



Understanding The Impact Of Students' Attitudes And Perceptions Regarding Online Learning: An Examination Of University Undergraduate Students

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ABSTRACT

The study looked at undergraduate students' perceptions of online education at a few Madhya Pradesh, India, universities. In particular, current research employed TAM (Technology Acceptance Model) to examine how undergraduate students' attitudes and online learning were related. Data was gathered from a representative group of 387 students in undergraduate programs via a questionnaire. One-Way ANOVA, paired T-test, frequency distribution, and simple linear regression were the statistical methods applied to the data analysis in order to assess the hypotheses. Results indicated that because they consider the system to be user-friendly and beneficial for their coursework, students have a good attitude toward online learning. Furthermore, attitude affects a person's propensity to use a platform for learning online.

Keywords: Attitude, Technology Acceptance Model, Statistical techniques, paired T-test, One-Way ANOVA, Online learning,

Introduction

Globally, the way that student's study in higher education institutions has changed significantly, particularly with the introduction of ICT which is better known as information and communication technology (Bassey et al., 2007). The old teacher-directed approach is giving way to more contemporary techniques that heavily rely on computer technology. With the use of ICT, learning has become more relevant and promoted. Students may now get lectures without physically seeing the professor while still in their residences or classrooms. Online learning is the facet of ICT which has revolutionized the way that student's study. (Et al., Bassay, 2007). Any educational experience that is made possible by technology is considered online education in its widest definition.

More specifically, it refers to education made possible by the use of digital technology like CD-ROMs, web pages, and video conference systems. Web-based learning platforms are widely used by higher education organizations for their online courses. Nonetheless, the variables driving the uptake of web-based educational systems have received little empirical research (Abbad, 2009). A thorough grasp of user acceptability procedures and strategies for motivating students to interact with these technologies is essential for the successful deployment of a system and its adoption by students (Abbad, 2009). Since there is a well-established link between attitude and behavior, measuring attitudes is crucial for understanding consumer behavior. Experts have shown that attitude predicts, to some extent, the likelihood of acquiring particular behaviors (Berteau, 2009). When it comes to online learning, a positive outlook increases the likelihood that students will embrace the new platform. The way that students feel about online learning gets influenced by a number of aspects which include time management skills, patience, self-control, ease of use of software, and strong technical ability. As a result, the attitude may be favourable if the new educational model matches the requirements and traits of the student or unfavourable if the student lacks the necessary traits to adjust to the fresh system (Berteau, 2009). A negative view of online learning may result from a lack of knowledge, poor communication, a lack of trust, or competing interests while using technology responsibly. To improve people's perceptions, some goal counselling along with awareness exercises are most likely required. It is critical to acknowledge that students are both intellectual

and emotional beings, and that people's perceptions and actions are greatly influenced by their emotions (Ndume, 2008). "An individual's mental state with regards to their voluntary or anticipated use of specific technology" is the definition of technology acceptance. More knowledge on how students view and respond to online learning components is necessary for those who create and deliver it, as well as for those who know how to use online learning strategies most successfully to improve student learning (Park, 2009).

Furthermore, by comprehending the aspects that impact students' beliefs about online learning and their intents, academic leaders and managers may develop strategies to encourage more students to participate in this type of educational setting (Park, 2009). (Olaniyi, 2006) states that the most popular kind of online learning used in colleges is lecture notes on CD-ROM, which may be listened to whenever students want. One of the challenges with this approach is that, compared to in-class lectures, the number of learners per computer with these features is not interactive. These aforementioned universities accepted the usage of intranet facilities, however due to ongoing issues with low electrical supply and expensive operating costs, these are not adequately maintained.

The majority of students in Madhya Pradesh use their own laptops and desktop computers or visit cybercafés; nevertheless, due to bandwidth issues and concurrent users with varying agendas, multimedia engagement is not possible. Institutions in Madhya Pradesh have the resources necessary for online learning despite these and other obstacles. Given other regions of the world, the quantity remains quite low. This is because of number of reasons that include majority of schools' locations, bandwidth constraints, the difficulty of an inconsistent or subpar electrical supply, and problems with how students see technology.

