

Analysis determinants of social media acceptance in higher educational institutes of Pakistan

Ali Raza^{1*}, ShahMurad Chandio¹, Najma Imtaiz Ali¹, Zulfiqar Solangi¹, Asadullah Shah¹, Syed Faiz Ahmed²

¹International Islamic University Malaysia, Malaysia

²Universiti Kuala Lumpur, British Malaysian Institute

*Corresponding author E-mail: alirazarang@gmail.com

Abstract

Seen through the lens of the educational sector, social media grew to become a vital source of academic learning. The learning through social media occurs mainly through the collaborative approach to information sharing, where the web-based social networking sites provide the optimal platform for knowledge enhancing among colleagues, co-workers, and others. Developed economies have already recognized the significant value of learning through social media. However, developing economies such as Pakistan did not yet interpret future implications and real benefits of social media aided learning. This research focuses on determining significant factors through an integrated framework that features broadly recognized technology models such as Technology acceptance model (TAM) and Innovation diffusion theory (IDT). The subjects of the framework testing were students in higher education institutions that use social media, and the sample size was 350 students. Data analysis results, reached via SPSS software, were substantially in favour of extended model. Results reached through this study, in terms of factors with a significant influence on social media acceptance rate in Pakistani higher education institutions, are particularly crucial for students in the field of education, located in developing countries. This should assist the increasing acceptance and use of technological solutions, benefiting both faculty and students.

Keywords: *Innovation Diffusion Theory, Technology Acceptance Model, Learning and Social Media.*

1. Introduction

The widespread globalization, bolstered by electronic devices and easier communication, has turned the world into a global village, making things and people interconnected more than ever before. We are witnessing the revolutionary impact of social media on people's everyday life, changing the means of communicating with and keeping track of family and friends' movements and activities.

This study primarily focuses on the current and future social media usage in the Pakistani educational sector. It is estimated that 70% of Pakistani social media users consists of people aged under 25 [1]. The purpose of this study is to investigate the acceptance of social media among the population of university students. To identify significant factors related to the social media, a framework that integrates various prominent social theories and technology adoption, including TAM and IDT, is used. The goal is to identify the significant factors related to the acceptance of social media for educational purposes.

2. Related work

TAM was utilized to define the behaviour of computer usage. This framework or model is recognized as the imperative, most frequently cited model for understanding the human acceptance of information technology, also supported by extensive empirical evidence [2]. TAM framework suggests two external variables, professed ease of use and perceived utility, as two impact factors on two internal beliefs. PU is commonly reflecting a degree to

which an individual believes that technological system/solution would enhance his/her work performance, while PEOU is defined as the degree of new technology ease of usage [3].

Disciplines such as marketing, communication, education, sociology, information technology and social media have largely benefited from diffusion of innovation [4, 5, 6]. In simple terms, innovation is defined as an idea, practice or object that an individual perceives as brand new, while process by which the members of a social system communicate an innovation over time through distinct channels is defined as diffusion [4].

3. Proposed conceptual framework

3.1. Acceptance of social media

In this research, dependent variable is defined as the acceptance of social media for education. In this context, social media is defined as the cluster of communication networks dedicated to sharing, interaction and collaboration among its users. There are numerous types of social media in the for of websites and applications such as social networks, social bookmarks, wikis, and micro blogs.

3.2. Perceived usefulness

PU is commonly reflecting a degree to which an individual believes that technological solution would enhance his/her work performance [7]. Thus, PU suggests that students' expectations were positive in regards to how the new technology adoption will reflect on their academic performance [8].

3.3. Perceived use of ease

PEOU is defined as the degree to which users will find new technology to remain effortless [7]. PEOU suggests that students have positive expectations towards how the new technology implementation will reflect on their academic performance. It is deemed by individuals that using technology will be user-friendly with minimized cognitive effort [8].

3.4. Compatibility

Compatibility describes the extent of individual’s previous technological experience and positively correlates with acceptance of new information technology [9]. Thus, compatibility affects perceived usefulness and behavioural intention in direct and positive manner [10, 11].

3.5. Complexity

According to previous studies, complexity is found to be affecting negatively the intention of use and perceived usefulness [12]. Research revealed that the end user is less likely to use networking if end user is perceiving this system as [13].

3.6. Relevance

It is defining the degree to which the technology/system is matching tasks as accepted in the present environment and as identified through the task analysis. The effectiveness of information retrieval system can be measured as relevance includes both recall and precision factors [14]. Later, if relevant information is made available on a bigger scale through social media, the user will retrieve valuable information more easily.

