An Application of the Unified Theory of Adoption and Use of Technology for Understanding Teachers' Perceptions on the Use of the Course Management Software: Basis of A Proposed Implementation of Online Course Development

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Abstract

The introduction and implementation of new technology sometimes fail due to some aspects that were overlooked. One of which is the assessment of the users on how they will adopt the technology to ensure its success. Through the use of the Unified Theory of Adoption and Use of Technology (UTAUT), this paper proposed a strategy for the successful implementation of online delivery courses in Centro Escolar University (CEU) by determining the faculty readiness in adopting course management system.

This paper was able to identify the factors affecting the use of course management system through the use of descriptive method. The data that were gathered from the selected faculty members were statistically treated and analyzed. The results indicated that age and gender do not affect the user intention to course management system. These factors also ensure the continued utilization of such system by the faculty. In addition, performance expectancy, effort expectancy social influence and facilitating conditions affect the user intention. The results implied that CEU administration need to focus on both perspectives of user performance and experience to facilitate the adoption of course management system and to achieve a successful implementation of online course development.

Introduction

The ever-increasing use and adoption of information and communication technologies by many universities over the past years have resulted to a growing investment in software that makes distance learning possible. This software, known as the course management software, automate the administration of courses, while at the same time, enhance student learning. Instructors are looking for ways to help the students improve their learning process, but now, with the availability of internet connection and greater bandwidth, the administration of the courses become much easier and more flexible. Using course management software enables instructors to demonstrate real world application online. Students are guided in the process of analyzing real world cases, gathering information, testing validity and applicability, and creating meaningful solution for the business organization. Aside from that, students can also access course materials, submit assignments online and collaborate

on team projects. The use of internet and course management system has now become an important part of students' learning environment.

The use of course management system and the adoption of information and communications technology by universities are constantly rising. These have helped in building IT infrastructure capable of adopting the use of course management system. One reason for its implementation is to accommodate students who do not have the time to go to school regularly. In some countries, it bridges the educational divide. Course management system implementation transforms the delivery of instruction from the traditional classrooms into ICT driven educational systems. Still in its infancy in the Philippines, its success is dependent on how its users, mainly, the instructors, staff and students, adapt to it.

Statement of the Problem

1. What is the profile of the respondents in terms of:
    1 age
    2 gender
    3 specialization
    4 highest educational attainment
2. What is the status of the respondents on the following determinants of user intentions:
    2.1 performance expectancy
    2.2 effort expectancy
    2.3 social influence
    2.4 facilitating condition
3. How do the status perceptions of the respondents compare when grouped according to:
    3.1 age
    3.2 gender
    3.3 specialization
    3.4 highest educational attainment
4. Which among the above-mentioned variables are determinants of behavior intention to use course management system?

5. Based on the perception of respondents on the course management software, how can online course management system be implemented?

Method

This study made use of the descriptive method and Unified Theory of Acceptance and Use of Computer (UTAUT). The UTAUT design was applied to get the perception of faculty members on the use of course management system. The results will serve as basis for the development of online course management system in Centro Escolar University. The respondents are the faculty members of CEU who have experienced using any course management system.

To establish the validity and reliability of the test instruments, the questionnaire was pre-tested to a set of teachers who were no longer included in the final assessment of the study. An SPSS software for the Cronbach's Alpha Statistical Treatment was used to measure the validity of the questionnaire.

Teachers Perceptions questionnaire reliability statistics

Cronbach's Alpha	Number of Items
.904	31

Statistical Treatment of Data

The data in this study were statistically treated and analyzed. To describe the profile of the faculty members, frequency, percentage, mean, and standard deviation were employed. In determining homogeneity and heterogeneity of the respondent's answers, standard deviation was used. Linear regression was used to identify the relationship of the determinants to use behavior. Linear regression was also used to determine which among the four constructs of UTAUT is the strong determinant for the user intention of the respondents.