Research on online education in Madhya Pradesh has mostly concentrated on distance learning, the difficulties associated with online learning, and students' access to resources for online learning. It is crucial to ascertain students' current and future attitudes towards online education in Madhya Pradesh, since they play a significant role in its progress. Understanding how students utilize and perceive technology and online learning in their coursework is crucial since it will help with the creation of new resources, pedagogies, and instructional strategies.

Using TAM, current research study looked at the attitudes of students regarding online learning at a few Madhya Pradesh, India, institutions. The TAM model is built on intentions. created especially to forecast or explain how users would adopt the technology of computers (Hu et al., 1999). Numerous empirical research on users' adoption of technology have utilized it as the theoretical foundation (Davis et al, 1989; Mathieson, 1991; Adams, 1992; Davis, 1989). This study looked into TAM in a classroom context and looked at what influences students' use of online learning resources. The study's particular goals were:

1. To ascertain if undergraduate university students' attitudes about adopting online learning systems in Madhya Pradesh, India, are positively impacted by perceived ease of use.
2. To ascertain if undergraduate students' attitudes about utilizing the online learning system at institutions in Madhya Pradesh, India, are positively impacted by perceived utility.
3. To determine if the attitude of university students about the usage of online learning systems will influence their desire to utilize the systems favorably.

Research Model

The goal of developing a number of models is to explain and forecast the use of information technology. These models include the DOI (diffusion of innovation), theory of rational behavior, theory of planned behavior better known as TPB, and technology acceptance model prominently known as TAM. The Technology Acceptance Model, also known as TAM, was employed in this study to understand the attitudes of students at a few institutions in Madhya Pradesh toward online learning.

Perceived utility (PU) along with perceived easiness of use (PEU) are two essential constructs that TAM added to TRA in order to replace a number of its metrics. Based on perceived utility and simplicity of use, TAM has been routinely utilized to forecast consumer adoption and use. The concept of Reasoned Action, or TRA for short (Ajzen et al., 1980) was modified by Davis (1989) to create TAM in order to comprehend causal chain connecting other reasons to intent of using IT and its authentic usage in any workplace.

Under an agreement with IBM Canada Ltd., TAM was established in the middle of the 1980s to focus investments on the development of new products. Its goal was to evaluate the market possibility of certain PC-based applications that were just getting started in the fields of multimedia, image processing, and pen-based computation (Abbad, 2009). According to Vainny et al. (2008), numerous IT studies have utilized the TAM instrument, that is empirically shown to have high validity, or replicated the TAM in order to investigate a variety of issues related to user acceptance. These studies have concluded that the TAM constitutes one of the most powerful, straightforward, and user-friendly computer usage models.

The TAM states that PEU and PU are the main driving forces behind adopting and utilizing new technology. The factors in TAM led to the formulation of the following hypothesis-

H₀₁: There exists no noteworthy correlation between students' attitudes on online learning and their perceived ease of use (PEU).

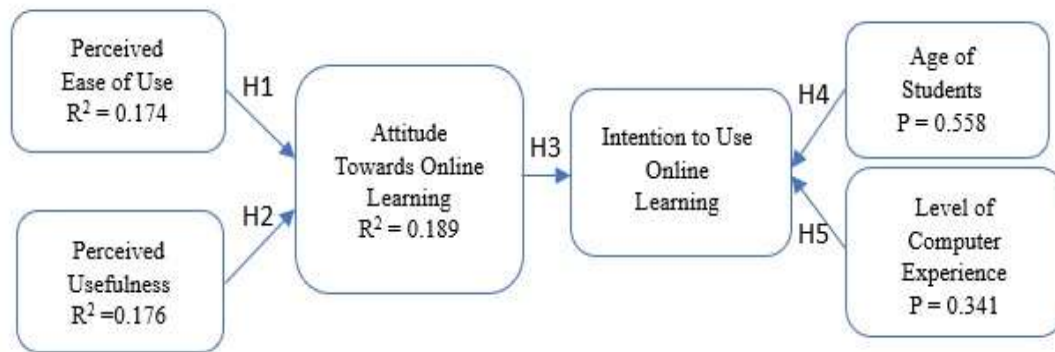
H₀₂: Students' attitudes about online learning and perceived utility (PU) do not significantly correlate.

