

# Predicting the usage of Schoology at the University of Belize, Toledo Campus

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## Abstract

*This study serves as a means to indicated whether Schoology should be used as a substitute for Moodle at the University of Belize, Toledo Campus. Schoology, a Learning Management System developed by Jeremy Friedman and others, is used at the university but it is not an official substitute for the universities' Moodle, which is not too easy to use. To come to a conclusion, we need to predict the actual usage of Schoology by the students because if students will use this system then it would be recommended as a substitute LMS. To do this, we used the Technology Acceptance Model (TAM), created by Davis, that included four variables that can influence actual usage. We reached out to 30 students to collect our data using an online survey. The data collected was analyzed with the Statistical Package for the Social Sciences (SPSS) software. It resulted that all the variables correlated positively to the behavioral intention, which is the predictor of the actual usage. Therefore, we concluded that there is a positive possibility that the students will use schoology platform as a substitute for Moodle.*

**Keywords:** Schoology, Technology Acceptance Model (TAM), Perceived Ease of Use, Perceived Usefulness, Learning Management Systems (LMS), predicting actual use.

## Introduction

Learning Management Systems (LMS) are now the main root of education either traditional or online. At the University of Belize, Toledo, the deliverance of courses occurs with the use of face to face, traditional, and online means. We are focusing on the online deliverance for this study. Although the LMS used for the online campus is Moodle, lecturers often use others LMS such as Schoology or EassyClass. Schoology have gained traction over the years and have excellent features that can completely change the perception of traditional learning and teaching process (Besana, 2012). Schoology is an online learning, classroom management, and social networking platform that attempts to improve learning through better communication, collaboration, and increased access to curriculum and supplemental content (Schlager 2016). The Schoology platform was designed by Jeremy Friedman, Ryan Hwang and Tim Trinidad in 2007 while still undergraduates at Washington University in St. Louis, MO. Originally designed for sharing notes, additional features and functionality continue to be added (Rosy 2018).

These other LMS are not official at UB and the only recommended one is Moodle. The Moodle systems seems to be a little difficult to use and not many students may want to use it. So we are conducting this study to find out if the Schoology system is better for students and should it be a substitute for the Moodle platform by predicting the actual use of the system. To do this we incorporated the Technology Acceptance Model invented by Fred Davis. This model is used in predicting the actual usage of a software or any IT model. The actual use is connected to the behavioral intention to use the system. Students behavioral intention is influenced by the usefulness the system and how easy it is to use.

Our hypothesis will be constructed after we had analyzed and reviewed other literatures and studies that have be conducted relating to LMS and Schoology. Furthermore, will be conducting an online survey to collect our data from the students to test these hypotheses. We will then be able to analyze the data so that we can reject or fail to reject our hypotheses. From those tested hypotheses we will learn about how we should conclude and what they say about the actual usage of Schoology.