3.7. Self-efficacy

Self-efficacy defines the extent to which people are willing to achieve a certain performance level and their judgement about it. This judgement of self-efficacy is important as it determines how much effort will the individual put if for a certain cause and how long will that effort endure [15].

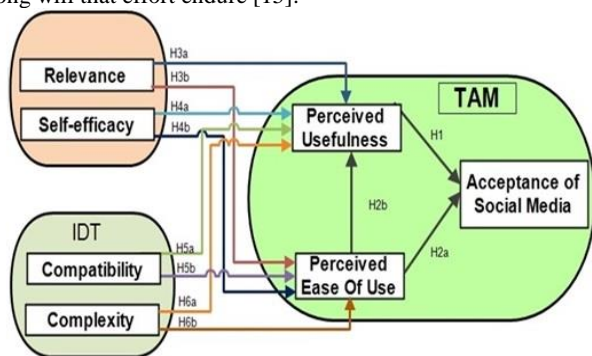


Fig. 1: Proposed research model for acceptance of social media. [16].

4. Method

In this sections, sample, measurement, analysis tools and techniques are discussed which are used to carry out the current research.

5. Population and sampling frame

In Pakistan, the total number of internet users are estimated to be approximately 30 million [1]. Furthermore, total number of student in universities estimated to be approximately 1.107 million the sampling frame of the current study are shown in Table 1.

Table 1: Universities in hyderabad, sindh, Pakistan

Universities	No of students
1 Mehran of engineering and technology University of Sindh	5200
2 Liaquat university of medical health science	26500
3 Sindh agricultural university	3800
4	6000
Total	41500

6. Techniques and sample size

The purpose of sampling, according to [17] is to collect information regarding population through utilization of the sample. The more a sample characterizes a population, the more generalized the assumptions become. Sampling is categorized into two major types: PS and NPS [18]. Data collection is done by using convenience sampling because; the researcher doesn’t have access to every student list in every university due to privacy and security issue.

7. Analysis tools

To analyses the data (SPSS) was used for descriptive statistics, normality and EFA.

7.1. Exploratory factor analysis

Parasuraman [19] defined “EFA as multivariate statistic method that evaluates and examines data on a comparatively big variable set and then generates fewer factors, which are insert compounds of the initial variables, and thus the factors set takes info from given data set”.

8. Results

Results obtained from current study are presented in this section.

8.1. Demographic characteristics of participants

Demographic characteristics of 350 respondents obtained from the study are presented here. Outcomes of participants’ background information and personal information are shown in Table: 2 to Table 6.

Table 2: Usage of social media

How often do you use social media?	Frequency	Percent	Valid Percent	Cumulative Percent
More than once a day	137	39.1	39.1	39.1
Once a day	58	16.6	16.6	55.7
Several times a week	64	18.3	18.3	74.0
Once a week	44	12.6	12.6	86.6
Several times a month	27	7.7	7.7	94.3
Once a month	20	5.7	5.7	100.0
Total	350	100.0	100.0	

Table 3: Purpose and qualification of participation

For what purpose do you use social media?	Frequency	Percent	Valid Percent	Cumulative Percent
Education	152	43.4	43.4	43.4
Job	12	3.4	3.4	46.9
Social Activities	171	48.9	48.9	95.7
Other	15	4.3	4.3	100.0
Total	350	100.0	100.0	

Table 4: Gender based statistics

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	208	59.4	59.4	59.4
Female	141	40.3	40.3	99.7
3	1	.3	.3	100.0
Total	350	100.0	100.0	

Table 5: Education

	Frequency	Percent	Valid Percent	Cumulative Percent
Undergraduate	296	84.6	84.6	84.6
Postgraduate	33	9.4	9.4	94.0
Diploma	7	2.0	2.0	96.0
Other	14	4.0	4.0	100.0
Total	350	100.0	100.0	

Table 6: Usage of devices for social media

	Responses		Percent of Cases
	N	Percent	
Laptop	138	31.1%	39.4%
Desktop	87	19.6%	24.9%
Cell phone	90	20.3%	25.7%
Smartphone	89	20.0%	25.4%
IPad	24	5.4%	6.9%
Other	16	3.6%	4.6%
Total	444	100.0%	126.9%

8.2. Descriptive statistics of construct

Descriptive statistics of survey constructs are shown in table: 7.

