

# Teachers' Experiences toward Usage of Learning Management System: CANVAS

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The automated way of learning and interacting with students bids a lot of advantages that can be accomplished through different systems. Among these, the most popular approach is the use of a learning management system. Canvas, the world's most reliable LMS, is a platform being introduced in the universities in the Philippines. This research aims to examine the experiences of instructors toward the usage of Canvas according to the Unified Theory of Acceptance and Use of Technology (UTAUT) model. A total of 130 instructors teaching different courses and are exposed to the use of CANVAS participated in this study. An adopted and modified set of questionnaires based on UTAUT is used to collect data, which is then descriptively analyzed using SmartPLS 3. Results of this study encourage teachers to maximize the use of technology. Significant results and information on how to improve effective usage of the system were also obtained for administrators, instructors and students.

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*Keywords: Learning management system; CANVAS; UTAUT; Teachers' Technology Experience; Philippines.*

## Introduction

Emerging technologies offer a vast range of opportunities for promoting collaboration in higher educational institutions such as universities and colleges. Current trends in the field of education indicate a shift in pedagogical perspectives with student interactions.

Educational programs around the globe face challenges that limit or deter implementation of the technologies, though there are still courses that need to be disseminated in a traditional manner, but most could be conducted fully online (Ayodele, Oga, Bundot, Ogbari, 2016 & Beldarrain, 2006). Modern education needs an environment where everything, from managing to implementing, has to be done online through the use of the internet (Hackett, Lemoine & Richardson, 2017).

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With this rapid increase of technology infrastructures, educational institution has opportunity to make use of the Internet as a communication medium with the students. Technology-based learning is making institution more efficient and resourceful (Oluyinka & Anatalia, 2019, Ayodele, Endozo & Ogbari, 2018, Collins & Halverson, 2018).

Learning management systems allow students to view multimedia lectures, communicate with teachers and among learners in the learning communities, download course materials, take online quizzes, and submit homework and classwork assignments. In addition, these systems are used for improving the internal faculty organization (Fathema, Shannon, & Ross, 2015, Lacey & Reeves, 2014, Nielson, 2017, Oluyinka, Alina, Eta & Ajagbe, 2014).

Canvas is suggested as one of the world's most reliable learning management systems because of the uptime reliability of about 99.9 %. Canvas makes teaching and learning easy for everyone (Rabah, 2017).

With all these expected benefits, it is the purpose of this study to explore further the experiences of the instructors toward the usage of Canvas as Learning Management System in the private universities in the Philippines.

## **Literature Review**

Learning Management System is a web-based software programs that assists in the teaching and learning process (Chaubey & Bhattacharya, 2015). Unified Theory of Acceptance and Use of Technology established by Venkatesh (Venkatesh, Morris, Davis & Davis, 2003) was adopted.

The model describes four main constructs namely: (1) *performance expectancy*, which is defined as how the user believes that using the system can help him or her to achieve a skill in his or her work performance; (2) *effort expectancy*, which is the level of ease that is related to the use of the system; (3) *social influence*, which is classified by UTAUT as how a user believes other person using, and who is important other than him or her thinking about the use of technology; and (4) *facility conditions*, which refer to existing technical infrastructure that supports the use of technology.

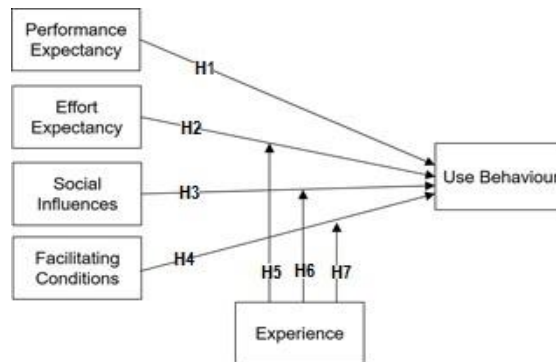
Several studies justified the robustness of UTUAT in structuring technology acceptance and usage model such as Abu-Al-Aish & Love (2013) study on factors influencing students' acceptance of mobile learning. Sumak, Polancic & Hericko (2010) adopted UTUAT to investigate virtual learning environment of students and instructors, the study stressed the usefulness of UTUAT to modified the model. Ifenthaler & Schweinbenz (2016), Raman, Don, Khalid & Rizuan (2014), Fathema, et.al., (2015), Venkaiah, Garimella & Koneru (2018) supported moderation effect of gender and experience in their studies.

