Adoption of Social Media by Architecture Students in Fostering Community Service Initiative using Technology Acceptance Model

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Abstract. The use of the Internet for social networking is very popular amongst the youth. Collaborative technology leads to instant online community that enables fast and convenient communication. Adoption of Social Media has been researched on many contexts. However, little research has paid close attention to the student’s acceptance of Social Media (SM) as e-learning in higher educational teaching, especially in architectural education. This study aims to investigate factors that affect acceptance and behaviour of architecture undergraduate students towards the usage of SM. A quantitative method was used and qualitative responses of 33 architecture students using social media in their elective module, Community Service Initiative (CSI), was analyzed using the Technology Acceptance Model (TAM). TAM model for this study focused on social norm (SN) as an external factor, the two user beliefs, perceived usefulness (PU) and perceived ease of use (PEU) and behavioural intention to use (BI). Factor Analysis and Pearson Correlation showed significant relationship between social norm, perceived ease of use, perceived usefulness, and behavioural intention to use. The results of this study provided evidence for the potential use of social media as e-learning in similar modules.

Keywords. social media; e-learning; technology acceptance model (TAM); community service; architectural education

1. Introduction
E-learning has been introduced and adopted rapidly by higher educational institutions to facilitate the teaching and learning of students. Despite the potential of e-learning as a tool to enhance education and training performance, its value will not be realized if users do not accept it as a learning tool [9]. The Technology Acceptance Model (TAM) is a concept model that was most widely used in measuring technology or e-learning acceptance. The model used in this study adheres to the original structure proposed by Davis in 1986 [5]. In this study, the social norm (SN) or influence of instructors and peers on forming the perceived usefulness (PU) is used. Facilitating conditions, the external factor
for perceived ease of use (PEU), was not used as the students have prior experience of using all the social media and have access to facilities such as computers, mobile devices, and internet. PEU refers to the degree to which an individual expects no physical and mental difficulties in adopting the technology [4]. Most TAM studies that consider technology adoption, predicted actual usage by measuring only behavioural intention to use the system [15]. Behavioural intention in TAM was also presumably formed as a result of careful decision-making process [16]. In this research, the behavioural intention is assumed as predictor of actual use. This study aims to investigate the factors that influence behavioural intention to use social media (SM) in fostering community service learning among architecture students.

The module Community Service Initiative (CSI) is an elective taken by architecture students in a private higher educational institution in Malaysia. Community service is a form of service learning, which uses curriculum to foster a sense of care and concern among students for their community and the world at large. This module aims at recognizing and taking steps to meet the needs of others. Students were exposed to community needs and experience caring for others while learning about the resources available to them for revitalizing their communities. This gives them an opportunity to use and enhance their creative, critical, and reflective skills. Architecture students are expected to have all these skills as they are exposed to them since semester 1 year 1, especially in design studio teaching. Thus this study analyses the architecture students’ acceptance of SM in fostering community service initiative’s learning outcome.

There are wide usages of SM in promoting e-learning in higher education. The normal usage of social media in e-learning is through formal and informal learning. Formal learning is a highly structured type of learning that happens in courses, classrooms, and schools, resulting in learners receiving grades, degrees, diplomas, and certificates. Whereas informal learning rests primarily in the hands of the learner and happens through observation, trial and error, asking for help, conversing with others, listening to stories, and reflecting on a day’s events, or its stimulated by general interests [2][13]. Facebook was categorized as a social networking site and YouTube as creativity works sharing site [10]. The usage of SM for teaching and learning is categorized as the constructivist approach to learning as in Figure 1 [2]. The researchers found that SM is useful in teaching and learning especially in this elective module, community service initiative, thus, the need to find and understand the student’s acceptance of it.

![Figure 1: Analysis of web 2.0 tools, an educational perspective](image)

Constructivism suggests that the learner is actively involved in learning. The constructivist learning theory and how it describes the way that learners construct meaning through our interactions
with one another, the community, and the environment, and that knowledge is not something absolute [7]. Thus, in this module, Community Service Initiative, students learn or create (construct) their own meaning by interacting with instructors, peers, public, and community in need. In a study conducted to study the use of digital simulation tool among architecture students, the finding was that that architecture students were able to adopt and use new knowledge and skills followed by analysing skills that are important for critical thinking [14]. In this study Facebook and YouTube were suggested by the instructor in an attempt to reach out to a larger audience than the campus community. The students also used WhatsApp, an instant messaging smartphone application and others. It is expected that architecture students’ community service initiative will reach community at large with healthy interaction and positive outcomes.