Table 7: Descriptive statistics of measured items of constructs

	N	Mean	Std. Deviation	Variance
SM1	350	5.02	1.837	3.375
SM2	350	4.97	1.764	3.111
SM3	350	4.98	1.839	3.381
SM4	350	4.79	1.910	3.647
SM5	350	4.98	1.778	3.160
PU1	350	4.75	1.883	3.545
PU2	350	4.72	1.848	3.416
PU3	350	4.68	1.882	3.541
PU4	350	4.66	1.792	3.212
PU5	350	4.70	1.868	3.489
PU6	350	4.69	1.945	3.784
PEOU1	350	4.88	1.839	3.380
PEOU2	350	4.87	1.781	3.171
PEOU3	350	4.81	1.900	3.609
PEOU4	350	3.43	1.933	3.735
PEOU5	350	4.78	1.831	3.351
PEOU6	350	4.75	1.848	3.415
CO1	350	4.71	1.844	3.399
CO2	350	4.77	1.771	3.138
CO3	350	4.73	1.851	3.425
CO4	350	4.73	1.861	3.465
CO5	350	4.57	1.895	3.593
CO6	350	4.54	1.771	3.138
SE1	350	4.87	1.799	3.236
SE2	350	4.84	1.829	3.344
SE3	350	4.74	1.794	3.220

SE4	350	4.76	1.711	2.926
RE1	350	5.10	1.761	3.101
RE2	350	5.16	1.663	2.767
RE3	350	5.12	1.743	3.038
RE4	350	4.93	1.780	3.167
CX1	350	4.82	1.878	3.525
CX2	350	5.06	1.712	2.930
CX3	350	4.89	1.895	3.593
CX4	350	4.88	1.800	3.238
Valid N	350			

SM: Intention to accept social media in education, PU: Perceived usefulness, PEOU: Perceived ease of use, CO: Compatibility, SE: Self efficacy, RE: Relevance, CX: Complexity

8.3. Exploratory factor analysis

Using SPSS, Principal components analysis (PCA) and exploratory factor analysis was performed.

8.4. kmo and bartlett's test of sphericity

KMO and BTS that demonstrates a .923 value of KMO measure of sampling adequacy and a $p < .001$ value for the former test, which showed suitability of data for executing analysis of factor in Table 8.

Table 8: Kmo and bartlett's test

Kaiser-meyer-olkin measure of sampling adequacy.		.923
Bartlett's Test of Sphericity	Approx. Chi-Square Df	11126.736
	Sig.	.000

8.5. Communalities

Communalities items loaded on the EFA model which are given in Table 9.

Table 9: Communalities

	Initial	Extraction
SM1	1.000	.836
SM2	1.000	.802
SM3	1.000	.824
SM4	1.000	.828
SM5	1.000	.843
PU1	1.000	.790
PU2	1.000	.795
PU3	1.000	.811
PU4	1.000	.805
PU5	1.000	.824
PU6	1.000	.836
PEOU1	1.000	.797
PEOU2	1.000	.815
PEOU3	1.000	.780
PEOU4	1.000	.638
PEOU5	1.000	.798
PEOU6	1.000	.818
CO1	1.000	.786
CO2	1.000	.774
CO3	1.000	.779
CO4	1.000	.783
CO5	1.000	.805
CO6	1.000	.719
SE1	1.000	.715
SE2	1.000	.787
SE3	1.000	.776

SE4	1.000	.775
RE1	1.000	.846
RE2	1.000	.667
RE3	1.000	.840
RE4	1.000	.843
CX1	1.000	.770
CX2	1.000	.649
CX3	1.000	.644
CX4	1.000	.636

Extraction Method: Principal Component Analysis.

RE3	.825
RE4	.837
CX1	.874
CX2	.791
CX3	.793
CX4	.778

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Table 12: Reliability statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.941	.942	35

8.6. Exploratory factor extraction model

Kaiser's principle of Eigen values larger than 1 and the Screeplot was utilized to extract factors in table 10.

Table 10: Total variance explained

Component	Initial eigenvalues		Extraction Sums of squared loadings			Rotation sums of squared loadings			cumulative %
	total	% of variance	total	% of variance	cumulative %	total	% of variance	cumulative %	
1	13.7	39.3	39.3	13.7	39.3	39.3	4.9	14.2	14.2
2	3.4	9.9	49.2	3.4	9.9	49.2	4.8	13.8	28.0
3	2.7	7.7	57.0	2.7	7.7	57.0	4.7	13.6	41.6
4	2.1	6.2	63.2	2.1	6.2	63.2	3.7	10.6	52.3
5	1.9	5.4	68.7	1.9	5.4	68.7	3.1	9.0	61.3
6	1.8	5.3	74.0	1.8	5.3	74.0	3.0	8.8	70.1
7	1.3	3.7	77.8	1.3	3.7	77.8	2.6	7.6	77.8

Extraction Method: Principal Component Analysis.