A study on factors affecting acceptance and use of interactive whiteboard within the scope of project, which was conducted by Tosuntaş, Karadag & Orhan (2015), affirmed that

performance expectancy, effort expectancy and social influences have effect on the intention and facilitating conditions affect interactive usage of whiteboard. Similarly, Pardamean & Susanto (2012) agreed that e-learning media is also suitable for knowledge-sharing.

Wong & Russo (2013) justified that teachers get involved in technology when they see the value and benefits. This shows that the policy makers and curriculum designers have to spell out the advantages of using the technology, and organize training sessions on how to use it effectively. The high level of effort expectancy will result in high behavioral intention among teachers to use technology.

Dumpit & Fernandez (2017) suggested that performance expectancy as the most influential factor towards the acceptance and usage of ICT among teachers with the adoption of UTAUT. A total number of 78% of the respondents believed that ICT use in their work will increase their opportunity for promotion. The study also claimed that monetary incentive is related to the use of ICT. However, this proposed study is based on the teachers' experiences and usage of LMS canvas among the university teachers in the Philippines. The dimension of this study is illustrated in figure 1.



**Figure 1. Hypothetical conceptual framework.**

Based on the UTUAT and previous related study, the hypothetical statements are as follows: H1: *performance expectancy* has an effect toward the *use behavior* of instructors; H2: *effort expectancy* has an effect toward the *use behavior* of instructors; H3: *social influences* have an effect toward the *use behavior* of instructors; and H4: *facilitating conditions* have an effect toward the *use behavior* of instructors.

Furthermore, moderating the effects of technology experiences among instructors in relation with UTAUT factors were hypothesized: H5: instructors' technology experience moderates the relationship between *effort expectancy* and the *use behavior*; H6: instructors' technology experience moderates the relationship between *social influences* and the *use behavior*; and H7: instructors' technology experience moderates *facilitating condition* toward *use behavior*. The next section of this study presents the methodology towards achieving the objectives of this study.

### **Methodology**

This quantitative study with 25 items of questions as research instrument is based from the studies administered by Oluyinka, Shamsuddin and Wahab (2015), and Venkatesh, et.al. (2003). A 5-point Likert scale questionnaire, which ranges from 1 as *strongly disagree* to 5 as *strongly agree*, was adopted. The questionnaire utilized was validated before it was distributed to all the respondents. The subject pool consisted of 130 responses from Baliuag University and Angeles University Foundation. These two universities are among the first eight universities adopters of Canvas as a learning management system in the Region III of the Philippines. UTAUT model utilized to explain the instructors' experiences toward the usage of Canvas as a learning management system. UTAUT's factors and featured variables were considered.

### **Normality and Outliers**

The normality assumption of the dataset was based on the Kurtosis and Skewness indicators (Hair, Sarstedt, Ringle & Mena, 2012, Oluyinka, Shamsuddin, Ajagbe & Enegbuma, 2013, Sheridan, Coakes & Peta, 2006). Skewness and kurtosis z-value, the expected span of Skewness and kurtosis should be  $\pm 1.96$  and Shapiro-Wilk test p-value should be above 0.05. Data imperfectly distributed, about 80% of the Skewness z-values are above  $\pm 1.96$  which is acceptable for further analysis. Furthermore, the detected 23 outliers were deleted.

### **Composite Reliability**

According to Heale & Twycross (2015), the level of reliability of an instrument is shown when the responses are consistent. Moreover, composite and reliability of items must exceed 0.70 (Hair, et. Al., 2012). Thus, these are performed and achieved in this study.

### **Convergent Validity**

Average variance extracted adopted a general measurement to determine convergent validity for each construct, value should be 0.5 above. This was performed and 0.5 above achieved for each of the constructs.