The effective use of information and communication technologies in delivering e-learning based components of a course is of critical importance to the success and student acceptance of e-learning [11]. The instructor found that using the SM is very relevant to informal learning and the various activity that the students might choose to accomplish their aims such as create awareness, to promote a cause and maybe raise funds. Using the SM, the students will be able to reach out to more people other than the campus community. The students chose disabled children’s home as their choice of community in need and planned activity to foster communication and understand problems related to this community. Then the students are to suggest activities to help them. The students in groups chose to create social awareness by creating Facebook pages, organizing an exhibition, and selling merchandises such as key chains and t-shirts to raise funds. They used SM extensively for this purpose. It is also a requirement for the architecture students to reflect and document their projects in a blog called e-portfolio.

The learning outcomes prescribed for this CSI elective module are;

1) Develop relevant communication skills for collaborative work with community/society and/or to work in a career that will contribute to society.
2) Develop a holistic awareness of the variety of problems (e.g. the environment, poverty, and social discrimination) that call for action; critically analyze how such problems should be approached and how to solve them scientifically.
3) Apply information management skills and strengthen their lifelong academic learning.
4) Develop a strong sense of social responsibility and be able to portray leadership qualities and be able to work effectively as a team.

2. Method
To identify the user acceptance of SM, the data for this study was collected using survey questionnaire administered to 33 undergraduate Architecture students from the March 2016 intake. Students were instructed in the survey to offer information about their experiences of using social media. The survey adhered to the Technology Acceptance (TAM), constructs and uses a five-point Likert scale (1 for strongly disagree to 5 strongly agree). SPSS application (Version-20) was used to analyze the data. The instrument used for this study was designed based on the objectives of the study. The TAM for this study is illustrated in Figure 2. The researchers also observed the usage of SM by following the Facebook, YouTube, and WhatsApp postings.

![Fig. 2: Technology Acceptance Model for this study.](image-url)
The participants in this study include 54.5% male and 39.4% female students. They come from various educational experiences prior to this undergraduate architecture programme. 87.9% of the students were in semester 5, final year, and 12.1% of the students from sem 3 and 4 from year 2. All students have prior experience of using social media (SM). 69.7% reported using social media for 6 years or more, 27.3% of students used the SM for 3 to 4 years, and one student had used for 1 to 2 years.

3. Results and Discussion
Subjective norm affects the general form of a student’s personal perception of social media (SM) usage, particularly as a degree of perception to which an individual perceives how important others believe he or she should use the SM in achieving the learning outcome. In the higher educational institutions, perception of usefulness will be formed by the social influence of instructors and peers. The students, then, would have a positive attitude towards the use of SM when the instructors ascertain that the SM is useful to them. It is noticed that subjective norm and perceived usefulness has a strong positively correlation, from table 1, r = 0.623, p ≤ 0.05. TAM has been extensively used and extended to study in an e-learning context, where, the constant use of the two use beliefs in TAM, perceived usefulness (PU) and perceived ease of use (PEU), were used to explain university students’ acceptance of e-learning. In this study, the strongest correlation was found between perceived usefulness and behavioural intention to use, r = 0.733, p ≤ 0.05. The architecture students strongly feel that SM is useful in achieving their aim. In a SM usage study it was explained that Facebook is user driven and has the ease of uploading a video, a picture, or a message going viral [12], thus, the importance of students choosing this social media to achieve their learning outcome for this module. The students also have prior experience of using the social media with 69.7% of the student using it more than six years.

|    | PEU | PU   | SN   | BI    |
|----|-----|------|------|-------|
| PEU| 1   |      |      |       |
| PU | 0.546** | 1   |      |       |
| SN | 0.300 | 0.623** | 1   |       |
| BI | 0.591** | 0.733** | 0.413* | 1   |

*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).

Most students used and intended to use Facebook as their chosen social media platform for their studies. The second social media that was used and intended to be used for study was WhatsApp, an instant messaging smartphone application that allows sharing of digital media such as images and videos instantly. This WhatsApp application is more private as it needs the phone number of the user, while Facebook allows user to be available for public, thus, having more audiences and may attract participation of the community service initiative cause highlighted.