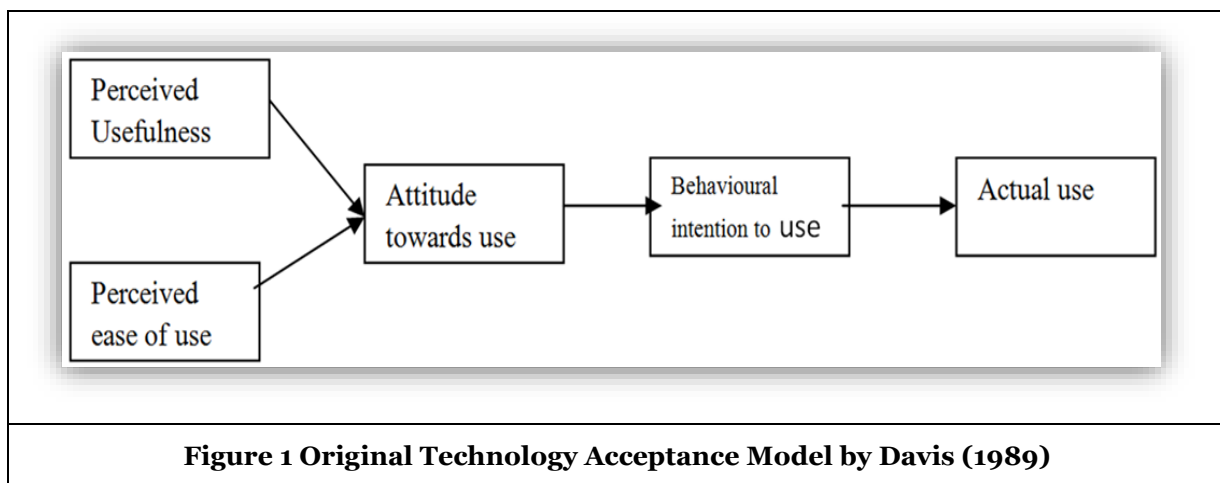
## Literature Review

### *The Technology Acceptance Model (TAM)*

There are many theories that have been developed in order to understand how users and managers make decisions using technological software (Dillon & Morris; Ward, 2013). These theories provide the necessary tools to understand the success and failures in the implementation of new processes or new IT applications. The most used theories in Information technology research are: Innovation Diffusion Theory (IDT) (Rogers, 1995), Theory of Planned Behaviour (TPB) (Fischbein and Ajzen, 1975), the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003; 2012), and the Technology Acceptance Model (TAM) (Davis 1989).

The Technology Acceptance Model (TAM) is possibly the most frequently and widely used theory among all other theories (King & He, 2006; Nyoro, Kamau, Wanyembi, Titus, & Dinda, 2015). This model is used to explain the usage and adoption of Information Systems (Surndran, 2012; Bugembe, 2013). It was developed in the 1980's by Fred Davis (Davis, 1989).

The elements included in the TAM are seen in Figure 1, below. These are perceived usefulness, perceived ease of use, attitude towards use, behavioural intention to use, actual use; all of which were adopted from the original model by Davis. According to Davis, the two important aspect of this model is the perceived usefulness, “people tend to use or not use an application to the extent they believe it will help them perform their job better” and the perceived ease of use, “potential users believe that a given application is useful...[But] the performance benefits of usage are outweighed by the effort of using the application” (Davis, 1989).



The attitude towards use (AT) in this study is to ascertain whether the students have a positive behavior in continuing to use Schoology and the actual use of it (Fathema et al, 2015; Trayek et al., 2013). From the perceived Usefulness, perceived ease of use and attitude towards use, we can manage to find out the behavioral intention of use which then results in ascertaining the actual use (Suki, 2011). The overall TAM Model suggest that “perceived ease of use (PEU) and perceived usefulness (PU) are likely to be correlated with actual usage”, which forms the basis of most research that is seeking for user’s acceptance of a system (Turner & Kitchenham, 2010).

A study determining the acceptance of WebCT learning system among students at University of Huelva, show that TAM is excellent to measure usage of a system (Sanchez et al., 2013). So the TAM model will be of great use to this study. Another study of user acceptance in Enterprise Resources Planning(ERP) indicates the use of TAM (Bueno, 2018). In 2006, there was also a research done to explain the acceptance of mobile devices (Mahatanankoon et al., 2006). In more complex situations, the TAM model is used in analyzing user acceptance of mobile payment systems (Francisco et al., 2015).

As previously mentioned, studies, using TAM, has been conducted for many purposes including the use of Learning Management systems (LMS) (Alharbi & Drew, 2014). Additionally, in a study of using web based tools for education, the TAM model is used (Toral et al., 2007).