H₀₃: There is no discernible correlation between the intention of university students to employ the system of online learning system as well as their attitude about it.

H₀₄: The intention of pupils to use any system of online learning is not significantly correlated with their age.

H₀₅: The intention to using a system of online learning and computer experience level do not significantly correlate.

Conceptual Framework



Method

In Madhya Pradesh universities & institutes, a social survey was utilized to gauge students' attitudes toward online education. Undergraduate students at six institutions in Madhya Pradesh, RNTU, DAVV, Jivaji University, RKDF University, SRK University & VIT, Bhopal make up the population under investigation. A total of 417 students were chosen at random from six universities, which included two state, and four private institutions. Data was collected employing questionnaire. Given that values were more than 0.5 and the sample variables' reliability statistics for Cronbach's Alpha varied between 0.612 and 0.918, the data set is deemed trustworthy. As a result, the data may be used for additional analysis because it is trustworthy enough. Copies of the questionnaire that were delivered to DAVV & SRK university were fully recovered. RKDF university (95.4%), VIT, Bhopal (98.1%), and Jivaji university (93.9%) were restored to RNTU. The questionnaire survey had a 97.6% response rate overall. Data analysis techniques included ANOVA, simple linear regression, cross-tabulation, and frequency counts. Of the respondents, almost two thirds (66.3%) were between the ages of 20 and 30. Even though male students made up just 57% of the overall respondents, male students still made up the majority of respondents at some universities. Those with intermediate computer expertise made up the largest percentage (55.8%) of those with computer experience.

Table 1 Use and Frequency of Use of Online learning Tools

Online learning tools	Frequency of Use (%)					Total
	No Response	Always	Occasionally	Seldom	Never	
Video Conferencing	22.5	10.7	26.8	15.1	24.9	100.0
Electronic Mail (E-mail)	17.2	39.6	25.6	8.3	9.3	100.0
Search Engines	19.9	36.0	18.4	11.0	14.7	100.0
Audio/Video tapes	9.4	36.8	19.0	17.7	17.2	100.0
Virtual Classroom	22.8	12.9	12.4	28.0	23.9	100.0
CD-ROM	12.4	23.5	31.6	11.5	21.0	100.0
WebCT	17.9	19.4	19.8	9.5	33.4	100.0

Key: NR = No response; Alw= Always; Occ = Occasionally; Sel = Seldom; N = Never; T = Total

Table 2 Intention to Use online learning

Intentions to use Online Learning Tools	Disagreed (%)	Agreed (%)	No Response (%)	Total
If available, I intend to use online learning tools during the semester	17.7	76.9	7.4	100.0
If available, I intend to use online learning tools as frequently as possible.	18.4	77.4	4.2	100.0
If available, I intend to use online learning tools whenever possible for my coursework.	16.8	77.6	5.6	100.0

Table 3. Attitude Towards Using Online Learning System

Attitude Towards Online Learning Tools	Disagreed (%)	Agreed (%)	No Response (%)	Total
I dislike the idea of using online learning tools	74.1	18.7	7.2	100.0
I have a generally favorable attitude towards using online learning tools	16.4	79.4	4.2	100.0
I believe it will be a good idea to use online learning tools	19.8	78.6	1.6	100.0
Using online learning tools is a foolish idea	79.9	11.4	8.7	100.0

