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Determining the Factors Affecting on Digital Learning Adoption among the Students in Kathmandu Valley: An Application of Technology Acceptance Model (TAM)

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ABSTRACT

This study investigated students' perception towards acceptance of digital transformation in teaching-learning activities studying at different levels in Kathmandu valley (includes 3 districts: Kathmandu, Lalitpur, and Bhaktapur), Nepal. Using the Technology Acceptance Model (TAM) as a research framework to examine the factors affecting how students come to accept and use technology. The literature review indicated that social influence, accessibility, computer self-efficacy, infrastructure, and perceived enjoyment were the most common external factors of TAM. A total of 384 students were participated in the study. Different statistical analyses have been performed in order to test the significance of the considered factors that may affect the digital learning practices of students. The result of the data analysis revealed that social influence, accessibility, computer self-efficacy, infrastructure, and enjoyment have a significant impact on perceived ease of use of the digital learning system. Furthermore, social influence, accessibility, computer self-efficacy, infrastructure, and enjoyment were also found to have a positive influence on the perceived usefulness of the digital learning system. The Digital learning system is changing the traditional practice of learning with technology and innovation. The study support that using digital tools in education makes academic activities more interesting, easy to access, creative, effective, and productive.

***Keywords*—** Digital Education Adoption, ICT Integration, Technology Acceptance Model (TAM)

I. INTRODUCTION

Digital advancements have penetrated all aspects of human lives. Information and Communication Technology (ICT) has become an integral part which has affected the lives of individuals and their daily activities, observing the state of play using these tools for educational purposes has become a common essential and has brought significant changes in the traditional teaching-learning methods. During this time its usage has grown enormously [39]. Having proper devices, the student can have access to the information what they required from anywhere and anytime they want, also they can communicate with resource person. They can become digitally proficient only when they receive sufficient opportunities to use technology and to learn and enhance their digital skills in their education. Schools around the world are not utilizing computers or ICT, as a substitution for day to day regulatory work, but have managed to integrate it into core classroom teaching thus bringing in a paradigm shift on traditional teaching-learning procedures. When a learning environment is encouraged with innovations, an advancement is seen within the quality of learning, accessibility, the cost-effectiveness of education can be visualized while the cost of education decreases. Because of these advantages, the integration of ICT in education has gained a lot of importance.

The importance of digitization on education is still underlying in our Nepalese education System. Since information and communication technology adoption in education is still not mature, many of the faculty members and students are not very comfortable in using the new technologies. It is not only changing the way teaching and learning activities but it also builds the skill set to be competitive in the current and future technological age [30]. Now the generation student is seeking the quality education from anywhere they are and at any time they wish which doesn't make a difference in any part of the county they are living; they can join the course and begin learning. With the rapid innovation and technological change, we need to ensure that students and institutions are adequately equipped to utilize technology tools efficiently for educational purposes. There was a need for a comprehensive theoretical model that can fully understand the factors affecting the digital learning adoption among the students of Kathmandu valley, Nepal hence, Technology Acceptance Model (TAM) was employed to analyse and examine students' perception and factor that influence the adoption of technology in their academic activities.

II. LITERATURE REVIEW

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Digital Transformation is the changes that digital technology such as social media, mobile, analytics or embedded devices causes or influences in all aspects of human life [36]. Digitization in education is educational model used, based on the use of electronic media like computer, mobile devices, the Internet, software applications, and other types of digital technology [34]. It possible to improve the teaching learning process connecting the students and teacher and also wide range of information in an efficient manner using ICT tools.

The Ministry of Education Nepal had prepared the strategies “ICT in Education Master Plan 2013–2017” in which the need for ICT in education had figured out, accordingly they applied efforts in promoting digital literacies and the use of technologies in education in Nepal [14]. Also, Government of Nepal developed a formal ICT policy in 2015 which also includes the steps to integrate technology into education within the entire Nepalese educational system by enhancing its accessibility [15]. The later School Sector Development Plan (SSDP) 2016-2023 target to utilize ICT as a significant tool to improve educational content delivery, maximize access to teaching learning resources and escalate the effectiveness and efficiency of educational activities [16]. However, one must understand the fact that current presence of technology does not satisfy and guarantee the successful implementation of ICT. Research in numerous developing countries like Nepal has revealed that technology integration in academics, infrastructure alone does not satisfy the requirement [18].

Technology Acceptance Model (TAM) was introduced by Devis D. Fred in 1986 A.D. shown in Figure 1, which deals more specifically with the prediction of the acceptability of an information system. It was developed based on the Theory of Reasoned Action (TRA), to test user acceptance and use of information systems. According to the theory, two personal belief perceived ease of use and perceived usefulness are affected by external factors and estimate the significance towards using a technology [20]. The attitude towards using then affects the behavioral intention to use a technology, which ultimately estimates the actual system use [31]. Perceived usefulness (PU) indicates the prospective user's subjective probability that using a specific application system will increase his or her performance within a context. Perceived ease of use (PEOU) refers to the degree to which the prospective user anticipates the target system to be effortlessly [9]. TAM model has become a robust model that is applicable for predicting the acceptance of various technologies [32].