Findings

1. Profile of the respondents

The respondents' ages ranges from 21 years old to 61 and above. Majority of the respondents are between 31-40 and 41-50 years old, both having 22.5% of the total number of respondents. 71.8% of respondents are female.

Most respondents specialize in Mathematics, comprising 15.5% of the total number of respondents, followed by 12.7% specializing in Chemistry. Respondents were classified according to school or department where they belong. 50.7% of respondents have Master's degree while 21.1% of respondents have Doctor's degree.

Status of the respondents as regards the following determinants of user intentions:

2.1 Performance Expectancy.

The respondents agree, in a mean of 4.27, that using the course management system in CEU is useful in their teaching and learning of the students. The respondents also perceived that using the course management system will enable them to accomplish their task quickly and that it will increase their productivity. The overall rating, in terms of performance expectancy, is 4.2077, which is equivalent to a verbal interpretation of agree.

2.2 Effort Expectancy

The result in effort expectancy indicates that respondents do not have difficulty in using the course management system. With a mean of 4.04 respectively, respondents perceive that their interaction with course management system would be clear and understandable, it will make them skillful, and that learning to operate CMS will be easy.

The overall rating of 4.0599 with the verbal interpretation of agree suggests that respondents need not exert so much effort in using the course management system.

2.3 Social Influence

The assessments made by the respondents in using course management system in terms of social influence resulted with the overall mean rating of 3.8944 or agree, which implies that people who influence the respondents is the main reason they are using course management system. This received a mean rating of 3.99 with the verbal interpretation of agree.

2.4 Facilitating Condition

The overall assessments of course management system in terms of facilitating condition revealed that respondents agree on having the knowledge, resources and system compatibility necessary to use the course management system with a mean of 3.8275 or verbal interpretation equivalent to agree.

Facilitating condition evaluates the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system. The ratings on the table indicated that hardware, software and people resources are available in CEU to facilitate the use course management system.

The status perceptions of the respondents compared when grouped according to:

3.1 Age.

Comparing respondents' perception on performance expectancy, effort expectancy, social influence, facilitating condition when grouped according to age have a level of expectancy at .208, .784, .829 and .122 respectively. There is no significant difference on the response due to the near disparity of age.

This indicates that age makes no difference on the respondents' answers, and that the software fits the users regardless of age. As such, in its implementation program, there is no need to categorize trainees according to age.

3.2 Gender

The comparison of the respondents in the different determinants when grouped according to gender with the following significance level for performance expectancy at .408, effort expectancy at .889, social influence at .824 and facilitating

condition at .349, revealed that there is no significant difference for the four determinants because majority of the respondents are female and only few are male.

This indicates that when it comes to gender, like age, there is no difference on the respondents' answers, and that the software fits both genders. In the implementation program, particularly on the training of the faculty users, the trainees need not be categorized according to gender.

Comparison of the Respondents' Perception on Performance Expectancy When Grouped According to Specialization

	Specialization	Mean	Standard Deviation	F	Sig	Verbal Interpretation	Pair
Performance Expectancy	Math	4.0909	.8608	3.690	000	Significant	Math vs Business
	Filipino	4.7500	.5000				Filipino vs Business
	Biology	4.8750	.1768				Biology vs Business
	International Languages	4.0714	.4725				International Languages vs Business
	Chemistry	4.1667	.4146				Chemistry vs Business
	Philosophy	4.7500	.3536				Philosophy vs Business
	Business	2.6875	1.5462				
	Total	4.2077	.7906				

3.3 Specialization

Performance expectancy is .002 with a verbal interpretation of significant difference. This suggests that performance expectancy is low among those who specialize in business as compared with all other areas of specialization.

Perception on effort expectancy when grouped according to specialization is . 077 with a verbal interpretation of no significant difference.

Perception on social influence when grouped according to specialization is . 072 with a verbal interpretation of no significant difference.

Perception on facilitating condition when grouped according to specialization is .139 with a verbal interpretation of no significant difference.

Perception on behavioral intention when grouped according to specialization is .005 with a verbal interpretation of significant difference. This suggests that behavioral intention is low among those who specialize in Business as compared with all other areas of specialization.