When asked how often students in the chosen institutions used online learning resources, 24.9% of respondents said they weren't familiar with video conferencing, 33.4% said they never utilized web-CT, and 23.9% along with 14.7% said they never employed virtual classrooms along with search engines, correspondingly. Table 1 illustrates this data. With 39.6% of usage, electronic mail had the highest proportion. According to Table 2's results, 18.4% as well as 17.7% of the respondents, respectively, disagreed that utilizing online learning resources is a bad notion and that they detest the thought of doing so. On the other hand, 77.4% of respondents said they typically felt positively about utilizing online learning resources. On the other hand, 77.6% of respondents think using online learning resources will be wise. Given that they think it's a good awareness for using them, it shows the students have a favourable attitude regarding online learning. According to Table 3, 79.4% of the respondents said they planned to utilize online learning resources during the system if they were accessible, and 78.6% said they planned to use them as frequently as they can if they were. Even Nevertheless, 79.9% of respondents said they will use online resources for studying whenever feasible to complete their coursework. This implies that students would be eager to utilize these technologies as much as possible if they were made available in these schools.

Hypothesis Testing

Hypothesis One

H01: There exists no noteworthy correlation between students' attitudes on online learning and their perceived ease of use (PEU).

Table 4a Simple Linear Regression analysis of the Relationship between perceived ease of use and attitude of students towards online learning

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.471	.394		10.479	.000
	Perceived ease of use	.341	.039	.286	6.354	.000

Table 4b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.315(a)	.174	.147	2.2817

a Predictors: (Constant), Perceived ease of use; b Dependent Variable: attitude

Table 4's results demonstrate a significant association between students' attitudes for online learning along with their perceptions of the tool's ease of use; in other words, the relationship's P-value of 0.000 is less than the study's predetermined threshold of significance, that is, 0.05 ($P=0.00<0.05$). There is a modest association among attitude and perceived ease of use, as indicated by beta value ($r = 0.286$). Perceived ease of use accounts for 17.4% of the difference in attitude, according to the R Square. Therefore, based on this assumption, alternative is accepted and the null hypothesis is rejected.

Hypothesis Two

Ho2: Students' attitudes about online learning and perceived utility (PU) do not significantly correlate.

Table 5a: Simple Linear Regression analysis of the relationship between perceived usefulness and attitude of students towards online learning system

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.287	.392		14.272	.000
	Perceived usefulness	.212	.076	.418	8.892	.000

Table 5b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.345(a)	.176	.161	2.54048

a Predictors: (Constant), perceived usefulness; b Dependent Variable: attitude

Table 5's results demonstrate a noteworthy relationship amongst students' attitudes toward using online learning systems and perceptions of their usefulness; in other words, the relationship's P-value of 0.00 is less than the study's predetermined threshold of significance, which is 0.05 ($P=0.00<0.05$). Additionally, beta value ($r = 0.418$) indicates a slight correlation between perceived usefulness and attitude. Perceived ease of use accounts for 17.6% of the difference in attitude, according to the R Square. Thus, it can be said that students' attitudes and their perceptions of the value of online learning platforms are related. Based on this assumption, the alternative is accepted and the null hypothesis is rejected.

Hypothesis Three

Ho: There is no discernible correlation between the intention of university students to use the online learning system as well as their attitude about it.

Table 6a. Simple Linear Regression Analysis of the relationship between university students' attitude and their intention to use online learning.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.827	.423		12.216	.000
	attitude	.124	.027	.387	5.233	.000

a Predictors: (Constant), attitude

b Dependent Variable: Intention to use

Table 6b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.467(a)	.189	.169	2.8125

There is a substantial correlation among attitude as well as the intention to utilize an online learning system, as indicated by the data shown in Table 6a. In other words, the relationship's P-value of 0.00 is less than the study's predetermined level of significance, which is 0.05 ($P=0.00<0.05$). There is only a minor correlation

between attitude and the desire to utilize an online learning system, as indicated by table 6b's beta value ($r = 0.387$). According to the R Square value, the desire to use an online learning system explains 18.9% of the overall variation in attitude. As a result, the alternative is accepted and the null hypothesis is rejected.