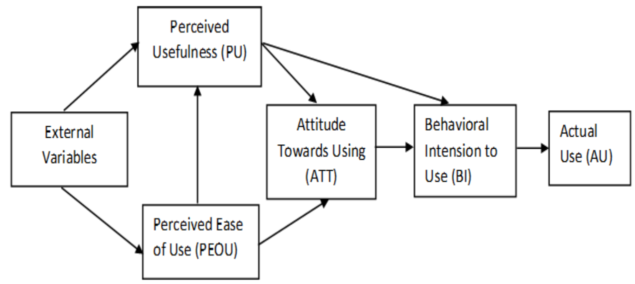

Figure 1: Technology Acceptance Model (TAM) [8]

The intention to use technology was explored among the Malaysian student teaches using TAM which supported all the proposed hypotheses found that perceived usefulness, perceived ease of use and attitude towards use of computer are significantly influenced intention to use technology [24].

A study of Social Media for e-Learning in Libyan Higher Education was conducted in which Perceived Ease of Use and Perceived Usefulness of social networking media are considered as the key factors in measuring the students’ and teachers’ behavioral intention of accepting [3] and using e-learning in Libyan higher education which results use of social networking media plays an important role in the adoption of e-learning in Libyan higher education [10, 11]. As hypothesized, social networking media significantly affects both the Perceived Ease of Use and Perceived Usefulness for both students and teachers.

III. RESEARCH FRAMEWORK

3.1 Proposed Extension of TAM External Factors, and the Research Hypotheses

TAM has been used extensively to understand technology adoption in the domain of information systems, and it has been accepted as a reliable model to determine individual adoption of a technology. A number of studies had introduced external variables into TAM and investigate whether they affect the core TAM constructs PU, PEOU, ATT, BI and AU and their correlations. Utilizing the original TAM as the core framework, this study proposes an extension of it by introducing five external variables within it. Social Influence (SOI), Accessibility (ACS), Computer Self Efficacy (CSE), Infrastructure (INF) and Enjoyment (ENJ) are integrated in the original TAM as external variables that determine the students’ perceptions towards the use of technology for learning. The proposed model is illustrated in Figure 2.

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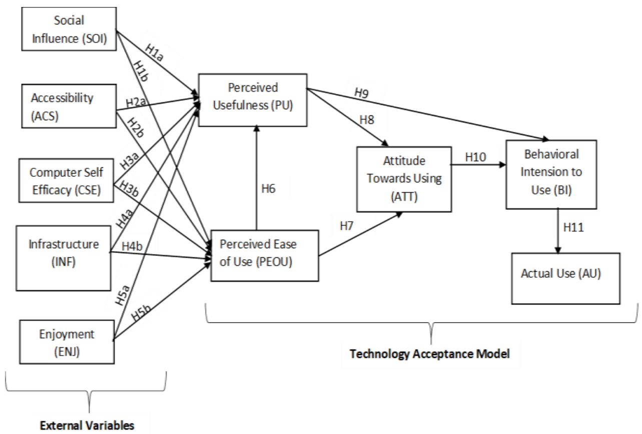

Figure 2: Proposed research model for technology acceptance

3.1.1 Social Influence (SOI)

The social influence indicates the degree to which an individual perceives that most people who are important to him or her thinks he or she should or should not use the technology [4]. It was identified in previous researches that there is a significant impact of social influence (SOI) on perceived usefulness (PU) and perceived ease of use (PEOU) of digital learning [4, 32]. Therefore, the following hypotheses were formulated:

H1a: Social influence (SOI has a positive effect on perceived usefulness (PU).

H1b: Social influence (SOI) has a positive effect on perceived ease of use (PEOU).

3.1.2 Accessibility (ACS)

Accessibility (ACS) refers to the degree of ease of how a user have access and can use the tools to extract the required information from the system [1]. It was suggested that the higher the accessibility of the digital learning system, the greater the students perceive the system as easy to use [33]. According to [2], system accessibility provides a direct indication of the perceived ease of use of a website. There is a significant impact of accessibility on perceived ease of use of digital learning system [32]. The results of previous research revealed that there was a significant effect of accessibility on perceived ease of use (PEOU) [5] as well as on perceived usefulness (PU) [6] of digital learning system. Hence, the following hypotheses are suggested:

H2a: Accessibility (ACS) has a positive effect on perceived usefulness (PU).

H2b: Accessibility (ACS) has a positive effect on perceived ease of use (PEOU).

3.1.3 Computer Self-Efficacy (CSE)

Computer self-efficacy is the degree to which an individuals' confidence in their own capacity to perform a specific task using the computer or any digital tools [33]. It was demonstrated in various empirical studies that computer self-efficacy (CSE) had a significant effect on the perceived usefulness (PU) and perceived ease of use of technology (PEOU) [12, 27]. Therefore, the following hypotheses were formulated:

H3a: Computer self-efficacy (CSE) has a positive effect on perceived usefulness (PU).