Therefore, we conclude that using TAM would be a good model to measure the perceived usage of Schoology, a Learning Management System(LMS). According to Juhary, a LMS is a “critical platform to report on students' learning progress and to monitor students' learning engagement” (Juhary, 2014). Currently, LMS are taking over the online community, especially when education is venturing into the online systems (Peraya, 2004). “Technology has clearly infiltrated all aspects of the education process”, therefore, LMS has become incorporated in all of them (Hussain, 2018). In most studies there is a positive result in students liking and using LMS, an example would be the study conducted by Yildiz et al. about Online learning and LMS (Yildiz, 2018). Other studies include: A study on students’ acceptance, Instructors' Behavioral Intention to Use LMS, Factors Influencing the Students' Use of LMS and Using an adapted, task-level technology acceptance model to explain why instructors in higher education intend to use some LMS tools more than others (Stantchev, 2014; Mokhtar, Katan, & Hidayat-ur-Rehman, 2018; Binyamin S, 2017; Schoonenboom, 2014)

## ***Related Literature***

The Learning Management System (LMS) is a category of e-learning. LMSs, such as Schoology have gained traction over the years and have excellent features that can completely change the perception of traditional learning and teaching process (Besana, 2012).

The design of Schoology is parallel to that of Facebook in which conversations take place, messages are sent, statuses are updated and information and other media are shared within a classroom network. (Sicat, 2015). The main users of this platform are teachers, students, parents and faculty of an institution. (Irawan 2017)

There are a many functions of Schoology. Its serves as an online course management system allowing teachers to create and manage academic courses for their students. It provides teachers with a method of managing lessons, engaging students, sharing content, and connecting with other educators"(Suana 2017). The main use of this LMS is to post homework assignments online, so students can review the details from home (Permana, Santosa, 2017). It also offers online feedback on exams and essays 4. (Hanandya, 2016). It makes it easy for students to see when important assignments are due (Alvin,2015). It also has the capacity of sending out emails and SMS notifications when a due date has been extended (Mariani, 2018). Creating discussion pages where students can talk about the books they’re reading is one its major use (Biswas,2013). Another important use is tracking student usage to see which kids aren't using the Schoology site (Daud, Ghani, 2017). Other apps give parents access to course pages so they can keep track of what projects their kids have due (Alvin, 2015; Auh, 2014). Accessing it from home gives students who are sick, a chance to keep up on schoolwork (Muhtia, 2018). Most importantly, teachers and students can communicate about upcoming assignments (Wibowo, 2016). It is not only used for students, administrators can also create and organize department groups online (Indriana 2016).

So Schoology is a collaborative learning experience that provides effective management, global learning communities, etc. Teachers are able to communicate with a diversity of other educators, and enhanced learning opportunities motivate and engage students in authentic experiences. Teachers can post different assignments and lecture notes on schoology so students can gain access to the information that will be needed for the class (Maharta 2017).

Schoology is free and allows for teacher to teacher, teacher to student, and even student to student online collaboration in a user friendly and secure environment (Wall, 2014). Therefore, it is recommended for universities. As a matter of fact, some of the lecturers at the University of Belize (UB) use it to send work that can be submitted through schoology (Abdul 2018). But it is not an official platform like Moodle, the main LMS used at UB Toledo, so this study serves as a way to determine whether students would want to use it as a substitute for Moodle.

Related researches, like Garcia's study, indicates that Schoology system allows adaption and pace of learning, which promotes collaborative research for students (Sanchez-Garcia, Amat, Garcia, & Colomina, 2018).

## **Hypothesis**

To start a research there must be something that you want test or find out (Van Ness, 2012). In this case we are testing the different variables of the TAM model to see if they are correlated to each other so that we can predict the Actual use of the system. Therefore, our hypothesis are as follows:

- H1: Perceived usefulness(PU) will positively affect continuance intention(BI) to use Schoology.
- H2: Perceived usefulness (PU) positively influences user's attitude (AT) on the use of Schoology.
- H3: Perceived ease of use(PEU) will positively affect continuance intention(BI) to use Schoology.
- H4: Perceived ease of use(PEU) positively influences user's attitude(AT) towards using Schoology.
- H5: Attitude (AT) positively influences user's intention(BI) to use Schoology.

If these are true, then we conclude that the students will actually use the Schoology system. In order to test our hypothesis, we need data.