8.7. Loadings of measured items on latent factors

The rotated component matrix demonstrates loadings of individually calculated items on all of the 7 latent factors distinguished in EFA model in Table 11 and 12.

Table 11: Rotated component matrix

	Component						
	1	2	3	4	5	6	7
SM1				.748			
SM2				.742			
SM3				.743			
SM4				.776			
SM5				.799			
PU1	.815						
PU2	.798						
PU3	.809						
PU4	.816						
PU5	.832						
PU6	.815						
PEOU1		.833					
PEOU2		.849					
PEOU3		.859					
PEOU4		.774					
PEOU5		.842					
PEOU6		.842					
CO1			.806				
CO2			.789				
CO3			.814				
CO4			.818				
CO5			.819				
CO6			.755				
SE1						.742	
SE2						.785	
SE3						.826	
SE4						.836	
RE1					.811		
RE2					.665		

8.8. Creation of latent factors

The outcome of EFA suggested 7 latent factors were made by addition scores of all loaded items; now called the latent constructs in Table 13 and 14.

Table 13: Summary item statistics

	Mean	Minimum	Maximum	Range	Max / Min	Variance	N of Items
Item Means	4.79	3.42	5.16	1.73	1.50	.079	35
Item Variances	3.33	2.76	3.78	1.01	1.36	.056	35
Inter-Item	1.04	-2.46	2.93	5.39	-1.19	.686	35
Covariances							
Inter-Item	.317	-.670	.808	1.47	-1.20	.060	35
Correlations							

Table 14: Item-total statistics

	Scale Mean if Deleted	Scale Variance if Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Deleted
SM1	162.65	1264.0	.740	.903	.938
SM2	162.71	1271.1	.714	.813	.938
SM3	162.70	1265.0	.732	.867	.938
SM4	162.89	1264.8	.704	.887	.938
SM5	162.70	1273.3	.691	.758	.939
PU1	162.93	1270.7	.669	.746	.939
PU2	162.95	1271.0	.680	.735	.939
PU3	162.99	1266.9	.699	.760	.938
PU4	163.02	1272.2	.694	.744	.939
PU5	162.98	1270.2	.679	.763	.939
PU6	162.99	1259.7	.729	.790	.938
PEOU1	162.80	1286.7	.561	.760	.940
PEOU2	162.81	1290.5	.551	.757	.940
PEOU3	162.87	1297.4	.461	.701	.941
PEOU4	164.25	1419.2	-.404	.530	.948
PEOU5	162.89	1289.0	.546	.733	.940
PEOU6	162.93	1284.5	.575	.772	.940
CO1	162.97	1274.0	.659	.738	.939
CO2	162.90	1277.5	.659	.716	.939
CO3	162.95	1277.6	.628	.711	.939
CO4	162.95	1276.6	.632	.703	.939
CO5	163.11	1271.2	.661	.747	.939
CO6	163.14	1279.3	.645	.676	.939
SE1	162.81	1286.9	.573	.626	.940
SE2	162.84	1284.3	.583	.690	.939
SE3	162.94	1293.8	.520	.636	.940
SE4	162.91	1301.7	.482	.615	.940
RE1	162.57	1279.3	.648	.906	.939
RE2	162.51	1291.8	.582	.684	.940
RE3	162.56	1283.7	.619	.855	.939
RE4	162.75	1284.5	.599	.879	.939
CX1	162.86	1344.4	.118	.590	.944
CX2	162.61	1340.0	.169	.444	.943
CX3	162.79	1340.1	.147	.446	.943
CX4	162.79	1329.1	.242	.477	.942
RE1	162.57	1279.3	.648	.906	.940

9. Conclusion

Studies based on factors affecting user acceptance of social media in higher education institutions of Pakistan was motivated by remarkable advancement in technology. This appeared to be one of the foremost compulsions for change in the educational sector. Various directions for future research, nevertheless, are unexplored. For instance, the results obtained are limited to students. Further research may utilize or replicate this work on faculty members and other institutions (schools and colleges). This may be constructive in ascertaining the external validity of the model. Additionally, it may be intriguing to apply this model to further cultural settings, such as other parts of Asia or the developed countries of the West. This may be helpful in offering evidence for the suitability of this model for different cultural settings. Understandably, the strength of this model may fluctuate across various cultural surrounding and thus demand experimentation. Social media usage facilitates the development of critical thinking among the student population and keeps them updated with the latest knowledge relevant to their educational interests. With the aid of social media teachers have the opportunity to create a productive educational setting for both students and other faculty members [20]. Further, students' learning skills can be enhanced through the usage of advanced teaching techniques that are media based.