H3b: Computer self-efficacy (CSE) has a positive effect on perceived ease of use (PEOU).

3.1.4 Infrastructure (INF)

ICT Infrastructure refers to the Information and communication technology infrastructure encompasses computer system including software, hardware, mobile phones, internet, servers, websites and other technologies [25]. Infrastructure indicates the availability of the related resources i.e. technical help, internet infrastructure, hardware, software, training, online help to work. Previous studies [41, 38] suggested infrastructure is a key belief that influences user adoption of technology. A number of prior studies found infrastructure's significant effects on PU and PEOU [26, 38]. Two hypotheses are made about the relationship with infrastructure:

H4a: Infrastructure (INF) has a positive effect on perceived usefulness (PU).

H4b: Infrastructure (INF) has a positive effect on perceived ease of use (PEOU).

3.5 Enjoyment (ENJ)

Enjoyment indicates that "the extent to which the activity of individual using a particular system (in this research electronics devices as a learning tools) is perceived to be enjoyable and entertained" [40]. Enjoyment is a significant factor that explains the learning adoption or acceptance. It was demonstrated in previous research that Enjoyment has a significant effect on perceived ease of use [10] and perceived usefulness [28] of digital learning. Therefore, the following hypotheses were formulated:

H5a: Enjoyment (ENJ) has a positive effect on perceived usefulness (PU).

H5b: Enjoyment (ENJ) has a positive effect on perceived ease of use (PEOU).

3.1.6 Hypotheses Related to Five Core Technology Acceptance Model (TAM) Constructs

Applying the measuring parameters introduced by TAM [9] focusing to estimate the technology acceptance behavior and considering the prior TAM based researches and their findings.

Perceived usefulness (PU) refers to the degree to which individuals believe that the use of a new technology can improve their work performance where Perceived ease of use (PEOU) refers to the degree to which the student believes that using digital learning tools will be free from mental or physical effort [9, 29]. These two are the main measuring construct of TAM. This research offered the

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following core TAM hypotheses for acceptance of digital learning.

H6: Perceived ease of use (PEOU) has a significant positive effect on perceived usefulness (PU).

H7: Perceived ease of use (PEOU) has a significant positive effect on studentss attitude towards using (ATT).

H8: Perceived usefulness (PU) has a significant positive effect on attitude toward using (ATT).

H9: Perceived usefulness (PU) has a significant positive effect on behavioral intention to use (BI).

H10: Attitude towards using (ATT) has a significant positive effect on their behavioral intention to use (BI).

H11: Behavioral intention to use (BI) has a significant positive effect on their (AU).

IV. METHODOLOGY

This study followed a quantitative approach-based data analysis to examine the students' status and acceptance of technology using the TAM framework including external variables. The participants were students at different education levels enrolled at School to University in Kathmandu Valley, Nepal. Data was collected using a questionnaire designed in two parts, a total of 35 questions among which first part consists of 5 questions related to demography and the second part is the main component of the questionnaire which consists of 30 questions to investigate the 10 constructs SOI, ACS, CSE, INF, ENJ, PEOU, PU, ATT, BI, and AU of TAM on a five-point Likert scale ranging from 1 as "Strongly Disagree" to 5 as "Strongly Agree". The measurement scales were adapted from previously studied and validated measures [8, 9, 41]. Appendix illustrates the constructs and their items question. The descriptive and inferential analysis of the obtained data was accomplished with the help of the Statistical Package of Social Science (SPSS) software (version 25.0) from IBM then modeling the structured equation model (SEM) to measure loadings, reliability, validity, path estimation, and hypotheses test was performed resulting significant effects between constructs of TAM with the help of SmartPLS software (version 3.3.2). The association between the indicators and latent construct was measured as described by the measurement model which examines the significance between the variables of the proposed model.

4.1 Data Collection and Sample Size

In this research a structured and self-reported questionnaire was used for collecting data. Since purposive sampling approach was employed when the participants were easily accessible and were ready to be involved in the research [4], employing purposive sampling technique 450 questionnaires were circulated via digital medium (web-based survey using social network, e-mail and messaging application) as well also physically among the students in Kathmandu valley studying at different level (School to University) having different ages who were part of the study sample. Out of 450 selected participants, 384 participants responded with completely filled valid form giving a response rate of 85.33 percent. Sample size of 384 can be considered to be an acceptable sample size for an approximate population up to 1,000,000 [23].