## **Methodology**

The study consisted of 30 students out of the approximately 400 students, from the University of Belize, Toledo Campus. These students who were chosen, had at least taken one course using Schoology as the learning platform. These included males and females from different unspecified departments pursuing degrees in Associates, Bachelors and Masters.

In related studies, questionnaires were used to collect data. However, the methodology that we used in collecting our data, from these students, was an online survey, through Google Forms. A sample of the questionnaire is provided in the Appendix B of this paper. Doing an online survey, helped us in collecting data more efficiently because it requires less time and promotes anonymity.

Limitations that we faced from data collection are not really of great impact but it's worth mentioning. The first of major one is collecting the data from the population. Although we had a sample, it is still small to make assumption on the population. Another is not all students had taken Schoology so we would have had to do a little introduction about it, which leads to more time. Time is another limitation faced, if we had gone and did the introduction of the platform, we would have not completed it in the timeframe given. To reduce this, we sent question to students who had used it in previous courses so they have a better understanding of what the system is capable of. The least limitation is the honesty of students. In this time of the semester, students are busy finishing up projects so they might not have time for filling out the form or they might just fill it out without reading the whole question.

Out of the 23 questions, the first 5 questions are demographics, which asked about age, gender, years of computer experience, years of using Schoology and their program degree. The remaining 18 questions were

the ones used in the TAM models from different studies, not only for LMS. There were 6 questions for Perceived Usefulness, 6 for Perceived Ease of Use, 4 for Attitude Towards Use and 2 for Behavioral intention to Use. Like other researches, these questions were used to predict the Actual Use of a system. After computing the statistical data, we were able to predict the actual use of the system.

## Data Analysis

The demographical data from our data collection included 43% males and 57% females of which 34% were associates, 60% bachelors, 3% Certificates and 3% master degree students (See Appendix A). It can be seen that all the students we collected data from had used Schoology for at least one course. We also see that all students have had computer experience which is a key aspect in using an LMS.

In this study the data was analyzed with the Statistical Package for the Social Sciences (SPSS) software. After inputting our data, we ran the test for our hypotheses and the data we got were as follows:

**Table 1 Correlations between the four variables of the TAM Model**

		<b>Correlations</b>			
		PercievedUsefu lness	PercievedEaseo fUSE	AttitudeToward sUse	BehavioralInte ntion
PercievedUsefulness	Pearson Correlation	1	.623**	.544**	.457*
	Sig. (2-tailed)		.000	.002	.011
	N	30	30	30	30
PercievedEaseofUSE	Pearson Correlation	.623**	1	.403*	.491**
	Sig. (2-tailed)	.000		.027	.006
	N	30	30	30	30
AttitudeTowardsUse	Pearson Correlation	.544**	.403*	1	.462*
	Sig. (2-tailed)	.002	.027		.010
	N	30	30	30	30
BehavioralIntention	Pearson Correlation	.457*	.491**	.462*	1
	Sig. (2-tailed)	.011	.006	.010	
	N	30	30	30	30

\*\* . Correlation is significant at the 0.01 level (2-tailed).