In the implementation, there will be a separate treatment for the Business group. The respondents answered low in performance expectancy and behavioral intentions, thus, there is a need to conduct orientation or re-education of the Business group on the effectiveness of the course management system. A survey is needed to get the respondents' reason on the low performance expectancy to be able to strategize the implementation.

3.4 Highest Educational Attainment

Perception on performance expectation when grouped according to highest educational attainment has a level of significance at .658, with a verbal interpretation of no significant difference. This means that there is no significant difference among the respondents with different educational attainment.

Perception on effort expectancy, when grouped according to highest educational attainment has a level of significance at .988 with a verbal interpretation of no significant difference.

Perception on social influence, when grouped according to highest educational attainment has a level of significance at .893 with a verbal interpretation of no significant difference.

Perception on facilitating condition, when grouped according to highest educational attainment, has a level of significance at .497 with a verbal interpretation of no significant difference.

Perception on behavioral intention, when grouped according to highest educational attainment, has a level of significance at .497 with a verbal interpretation of no significant difference.

These indicate that there is no difference on the responses, and that the software fits the users regardless of their highest educational attainment. In the implementation program, there is no need to categorize trainees according to their highest educational attainment.

Table 4
Respondents' Assessment on Determinants of Behavioral Intention
in the User Intention to use Course Management System

Determinants	R square (Coefficient of Determination)	B (Beta Coefficient)
Constant		.007
Performance Expectancy (X_1)	0.653	.647
Facilitating Condition (X_2)	0.79	.354

$$Y \text{ (Behavioral Intention)} = .007 + .647\ X_1 + .\ 354\ X_2$$

Excluded:

Determinants	R square(Coefficient of Determination)	β (Beta Coefficient)

Effort Expectancy		-.005
Social Influence		-.002

Among the determinants of user intention, effort expectancy and social influence are excluded. This finding is based on the regression used for behavioral intention. Facilitating conditions and performance expectancy toward using technology are the main predictors on why respondents adapt the use of CMS in CEU.

In its initial implementation, there is a need to create a support group for the faculty and students, and establish an effective information dissemination on effectiveness of course management system. These were perceived as strong factors in the success of its implementation.

Conclusion

This study describes the teachers' perception of using course management system by applying the UTAUT model. The results of the study did not find strong support for the UTAUT model although the UTAUT study by Venkatesh, et. Al. (2003) suggests that the age effects greater for the older people and stronger willingness for the younger. To adapt a new Information Technology product, it appears in this study that age does not have a significant effect on the course management system. This may be because the respondents in the study have relatively near disparity in their ages, and the CMS software is fit to the users regardless of their age. Therefore, age, in this case, may not be an important factor or has no association with perceived usefulness of course management system.

Similar to age, gender has been recognized to play an important moderating role in Information Technology/Information System acceptance research. The male gender has relative tendency to feel more at ease with computers and this has also been demonstrated in the Information System literature and UTAUT studies. In this study, both males and females have very near disparity in terms of age, and as a result, gender did not appear to have a significant effect on the use of course management system.

Recommendations

1. In the implementation of the online course management system, a vision and mission should be established first and be made clear to all faculty members, non-teaching staff and the administration, because it is important to understand that the vision will result in the change of organizational culture.
2. The University should develop a curriculum focused on the new delivery method.
3. The University should train faculty members and non-teaching personnel. Training of instructors and support staff about the new technology is essential to help them effectively deal with change.

4. Plan for student support services for online distance education. This can be done by creating a web page that provides information, add forms and communication methods to the web pages and provides services like online counseling, online access to the student records, and others.
5. Provide training and support to the students. Students who are not prepared for the online environment can have a negative impact on the other student and the instructor in the online classroom.
6. Further study on the Business group with a low rating on the performance expectancy and behavioral intentions.
7. Due to the limited sample size of this study, further research is needed to include far disparity of age group of teachers for evaluating the validity of the model.

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