V. RESEARCH FINDINGS

5.1 The Demographic Data

Out of the 384 respondents 221 (57.55%) were male, 163 (42.46%) were female. Most of the respondents 224 (58.33%) were at the age range of 15-24. Among the rest of the respondents, 104 (27.08%) were at age range of 25-34, 38 (9.9%) were at below 14 years and 18 (4.69%) were at above 34 years. 214 (55.7%) of respondents were from Kathmandu district, 129 (33.6%) of respondents were from Lalitpur district and 41(10.7%) of respondents were from Bhaktapur district. Most of the respondents of the study are university students, 35.68% individuals were at bachelor level, 30.7% were at school level (up to grade 10), 20.05% were at master or higher level, 13.02% were at intermediate level (grade 11-12 or diploma or PCL) while the remaining 0.78% were enrolled for some kinds of professional certification. Table 1 presents the complete demographic data of the respondents.

TABLE 1: Students' Demographics Data of the Study Sample

Characteristics	Answer	Frequency	Percent (%)
Gender	Male	221	57.55
	Female	163	42.46
	Total	384	100
Age	Up to 14	38	9.90
	15-24	224	58.33
	25-34	104	27.08
	Above 34	18	4.69
	Total	384	100
District	Kathmandu	214	55.7
	Lalitpur	129	33.6
	Bhaktapur	41	10.7
	Total	384	100
Level of education	Up to Grade 10	117	30.47
	Grade 11-12/ Diploma/PCL	50	13.02
	Other Professional Certification	3	0.78
	Bachelor	137	35.68

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	Master and Higher	77	20.05
	Total	384	100

5.2 Reliability

A Cronbach Alpha was considered to be the most common method used for measuring the stability and consistency of the instrument to ensure that all the items in the scale were sufficiently inter-related [35] which is shown in Table-2. In order to examine the data collection instrument, all variables of the research model have been evaluated for reliability, convergent and discriminate validity.

5.3 Validity

There are two kinds of validities that are needed for evaluating the measurement model, which are the convergent validity and discriminate validity [7, 19]. The degree to which theoretically similar constructs are related to each other is given by convergent validity, while the degree to which there are differences between two constructs is given by discriminate validity [32].

5.3.1 Convergent Validity

Cronbach alpha was undertaken to test convergent validity and internal reliability of the factors which measures the inter-relatedness of the items used in the test. A Cronbach alpha value of 0.70 or above is consider to be acceptable. Also, composite reliability (CR) and average variance extracted (AVE) reliability tests were employed to measure the internal consistency on items of each TAM construct. To find out convergent validity, Smart PLS ver. 3.3.2 software was used. Table 2 shows the items for every construct, Cronbach's' alpha, composite reliabilities (CR) and average variance extracted (AVE). The internal consistency is satisfactory since the values of Cronbach's' alpha, CR and AVE of each construct are greater than acceptance scale (Factor loading, Cronbach's Alpha, CR ≥ 0.70 & AVE > 0.5). In this research, among all of constructs, accessibility lags with small scale in Cronbach's' alpha but valid the CR and AVE shown in Table 2.

TABLE 2: Result of Constructs' Reliability

Construct	Cronbach's Alpha	CR	AVE
Accessibility	0.6768	0.7464	0.5225
Actual Use	0.8288	0.8343	0.6408
Attitude towards Using	0.7987	0.8823	0.7147
Behavioral Intention	0.7201	0.8426	0.6422
Computer Self-Efficacy	0.8103	0.8827	0.7161
Enjoyment	0.8355	0.8977	0.746
Infrastructure	0.8113	0.8846	0.719
Perceived Ease of Use	0.8204	0.8929	0.7354
Perceived Usefulness	0.7758	0.87	0.6907
Social Influence	0.8262	0.8826	0.7158

5.3.2 Discriminant Validity

The degree to which one construct differs from all other constructs in the research model refers to discriminant validity. To determine of the discriminant validity, three measures should be taken into account they are: the Fornell-Larcker scale (i.e., the square root of AVE), crossloadings, and the Heterotrait-Monotrait ratio of correlations (HTMT) [7] which are shown in Table 4, Table 5 and Table 6 respectively. The heterotrait-monotrait ratio (HTMT) of correlations is the newer technique put forward to evaluate discriminate validity in partial least squares structural equation modelling (PLS-SEM), which is a significant foundation for examine the model.

Fornell-Lacker criterion compares the square root of the average variance extracted (AVE) with the correlation of latent constructs [17]. The table 4 shows that the square root of the AVE values remains higher as compared to the suggested value of 0.5 by being in the range of 0.723 and 0.864. If the value of the HTMT is higher than this threshold, there is a lack of discriminant validity. Some authors suggest a threshold of 0.85 [21], whereas others propose a value of 0.90 [37]. In the cross-loading table, the value of factor loading indicators should be higher than 0.70 to be valid [17]. Out of total 30, 28 items qualify the acceptance criteria of loading determinants where ACS_2 and AU_3 could not meet. After the measurement models have been successfully validated, the structural model can be analyzed to discover the relationship among the connected construct.

5.4 Structural Model Evaluation

Figure 3 shows the results from the structural equation modelling which presents all of the constructs and their relationships with standardized path coefficients between model constructs, factor loadings between items and constructs, and coefficient of determinant (R^2) for each independent constructs. Table 3 shows the calculated R Square values of the endogenous latent variable of proposed model.