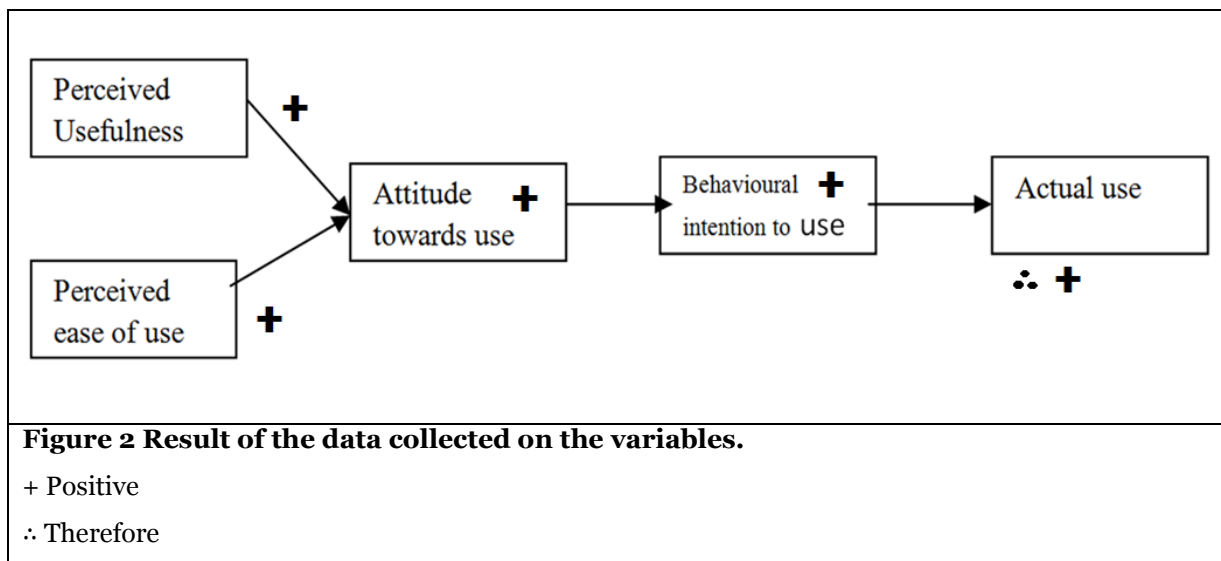
\* . Correlation is significant at the 0.05 level (2-tailed).

Table 1 above show the correlation between all the different variable. If the value of their Pearson Correlation is close to 1 or -1 this shows that there is a strong relationship. When the value is closer to positive 1 this means that their relationship is positively strong. On the other had if it is a negative 1 it means their relationship is negatively strong. But if the value is close to zero there is a lesser relationship but at zero there is no relationship. So from this data we therefore, can evaluate and test our hypotheses.

**Table 2 Research Hypothesis Test Result**

Hypothesis	Result	Remarks
H1: Perceived usefulness(PU) will positively affect continuance intention(BI) to use Schoology.	A significant positive relationship is established	The relationship between these two is positively strong.
H2: Perceived usefulness (PU) positively influences user’s attitude (AT) on the use of Schoology.	A significant positive relationship is established	The relationship between these two is significantly strong
H3: Perceived ease of use(PEU) will positively affect continuance intention(BI) to use Schoology.	A significant positive relationship is established	The relationship between these two is significantly strong
H4: Perceived ease of use(PEU) positively influences user’s attitude(AT) towards using Schoology.	A positive relationship is established but it is not significant	The relationship is positively strong
H5: Attitude (AT) positively influences user’s intention(BI) to use Schoology.	A significant positive relationship is established	The relationship between these two is strong positively

From Table 2 above we can see that there is positive relationship in all of the variables. From this we can summarize our results as seen in Table below.



It is statistically shown that PU positively affect the AT meaning that the students attitude to using schoology is positive because it is influenced by the usefulness of the system. In other words, because Schoology is very useful to them, the students has a positive attitude towards using it.

However, the PEU is also positively influenced by AT but it is not as significant. This can mean that schoology is not very easy to use but it is manageable.

So AT is both influenced by PU and PEU. If we have a positive attitude towards the system, then there must be a positive influence in the BI to use. And it turns out that yes, there is a positive BI to use Schoology influence by the positive attitude towards it.

And finally, the actual use can be predicted from these variables. Because the students have a positive attitude and a positive behavior towards Schoology, there is a strong possibility that they will actually use it.

## **Conclusion**

This study has revealed that the Schoology system is an effective system that can be used as a substitute for Moodle at the University of Belize, Toledo. The major finding, we encountered, is that the usefulness of schoology is more correlated to the behavior intention to use the system than the other variables. This means it can be used to predict the behavioral intention, which can be done using regression, but it might be considerable to increase sample size to do this because the larger the sample the more accurate the predication could be. This is possible through another research, an extension of this one.

However, we were able to achieve our objectives, which is to say if there is a possibility that students will use the system, through gathering the data and correlating the variable using SPSS. The results showed that all the variables were positive which means that there is a probability that students will actually use LMS.