Hypothesis Four

Ho4: The intention of pupils to use an online learning system is not significantly correlated with their age

Table 7: One-Way ANOVA Test between the Age of the Respondents and their Intention to use online learning

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	10.499	4	2.752	.234	.558
Within Groups	3040.663	338	5.097		
Total	3051.163	342			

Age Group	N	Mean	Std. Deviation
Below 20	77	9.1882	2.60274
20-30	297	9.2487	2.15472
30-40	30	9.5983	2.59283
40-50	7	7.8264	4.31574
Above 50	6	11.4782	
Total	417	9.8286	3.26485

Table 7's findings indicate that there is no statistically significant correlation between the respondents' ages and their desire to use an online learning platform. Given that the P-value of 0.558 exceeds the pretest level of significance ($P = 0.558 > 0.05$), we should accept the null hypothesis and reject the alternative hypothesis in accordance with the decision rule. Age groups 40–50 have the lowest mean of 7.8264, while those above 50 have the highest mean of 11.4782.

Hypothesis Five

Ho5: The intention to use an online learning system and computer experience level do not significantly correlate

Table 8: One-way ANOVA Test between the Level of computer experience and intention to use online learning

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	31.468	4	9.457	1.652	.341
Within Groups	3061.785	424	6.295		
Total	3093.253	428			

	N	Mean	Std. Deviation
Level of Computer Experience			
No skill	48	7.0057	2.25684
Beginner	101	9.9461	2.26845
Intermediate	171	9.7621	2.85632
Expert	88	9.6189	3.95264
Advanced	9	12.6363	2.75632
Total	417	9.8668	2.48526

Given that the P-value of 0.341 is higher than the pre-established level of significance of 0.05, Table 8's results show that there is no significant correlation between the participants' desire to utilize an online learning system and their degree of computer expertise. $P=0.341$ is greater than 0.05. As a result, we reject the alternative hypothesis and accept the null hypothesis, which claims that there is no meaningful correlation between computer expertise level and the desire to utilize an online learning system. The respondents with the highest mean of 12.6363 belonged to the advanced level of computer experience. However, the least skilled responders (7.0057) had the lowest mean.

Discussion

Generally speaking, attitude suggests the likelihood of engaging in particular behaviors to some extent. Bertea (2010). When it comes to an online learning system, pupils who have a good and favourable attitude about it

are more likely to adopt it. The results indicate that there is a correlation between attitude and perceived ease of usage. Respondents concurred that using online learning resources was simple and that using them to discover knowledge would be straightforward. This indicates that attitude is positively impacted by perceived ease of usage. Chung (2005) also made reference to this in her study on the acceptance behavior of online learners using the flow theory and the technology acceptance model.

He discovered that perceived ease of usage influenced students' attitudes. Additionally, he came to the conclusion that the online learning system's perceived utility and ultimate intention to be used were significantly predicted by its perceived simplicity of use. The results also corroborate those of Wong and Teo (2009), who conducted research on the factors influencing the intention to use technology: A comparison of female student teachers from Malaysia and Singapore and discovered that perceived ease of use is a significant predictor of student teachers' acceptance of computer technology use. This suggests that when student instructors from both nations felt they could use computers more easily and with less effort, the chance of them doing so was higher.

This result supports the Davies Technology Acceptance Model, which maintains that attitudes and intentions about the usage of e-learning systems are influenced by perceived ease of use. The extent to which an individual feels that utilizing a certain system will improve his or her performance at work is known as perceived usefulness. This suggests that a user feels there is a good user performance connection for an online learning system that has a high perceived usefulness. The results of this study indicate a connection between students' attitudes toward utilizing online learning systems and their perceptions of their usefulness. The students concurred that utilizing online learning resources will improve their ability to study as well as boost their output while completing assignments.

This implies that students' attitudes about adopting online learning systems are positively impacted by perceived usefulness. This stance is consistent with Davis's (1989) research, which indicates that a person's views of the technology's utility to them serve as the primary guiding principle behind their attitude toward embracing new technology. The results of this study are consistent with those of other studies, such as those conducted by Masrom (2007), who discovered that students' attitudes and ultimate intentions to utilize an online learning system are significantly influenced by perceived usefulness.