To analyze the various hypothesized associations in the developed model, the path coefficient analysis has been employed. The model was made to run through a bootstrap re-sampling routine to obtain the path significances. Bootstrapping refers to a nonparametric technique to examine the significance level of partial least square estimates [7]. Table-7 shows the relationship, path coefficient (□), ŧ value, p- value and decision. Hypothesis to be significance the 0.05 significance level (i.e., $p < 0.05$) requires a t-value > 1.657.

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TABLE 3: R^2 of the Endogenous Latent Variable

Construct	R^2
Perceived usefulness	0.203
Perceived ease of use	0.133
Behavioral intention	0.086
Attitude towards use	0.069
Actual Use	0.015

The predictive power of the research model is determined by the R-square value of the dependent variables, while the capacity of the hypothesized relations is analyzed using the path coefficients [22]. From the previous researches it was found that most of the developed model had higher value of R^2 but in this model it was found comparatively low ranging 0.203 to 0.015, it signifies that predative power of this model is moderate or low. But higher R^2 is not evidence in favor of the model and criticized empirical research reports explaining their research model as good as having higher value of R^2 [13].

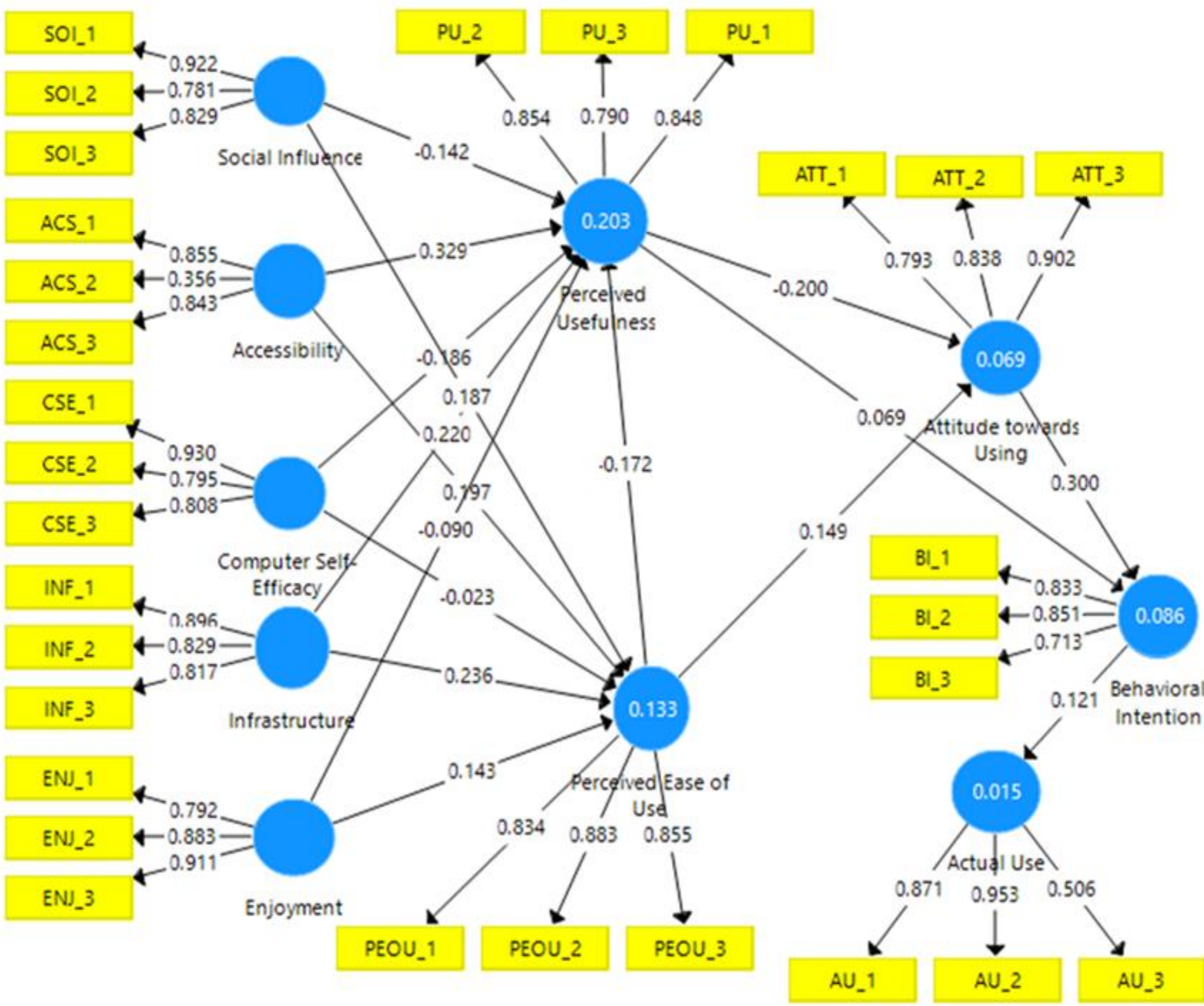

Figure 3: Proposed TAM model constructed in SmartPLS software

V. DISCUSSION

A structural equation model was used to analyze the data collected from 384 participants. A summary of the hypotheses testing results is shown in Table 7. Twelve out of sixteen hypotheses were supported. In that, the hypotheses H1a, H1b, H2a, H2b, H3a, H4a, H4b, H5b, H6, H7, H8, and H10 were supported, while hypotheses H3b, H7, H9, and H11 were found to be not supported from proposed model.