As previously mentioned, the sample size uses in this study is small which could lead to inaccurate information. For accuracy the sample size should be at least 50 % of the population. Although, we would have been able to reach that sample size, the time to do it would be longer than the given time. Other than those the research was smooth and conclusive.

Therefore, continuing this study requires to increase the sample size and incorporate more variables that might affect the result such as social norms, which is related to the use of the system by others around. In conclusion, this study indicated that it is recommended that Schoology be used as a substitute for Moodle because there is a high probability that students are interested in using the LMS.

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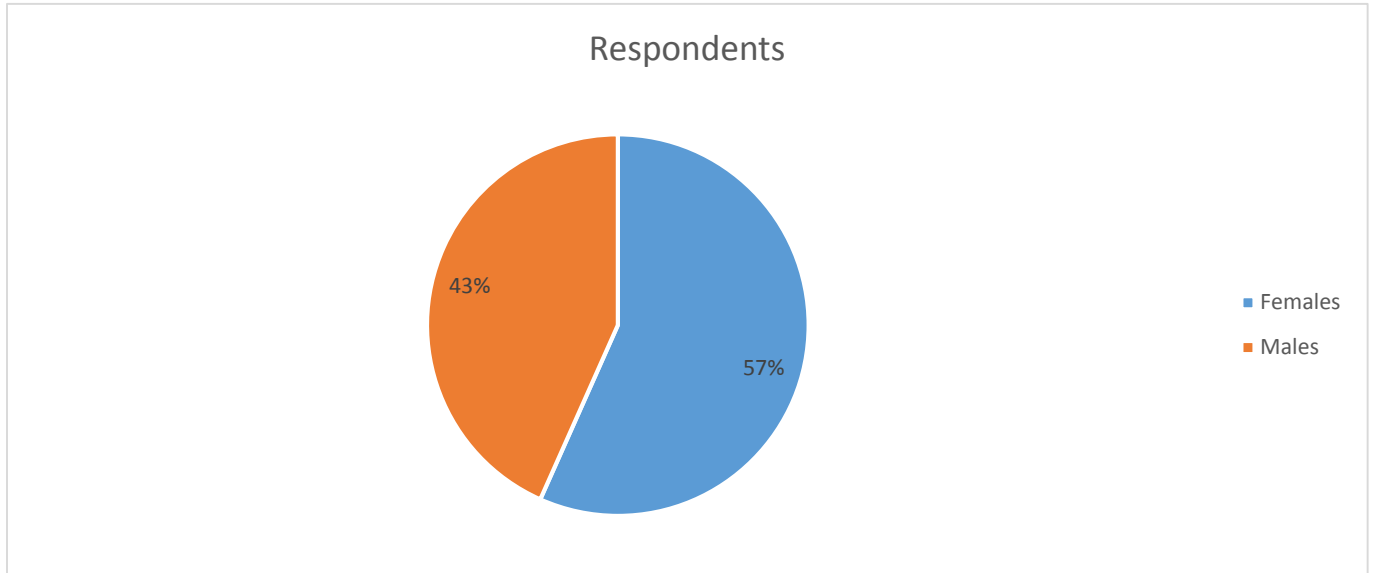
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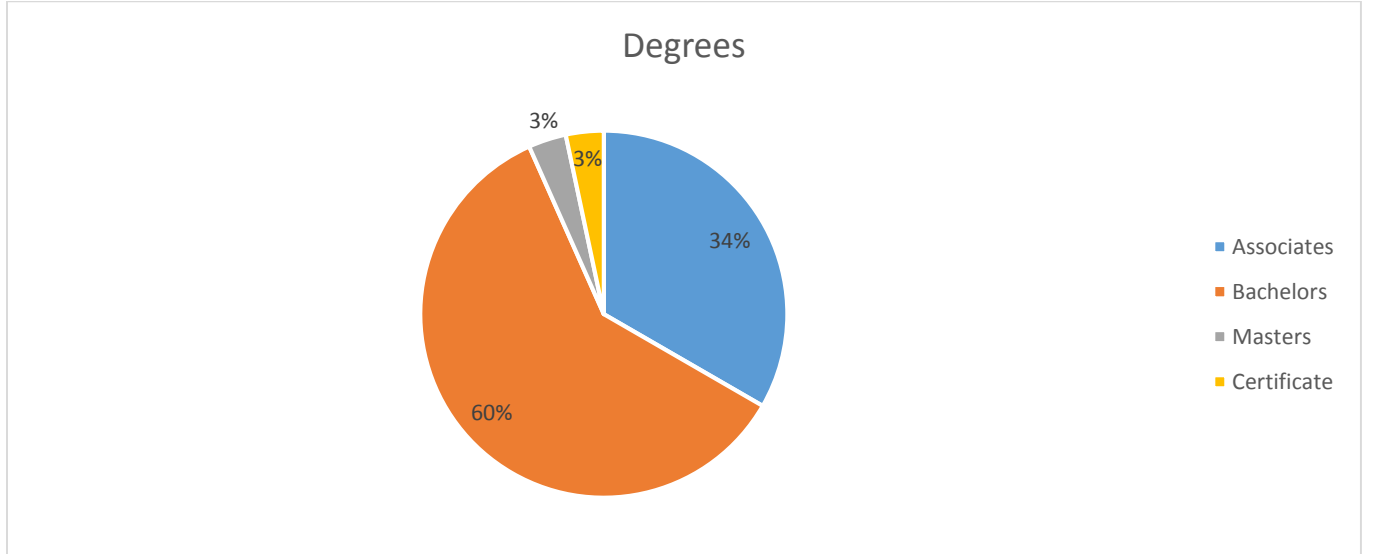
**Appendices:**