References

- [1] The Express Tribune Report. (2013). Retrieved October 1, 2015, from <http://tribune.com.pk/story/567649/30m-internet-users-in-pakistan-half-on-mobile-report/>
- [2] Fred D. Davis, Richard P. Bagozzi, Paul R. Warshaw. (1989). User Acceptance of Computer Technology: A Comparison of Two Models. *Management Science*.
- [3] Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35(8), 982–1003. Retrieved from <http://www.jstor.org/stable/10.2307/2632151>
- [4] Rogers, E. M., Singhal, A., & Quinlan, M. M. (1995). *Diffusion of Innovations* Everett M. Rogers. New York.
- [5] Karahanna, E., W. Straub, D., & L. Chervany, N. (1999). Information technology adoption across time: A cross-sectional comparison of Pre-adoption and Post adoption beliefs. *MIS Quarterly*, 23(2), 183–213.
- [6] Agarwal, R., Sambamurthy, V., & Stair, R. M. (2000). The evolving relationship between general and specific computer efficacy. *Information Systems Research*.
- [7] Davis, F. D. (1989). Perceived usefulness, Perceived ease of use and User acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
- [8] Al-rahimi, W. M., Othman, M. S., & Musa, M. A. (2013). Using TAM Model To Measure The Use Of Social Media For Collaborative Learning (Vol. 5, pp. 90–95). *International Journal of Engineering Trends and Technology (IJETT)*.
- [9] Agarwal, R., & Prasad, J. (1999). Are Individual Differences Germane to the Acceptance of New Information Technologies? *Decision Sciences*, 30(2), 361–391. doi:10.1111/j.1540-5915.1999.tb01614.x
- [10] KKwon, S. J., Park, E., & Kim, K. J. (2014). What drives successful social networking services? A comparative analysis of user acceptance of Facebook and Twitter. *The Social Science Journal*, 1–11. doi:10.1016/j.soscij.2014.04.005
- [11] Chang, S.-C., & Tung, F.-C. (2007). An empirical investigation of students' behavioural intentions to use the online learning course websites. *British Journal of Educational Technology*, 39(1), 070625111823003-??? doi:10.1111/j.1467-8535.2007.00742.x
- [12] HHardgrave, B., Davis, F. D., & Riemenschneider, C. K. (2003). Investigating Determinants of Software Developers' Intentions to Follow Methodologies. *Journal of Management Information Systems*, 20(1), 123–151.
- [13] PPituch, K. a., & Lee, Y. (2006). The influence of system characteristics on e-learning use. *Computers & Education*, 47(2), 222–244. doi:10.1016/j.compedu.2004.10.007
- [14] SSu, L. T. (1994). The relevance of recall and precision in user evaluation. *Journal of the American Society for Information Science*, 45(3), 207–217. doi:10.1002/(SICI)1097-4571(199404)45:3<207::AID-ASIH0>3.0.CO;2-1
- [15] BBandura, A. (1986). *Social Foundations of Thought and Action: A Social-Cognitive View*. Prentice Hall: Englewood Cliffs, NJ.
- [16] KKoondhar, M. Y., Molok, N., Chandio, F., Rind, M. M., Raza, A., & Shah, A. (2015). A Conceptual Framework for Measuring the Acceptance of Pervasive Learning. *Proceedings of the 5th International Conference on Computing & Informatics*, (193), 97–103. Retrieved from <Go to ISI>://WOS:000359431400013
- [17] GGay, L. R., & Airasian, P. W. (2000). *Educational Research, Competencies for Analysis and Application* (6th ed.). Merrill an Imprint of Prentice Hall.
- [18] SSekeran, U., & Bougie, R. (2016). *Research Methods for Business: A Skill-Building Approach* (6th ed.). U.k: John Wiley & Sons, Inc..
- [19] MMoore, G., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, 2, 192–222. doi:10.1287/isre.2.3.192
- [20] RRaza, A., Chandio, F. H., Koondhar, M. Y., Rind, M. M., & Shah, A. (2015). A Framework for the Analysis of Determinants of Social Media Acceptance in Higher Educational Institutes of Pakistan. In the 5th International conference on computing and informatic, ICOCI 2015 (pp. 104–111). Istanbul, Turkey: Universiti Utara Malaysia.