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TABLE 4: Fornell-Larcker Scale

	ACS	AU	ATT	BI	CSE	ENJ	INF	PEOU	PU	SOI
ACS	0.723									
AU	-0.071	0.801								
ATT	-0.084	0.415	0.845							
BI	0.037	0.121	0.285	0.801						
CSE	0.146	0.036	0.124	0.059	0.846					
ENJ	-0.062	0.166	0.352	0.095	0.013	0.864				
INF	-0.051	0.128	0.125	0.213	0.038	0.035	0.848			
PEOU	0.172	0.118	0.170	0.155	0.003	0.135	0.210	0.858		
PU	0.267	-0.067	-0.216	0.005	-0.122	-0.126	0.171	-0.105	0.831	
SOI	-0.005	0.074	0.074	-0.068	-0.068	-0.020	-0.104	0.160	-0.180	0.846

TABLE 5: Cross-Loading Results

	ACS	ATT	AU	BI	CSE	ENJ	INF	PEOU	PU	SOI
ACS_1	**0.855**	-0.162	-0.093	0.077	0.169	-0.092	0.047	0.094	0.238	-0.085
ACS_2	**0.356**	0.072	-0.020	0.131	0.003	0.092	-0.063	0.164	-0.166	0.241
ACS_3	**0.843**	0.038	-0.028	0.010	0.070	0.009	-0.140	0.218	0.165	0.123
ATT_1	0.096	**0.793**	0.267	0.245	0.016	0.304	0.153	0.242	-0.089	-0.037
ATT_2	-0.138	**0.838**	0.371	0.203	0.049	0.335	0.070	0.128	-0.218	0.168
ATT_3	-0.163	**0.902**	0.410	0.272	0.236	0.258	0.093	0.070	-0.236	0.059
AU_1	-0.019	0.375	**0.871**	0.074	0.022	0.176	0.142	0.074	-0.049	0.033
AU_2	-0.092	0.370	**0.953**	0.116	0.030	0.140	0.091	0.124	-0.070	0.083
AU_3	-0.021	0.134	**0.506**	-0.026	-0.029	0.096	0.016	0.026	-0.035	0.002
BI_1	0.030	0.203	0.088	**0.833**	0.052	0.053	0.072	0.107	-0.077	-0.061
BI_2	0.028	0.272	0.086	**0.851**	0.130	0.088	0.158	0.145	0.031	-0.030
BI_3	0.033	0.199	0.117	**0.713**	-0.059	0.083	0.271	0.114	0.040	-0.078
CSE_1	0.130	0.127	0.030	0.007	**0.930**	0.081	0.010	-0.001	-0.138	-0.073
CSE_2	0.067	0.008	-0.039	0.109	**0.795**	-0.136	0.043	0.010	-0.085	-0.040
CSE_3	0.201	0.204	0.136	0.069	**0.808**	0.063	0.069	0.003	-0.058	-0.052
ENJ_1	-0.104	0.358	0.170	0.155	-0.075	**0.792**	0.086	0.104	-0.030	0.008
ENJ_2	-0.057	0.237	0.121	0.078	0.058	**0.884**	0.010	0.107	-0.129	-0.013
ENJ_3	-0.026	0.344	0.154	0.052	0.014	**0.912**	0.020	0.135	-0.134	-0.034
INF_1	-0.056	0.081	0.087	0.221	0.076	-0.008	**0.896**	0.204	0.196	-0.117
INF_2	-0.016	0.179	0.149	0.203	0.025	0.063	**0.829**	0.186	0.130	-0.070
INF_3	-0.062	0.043	0.090	0.072	-0.043	0.051	**0.817**	0.122	0.074	-0.064
PEOU_1	0.123	0.290	0.087	0.032	-0.062	0.152	0.105	**0.834**	-0.037	0.172
PEOU_2	0.131	0.136	0.184	0.134	0.003	0.109	0.174	**0.883**	-0.143	0.163
PEOU_3	0.195	-0.013	0.025	0.251	0.079	0.080	0.276	**0.855**	-0.092	0.068
PU_1	0.217	-0.209	-0.091	0.012	-0.147	-0.103	0.075	-0.084	**0.848**	-0.089
PU_2	0.283	-0.193	-0.037	-0.074	-0.008	-0.151	0.097	-0.096	**0.854**	-0.104
PU_3	0.170	-0.140	-0.040	0.068	-0.146	-0.063	0.243	-0.081	**0.790**	-0.243
SOI_1	0.085	0.023	0.058	-0.048	-0.027	-0.110	-0.041	0.150	-0.220	**0.922**
SOI_2	-0.035	0.026	-0.044	-0.054	0.008	0.025	-0.098	0.029	-0.045	**0.781**
SOI_3	-0.127	0.138	0.106	-0.077	-0.128	0.108	-0.163	0.159	-0.096	**0.829**