### **Discriminant Validity**

The discriminant valuation has the goal to ensure that a reflective construct has the strong relationships with its specific parameters (that is, in comparison with others) in the PLS path model (Hair, Hult, Ringle, & Sarstedt, 2015). Henseler, Ringle & Sarstedt (2015) affirmed that the heterotrait-monotrait (HTMT) ratio in a principal factor analysis structural equation modeling is the most appropriate to detect lack of discriminant validity. Kline (2015) also found supported. Thus, HTMT was adopted in this study.

### Analysis and Results

This analysis and reports were based on a total of 130 instructors from Baliuag University and Angeles University Foundation.

### Demographic Details

Table 1 shows that this concluded study is dominated by female respondents with a total of 58.5% and the male respondents with 41.5%.

On the part of academic level of the respondents, the respondents with the bachelor's degree comprised 65% compared to those who obtained master's degree which are 28%, while those with doctorate degree level were 7% respectively.

**Table 1. Respondents' Demographic (N=130)**

Categories		Frequency	Percentage
Gender	Male	54	41.5%
	Female	76	58.5%
		130	
Academic Level	Bachelor's Degree	85	65%
	Master's Degree	36	28%
	Doctorate Degree	9	7%
Level of Technology Experience	Beginner	46	35%
	Intermediate	66	51%
	Advanced	18	14%

Furthermore, table 1 illustrates the level of technology know-how of the respondents. As can be gleaned, majority of the respondents fall under the intermediate level of 51%, and beginner level of 35%. Very low percentage of 14% achieved the advance level of technology know-how. Nevertheless, more references and details shall be reported in the subsequent part of this study.

### Reliability and Convergent Validity

The reliability of this study is based on recommended composite and Cronbach's alpha value above 0.7. Convergent validity for each construct based on the 0.5 achieved. Thus, construct reliability and validity are reported in the table 2.

**Table 2. Construct reliability and validity**

**Construct Reliability and Validity**

	Cronbach's Alpha	rho_A	Composite Reliability
Effort Expectancy	0.871		0.693
Facilitating Conditions	0.843		0.575
Performance Expectancy	0.823		0.540
Social Influence	0.810		0.689
Tech Experience	1.000		1.000
Use Behavior	0.799		0.582

**Discriminant Validity**

Discriminant validity is achieved through heterotrait-monotrait ratio values. As mentioned, heterotrait-monotrait ratio in a principal factor is appropriate to determine lack of discriminant validity (Henseler, et.al., 2015, Kline, 2015, Endozo & Solomon, 2019). Hence, measurements adopted in this study are confirmed unrelated. Table 3 reports the discriminant validity of the model.

**Table 3. Discriminant Validity**

**Discriminant Validity**

	Effort Expec...	Facilitating ...	Performance_E...	Social_Influe...	Tech_Experience
Effort Expectancy					
Facilitating Conditions	0.259				
Performance Expectancy	0.279	0.292			
Social Influence	0.303	0.323	0.234		
Tech Experience	0.228	0.346	0.114	0.305	
Use Behavior	0.768	0.812	0.547	0.423	0.106

### Path Coefficient and Hypotheses Reports

Path coefficients are achieved based on standard deviation, t-statistics p-values and extracted. Hence, coefficients are illustrated in table 4 of this study.

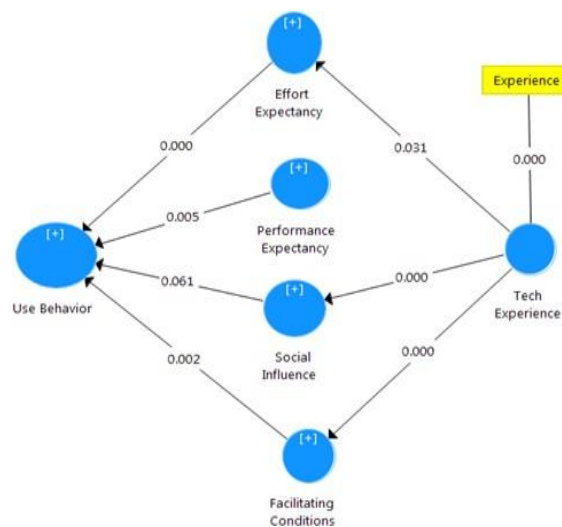
**Table 4. Path Coefficients and Hypotheses**