**Appendix A**

**Charts showing demographical data collected**



**Appendix: Figure 1 Pie chart showing the percentages of males and females.**



**Appendix: Figure 2 Pie chart showing distribution of students by degree.**

**Appendix B**

**Technology Acceptance Model Questionnaire**

A Survey to measure usage of Schoology at the University of Belize, Toledo.

Link to the online survey: [TAM Questionnaire](#)

**Background Information:**

General Information	Response
Please enter your age:	_____
Please indicate your gender	<input type="checkbox"/> Male <input type="checkbox"/> Female
How long have you been using computers:	_____ [Year(s)]
Please indicate the degree you are pursuing:	<input type="checkbox"/> Bachelors <input type="checkbox"/> Associates <input type="checkbox"/> Other
For how many course have you used Schoology:	_____

**Instructions**

This is a survey; there are no right or wrong answers. Please tick the boxes to mark your answers in the appropriate box to rate the following items using a scale of 1-6: **1= Strongly Disagree, 2= Disagree, 3= Slightly Disagree, 4= Slightly Agree, 5= Agree, 6=Strongly Agree**

<b>(Perceived Usefulness) PU</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
The Schoology system enables me to accomplish tasks more quickly.						
The Schoology system has improved my quality of work.						
The Schoology system makes it easier to do my job.						
The Schoology system is flexible and easy to learn.						
The Schoology system gives me greater control over my education.						
The Schoology system enhances my effectiveness.						
<b>(Perceived ease of use) PEU</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
My interaction with the Schoology system has been clear and understandable.						
Overall, the Schoology system is easy to use.						
Learning to operate Schoology system was easy for me.						
I rarely become confused when I use the Schoology system.						
I rarely make errors when using the Schoology system.						
I am rarely frustrated when using the Schoology system.						
<b>(Attitude towards use) AT</b>						
I have fun interacting with Schoology’s platform.						
Using Schoology give me enjoyment.						

I enjoy using the Schoology.						
Using Schoology is boring.						
<b>(Behavioral intention to use) BI</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
I intend to continue using the Schoology system for my courses.						
I intend to frequently use the Schoology system in my courses.						
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>

Thank you for your cooperation and time!