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TABLE 6: Heterotraite-Monotrait (HTMT) Ratio

	ACS	AU	ATT	BI	CSE	ENJ	INF	PEOU	PU	SOI
ACS										
AU	0.113									
ATT	0.215	0.416								
BI	0.143	0.112	0.368							
CSE	0.205	0.109	0.212	0.146						
ENJ	0.146	0.194	0.445	0.137	0.139					
INF	0.142	0.134	0.165	0.260	0.079	0.083				
PEOU	0.277	0.122	0.254	0.207	0.105	0.158	0.259			
PU	0.335	0.079	0.274	0.123	0.179	0.157	0.205	0.149		
SOI	0.238	0.099	0.120	0.097	0.097	0.122	0.138	0.159	0.250	

TABLE 7: Results of Path Analysis via Structural Model

H	Relationship	Path (□)	t-value	p-value	Decision
H1a	Social Influence -> Perceived Usefulness	-0.142	3.002	0.003	Supported**
H1b	Social Influence -> Perceived Ease of Use	0.187	5.265	0.000	Supported**
H2a	Accessibility -> Perceived Usefulness	0.329	2.400	0.017	Supported*
H2b	Accessibility -> Perceived Ease of Use	0.197	2.569	0.011	Supported*
H3a	Computer Self-Efficacy -> Perceived Usefulness	-0.186	3.869	0.000	Supported**
H3b	Computer Self-Efficacy -> Perceived Ease of Use	-0.023	0.503	0.615	Not supported
H4a	Infrastructure -> Perceived Usefulness	0.220	5.366	0.000	Supported**
H4b	Infrastructure -> Perceived Ease of Use	0.236	5.164	0.000	Supported**
H5a	Enjoyment -> Perceived Usefulness	-0.090	2.095	0.037	Supported*
H5b	Enjoyment -> Perceived Ease of Use	0.143	2.089	0.037	Supported*
H6	Perceived Ease of Use -> Perceived Usefulness	-0.172	3.015	0.003	Supported**
H7	Perceived Ease of Use -> Attitude towards Using	0.150	1.885	0.060	Not supported
H8	Perceived Usefulness -> Attitude towards Using	-0.200	4.575	0.000	Supported**
H9	Perceived Usefulness -> Behavioral Intention	0.070	1.639	0.102	Not supported
H10	Attitude towards Using -> Behavioral Intention	0.300	5.710	0.000	Supported**
H11	Behavioral Intention -> Actual Use	0.121	1.196	0.232	Not supported

significant at p** < = 0.01, p* < 0.05

According to the study findings, there was a positive significance of social influence (□ = 0.187, P < 0.01), accessibility (□ = 0.197, P < 0.05), infrastructure (□ = 0.236, P < 0.01) and enjoyment (□ = 0.143, P< 0.05) on students' perceived ease of use of digital learning systems. In addition, social influence (□ = -0.142, P < 0.01), accessibility (□ = 0.329, P < 0.05), computer self-efficacy (□ =-0.186, P< 0.01), infrastructure (□ = 0.220, P < 0.01) and enjoyment (□ = -0.090, P < 0.05) have positively influenced the students' perceived usefulness of digital learning systems. Computer self-efficacy was found to be statistically not significant to (□ =-0.023, P = 0.615) perceived ease of use. This indicates that students' own ability to perform the task did not positively impact the degree to which an individual perceives that the use of a technology would not be complicated. Students' perceived ease of use digital learning has positive significance (□ =-0.172, P < 0.01) to the perceived usefulness of digital learning which implies that if the system is easy and friendly to use it helps increasing the effectiveness and performance of learning which directs the result more productive. Although, perceived usefulness has led to influence positively (□ =-0.200, P < 0.01) to the students' attitude to use digital learning systems, perceived ease of use failed (□ = 0.150, P = 0.060) to impact positively in the attitude towards using digital learning tools. Students' perceived usefulness to use technology in learning has an insignificant positive effect (□ = 0.070, P = 0.102) on their behavioral intention to use technology in learning, whereas attitude towards using technology in learning has significant positive effects (□ = 0.300, P < 0.01) on behavioral intention to use technology. Students'

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behavioral intention to use digital learning could not significantly influence (□ = 0.121, P = 0.232) actual use of digital learning tools. This may indicate that students' intention to use digital tools in learning could not adequately influence the actual use of technology.