He explained that although students may be open to adopting advantageous uses of online learning, their attention seems to be drawn to the technology itself. Additionally, he believed that rather than emphasizing the technical aspects of using the technology, online learning training and information sessions should concentrate on how the technology can enhance the efficacy, productivity, and efficiency of students' learning processes. This will help to improve students' attitudes toward online learning. The results of this investigation corroborate those of Wong and Teo (2009), who discovered that behavioural intention (intention to use) is more strongly influenced by perceived utility.

This suggests that when student instructors are unaware of how computers might be incorporated into the teaching and learning process, these resources might not be considered beneficial. The Technology Acceptance Model, which asserts that attitude, behavioural intention, and actual system usage are influenced by perceived utility, is consistent with the findings of this study and other evaluated literature. Results also indicated that students' intentions to use the online learning system are positively impacted by their attitude about utilizing it. It emphasizes the advantages of having a good mindset and intending to implement the technique.

It also aligns with Davies' Model, which suggests that attitudes toward and perceptions of the utility of technology drive behavioural intention to use it, which in turn determines technology utilization. The intention to utilize the system implies that a student may not really use it, even if he has a good attitude about it. This may suggest that teachers are not making the most of the system's capabilities or that it is not easily accessible for usage, which would mean that students would want to use the system more but are unable to do so. On the other hand, a student who finds the system annoying might nonetheless make use of it.

This might be explained by the fact that the student feels compelled to use the system or perhaps feels compelled to use it for the duration of the semester. Specifically, although new users or prospective adopters who have never used the system before could have a positive attitude about it, this positive attitude is probably going to be weak and won't have a major or exclusive impact on actual use or behavioural intention. On the other hand, because of their past practical experience, users or future adopters who are confident in their attitude toward the system usage (i.e., strong attitude) would continuously participate in the behavior suggested by the attitude. One important concept in the technology acceptance model is attitude. Intention to use and actual usage are greatly influenced by an optimistic outlook.

Additionally, the findings indicated that the intention to utilize an online learning system and computer expertise level do not significantly correlate. This runs counter to the findings of Karl and Cappel (2006), who discovered that students who have had greater exposure to online learning and technology tend to rank it higher. He proposed that computer users' opinions toward technology in general are influenced by their past experiences with it. Additionally, he discovered that users are more satisfied with their learning outcomes when they have more experience with new technologies. Put another way, the degree of perceived ease of use,

intention to use, and actual utilization of technology increases with the amount of experience one has with it. In contrast to the study's findings, this supports Davis's (1989) hypothesis. Additionally, the survey revealed that 50% of the students had intermediate computer experience, which indicates that they are not yet proficient but do possess more than basic knowledge or abilities. Their aim to use the online learning system would be much enhanced by this. The results showed that age and the intention to use an online learning system did not significantly correlate, although roughly half of the respondents were between the ages of 21 and 30, which is a youthful age range when people can readily adopt new technologies or have the appropriate mindset toward them.

According to a Baack et al. (1991) poll, older persons are less likely than younger adults to use a computer unless they believe it to be necessary (perceived utility). Low levels of familiarity were cited by the same poll as the reason for the low usage rates. Furthermore, unless the shift occurs gradually over time, it is hypothesized that older people do not adapt to fast change as well as younger people do (Linden and Adams, 1992). Conversely, Morss (1999) discovered empirical evidence showing older students with greater technological competence utilized a learning management system more frequently than younger students with less IT knowledge.

Conclusion

The study's overall findings point to TAM as a valuable approach that works well in the context of online learning. Furthermore, it can be said that university students in southwest Nigeria see online learning favourably since they believe it to be user-friendly and helpful, particularly for their coursework (perceived ease of use and perceived usefulness). It is also possible to draw the conclusion that people will see the use of online learning systems more favourably if they are easily accessible. Owing to the survey's broad scope, the e-learning system was examined using a variety of factors, including perceived usefulness, simplicity of use, and intention to use. There was no attempt to investigate students' attitudes toward online learning based on their concerns about computers and security. It will be crucial for future research to ascertain whether there is a meaningful correlation between students' attitudes toward online learning and these other factors.

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