**Path Coefficients**

	Standard Dev...	T Statistics...	P Values
Effort Expectancy -> Use Behavior	0.108	3.991	0.000
Facilitating Conditions -> Use Behavior	0.114	3.090	0.002
Performance Expectancy -> Use Behavior	0.081	2.861	0.004
Social Influence -> Use Behavior	0.077	1.895	0.058
Tech Experience -> Effort Expectancy	0.096	2.137	0.033
Tech Experience -> Facilitating Conditions	0.079	3.775	0.000
Tech Experience -> Social Influence	0.074	4.283	0.000

All hypothesized supported expect social influence towardthese behaviour that slightly not supported at *t-statistic 1.895*. However, effort expectancy supported at t-statistic of 3.991, facilitating conditions reported t-statistic of 3.090, performance expectancy significant at t-statistic 2.861. Furthermore, moderating effect of technology experience of the instructors' path regressed on the effort expectancy, facilitating conditions and social influence reported supported at t-statistic 2.137, 3.775 and 4.283 on the use behaviour. To sum up, all the path coefficients are found supported at *p-value 0.03*.

Moreover, this study presents the structural equation modeling which is based and reported in figure 2.



**Figure 2. Moderating effect of technology experience**

Figure 2 justifies moderating influence of technology experience toward the usage of Canvas among the university instructors in the Philippines. Furthermore, R-Square reported 0.563 meaning variance explained of 56% achieved for moderation effect of technology experience toward the use of Canvas as LMS for universities in the Philippines, variance explained achieved based on R-square of use behavior presented in the table 5 of this study.

**R Square**

	R Square	R Square Adjusted
Effort Expectancy	0.042	0.032
Facilitating Conditions	0.090	0.080
Social_Influence	0.100	0.091
Use Behavior	0.563	0.545

**Table 5. R-Square of Use Behavior**

The next stage of this study provides discussion based on the significant factors and the previous studies.

### Discussion and Conclusion

The findings of the study presented the instructors' experiences toward the usage of learning management system, such as Canvas. Using factors at UTAUT model to investigate the experiences of the instructors toward the usage of LMS canvas, results provided quantitative data along with expert opinions and presented recommendations to all users of the system: administrators, teachers, and students.

Furthermore, results were paralleled with the findings in the study administered by Pardamean, et.al. (2012) who affirmed learning management system like Canvas can attract the interest and attention of the students. It was also emphasized that learning management systems such as Canvas is very suitable for sharing of knowledge. Results also clearly supported that performance expectancy, effort expectancy, social influences, and facilitating conditions have effect toward the users' behavior. On the hand, experiences serve as moderators for effort, social influences and facilitating conditions toward the users' behavior. To improve the implementation of Canvas in teaching and learning process, encouragement and support from peers is imperative.

Coherent with the findings of the study of Venkaiah, et.al. (2018), and El-Gayar, Moran and Hawkes (2011), it was found out that the main moderator of Canvas usage among instructors is the instructors' technology experiences followed by PE, FC, EE and SI but the result of this study is dissimilar in terms of demographic profiles.



However, further research needs to be done with regards to instructors' technology know-how to get a better picture of the usage of Canvas. Findings show that performance expectancy, effort expectancy, social influences and facilitating conditions have positive effects on users' behavior may be extended with other IT factors towards performance as recommended (Oluyinka & Endozo, 2019, Endozo, 2019). Similarly, technology know-how experiences had positive effects on effort expectancy, social influences and facilitating conditions towards instructors' behavior on the usage of LMS Canvas.

The implementation of the recommendations will further result in a more compact and coherent user-friendly Canvas. Future works will include a wider testing audience, including students with different profiles. The work will continue the usability test in search for an improved user experience with Canvas.

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