Therefore, this research focused finding the factors and their relationship with other factors how they influence the adoption and acceptance of technology in their academic activities among students of Kathmandu valley, Nepal. While the result demonstrated that it is the responsibility of the creator to build a system that is easy, understandable and friendly to use. Development of ICT infrastructure by institution and also by respective sectors to make people accessible to use technology could help students to improve their performance and effectiveness in learning. Perceived usefulness of student about digital learning was found to be not supportive towards the behavioral intention to use the digital learning. Overall, the results and findings have provided supporting evidence for the factors proposed for promoting effective digital learning.

VI. CONCLUSION

These The aim of this research is to investigate the factors that influence students' behavior to use digital learning tool learning in Kathmandu valley. Digital learning system is changing traditional practice of learning with technology and innovation. Using digital tools in education makes academic activities more interesting, easy to access, creative, effective, and productive. ICT tools is enhancing the outcome of education. Based on literature review PU, PEOU, ATT, BI and AU towards digital learning are the factors that were identified as an important determinant of students' acceptance to use digital learning. A conceptual model that extends the Technology Acceptance Model (TAM) to include Social Influence, Accessibility, Computer self-efficacy, Infrastructure and Enjoyment as main determinants was proposed.

Out of the 16 hypothesized associations in the research model, 12 supported hypotheses presented relationships between variables of the model which in turn had an impact on students' acceptance of digital learning systems. Findings of the study present important implications for digital learning practice by students and integration of ICT for teaching learning in educational institutions. It made clear about the key driver (constructs in model) that should be consider while implementing digital learning system and its impact to the students in their adoption of digital learning technology.

Acceptance of digital learning by students would increase if the students perceive the use of digital learning to be simple and useful. This would further influence their attitude towards digital learning thereby influencing their intention to use digital learning more frequently which raise the actual use of digital learning technology. Therefore, it is important to discover the factors and relationships that affect students' intention to adopt digital learning or e-learning system for successful implementation and execution.

VII. RECOMMENDATION FOR FUTURE WORK

This study can further be extended to identify external variables influencing TAM and examine their impact on TAM in the digital learning and other related areas. Employing purposive sampling limits the participation of students who are away from researchers' focus so it is difficult to generalize the results to the entire academic institutions in Kathmandu, Valley. Hence, future endeavors should reach out students from all area in order to maximize the possibility of results generalization. To ensure the higher predictive power of model (higher R^2), this research suggest to conduct pilot study with small sample is important prior to conduct the final survey to review possible errors. Nevertheless, future work could consider the utilization of qualitative methods (e.g. interviews, discussion with focus groups and observation) to obtain an in-depth understanding of the investigated problem and the participants' attitude.

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APPENDIX

Perceived Usefulness (PU)

PU_1: Using computer will improve my learning performance.

PU_2: Using digital learning would enhance the effectiveness of my learning

PU_3: I find computer a useful tool for my digital learning practice.

Perceived Ease of Use (PEOU)

PEOU_1: My interaction with computer and its basic applications are clear and understandable.

PEOU_2: Interacting with the computer system does not require a lot of my mental effort.

PEOU_3: I find computer's basic operations are easy to use.

Attitude towards Using (ATT)

ATT_1: I feel positive regarding the utilization of digital applications for my academic activities.

ATT_2: It is very desirable to use digital learning for academic and related purposes.

ATT_3: I like using digital technologies in my learning.

Behavioral Intention (BI)

BI_1: I intend to use ICT tools regularly on my academic activities.

BI_2: I intend to use the Internet for searching information for my homework/assignment.

BI_3: I will use ICT tools for learning in the future.

Actual Use (AU)

AU_1: I use the computer system frequently.

AU_2: I use the computer on a daily basis.

AU_3: Overall, to what extent do you use the computer technology in your academic activities?

Social Influence (SOI)

SOI_1: My teachers think that I should use digital resource for learning activities.

SOI_2: Other students think that I should use digital resource for learning activities.

SOI_3: People who influence my opinion thinks that I should use digital resource for learning activities.

Accessibility (ACS)

ACS_1: I have access to computer/smart phone whenever I need.

ACS_2: The speed and stability of the internet access is sufficient for my educational activities.

ACS_3: I can extract study resources using internet without any problems.

Computer Self-Efficacy (CSE)

CSE_1: I have sufficient skills to use the computer system and applications.

CSE_2: I am able to use web browsers and search engines.

CSE_3: I feel that I am ready for digital learning.

Infrastructure (INF)

INF_1: My institute have enough computer lab for practical.

INF_2: I am satisfied with integration of ICT on teaching and learning on my institute.

INF_3: I am satisfied with the medium by which I get digital resources provided by my Institute.

Enjoyment (ENJ)

ENJ_1: I would feel more interested in study if I could use digital learning tools.

ENJ_2: I never feel bored using computer to support my learning.

ENJ_3: Using computer or/and digital tools is fun and enjoyable.