystematic variance in an experimental study.

1. *Descriptive Statistics of One-Way ANOVA for Method of Study Instruction*

Based on the results of this study, there were significant differences in the mean of Satisfaction for Content and Delivery between Conventional Instruction and IT-based Instruction. The mean of Course Satisfaction for Content, Delivery, Quality & Convenience, Challenge of Examination and Enriching Environment for Conventional Instruction were 3.64, 3.72, 3.62, 3.53 and 3.91 respectively. However, for IT-based Instruction the means of Satisfaction for Content, Delivery, Quality & Convenience, Challenge of Examination and Enriching Environment were 2.50, 2.47, 2.18, 2.39 and 2.24 respectively. It implies that the mean for Conventional Instruction was significantly higher than the mean for IT-based Instruction.

Last but not least, a pairwise comparison is produced to test the difference between each pair of means. Castella and Burger (2002) stated that asterisks in the SPSS output indicate significantly different group means at an alpha level of 0.05. When testing a small number of pairs, the Bonferroni test is more powerful than other multiple comparison tests (Tabachnik & Fidell, 2001).
The result was also approved according to Kuehl (2002) with the table of pairwise comparison between Conventional Instruction and IT-based Instruction below.
Based on Table 4.4, it implies that there were significant differences in the level of students' satisfaction between the mean for Conventional Instruction and IT-based Instruction. It was found that the mean for Conventional Instruction was significantly higher than the mean for IT-based Instruction. According to Kuehl (2002), the asterisks (*) indicate there are two pairs of groups whose means differ significantly (at the $p < .05$ level) from each other.

Discussion
Based on the findings, it can be revealed that the content of study in Conventional Instruction is much valuable compare to IT-based Instruction. Whereby, according to Chong (1998), student's course satisfaction towards content of study is also measure the student's perception pertaining to their experience in university and the value of contents being perceived while they attended the learning hours.

5.   Conclusion

Overall, it can be concluded that conventional instruction is still at a high level of satisfaction where students prefer to be in a classroom rather than gaining material and uploading information through IT-based instruction. However, it still depends on the nature of individuals or organizations whether to accept the new changes, especially in technologies or maintain things at the comfort zone without any new learning or environment (Roach & Lemasters, 2006).

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