According to table 1, perceived ease of use and behavioural intention have moderate positive relationship, r =0.591, p ≤ 0.05. This finding is concurrent with Davis [4] in which it was found that perceived usefulness has a significantly greater correlation with usage behaviour than did perceived ease of use. Perceived ease of use had a significant effect on attitude towards usage [8]. 52% of architecture students use social media for studying more than 6 hours daily, while 33% use it for 3-4 hours daily and 15% use it for 1-2 hours. It can be concluded that students use SM with ease with prior experience and daily usage. The researchers’ observed that students tend to use SM for
communication purposes within group mates and community involved to manage tasks, and as an archive to share materials such as pictures and videos rather than for campaign usage or for communicating with general SM users. In order to understand the students’ perception of the usefulness of social media (SM) in achieving the CSI elective module, the survey also had a question; “Without SM, will you be able to achieve your aim?” To this question, 67% of the students answered that without SM the aim will not be achieved which is consistent with their belief that SM is useful.

Fig. 2: Graph showing the number of students that have used SM for this CSI elective module and will use the SM in their future studies.

4. Conclusion
This study uses TAM framework for enhancing the understanding of students’ acceptance of using SM in fostering community service initiative’s learning outcome. The finding suggests that perceived usefulness had a greater impact on behavioural intention than perceived ease of use. It can be concluded that students use SM with ease with prior experience and daily usage. 67% of students also believe that SM is important in achieving the aim of this module, while the rest of the 33% might have relied on campus community to achieve their aim. Some TAM researchers argue that students may have different motivations, such as grades, rewards, and so on, [11] thus, do not rely on SM in achieving the aim of the study. The instructor opinioned that the students who used SM are more open for new challenges in learning and believed that the cause they are promoting needs a larger audience.

The researchers also found that students use the SM with ease for communicating within the community involved in their project and use SM as an archive with ease. Findings of the study present important implications for educational institutions in using SM as e-learning [1], which implies that the use of SM in learning can connect students and instructors, increase learners’ motivational level, and can create strong communities of practice for teaching and learning, which can expand the learning process beyond the boundaries of a traditional classroom. If usage of SM is to be considered for teaching and learning in a module, a guideline for usage of SM needs to be consolidated with clear aims to be established because the potential of SM usage is varied and would be a valuable learning experience for students. The study focused only on architecture students enrolled in a module. The findings also give confidence to the view that using SM is particularly suited to this elective module as e-learning because the architecture students are relatively experienced in using Social Media, facilities are readily available, and almost all students have a smart phone. The researchers suggest that in the future, a larger sample with respondents representing different modules can be used to generalize the results.

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References

[1] Al-rahmi, W., & Othman, M. (2013). Using TAM model to measure the use of social media for collaborative learning. *International Journal of Engineering Trends and Technology (IJETT)*, 5(2), 90-95.

[2] Bates, T. (2011). Understanding Web 2.0 and its implications for e-learning. In *Web* (Vol. 2, pp. 21-41).

[3] Dabbagh, N., & Kitsantas, A. (2012). Personal Learning Environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. The Internet and higher education, 15(1), 3-8.

[4] Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319-340.

[5] 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. doi: 10.1287/mnsc.35.8.982

[6] Dhume, S. M., Pattanshetti, M. Y., Kamble, S. S., & Prasad, T. (2012, January). Adoption of social media by business education students: Application of Technology Acceptance Model (TAM). In *2012 IEEE International Conference on Technology Enhanced Education (ICTEE)* (pp. 1-10). IEEE.

[7] Harasim, L. (2012). Learning theory and online technologies. Routledge.

[8] Hu, P.J., Chau, P.Y.K., Sheng, O.R.L. and Tam, K.Y. (1999) ‘Examining the technology acceptance model using physician acceptance of telemedicine technology’, *Journal of Management Information Systems*, Vol. 16, No. 2, pp.91–112.

[9] Lee, B. C., Yoon, J. O., & Lee, I. (2009). Learners’ acceptance of e-learning in South Korea: Theories and results. *Computers & Education*, 53(4), 1320-1329

[10] Mangold, W. G., & Faulds, D. J. (2009). Social media: The new hybrid element of the promotion mix. *Business horizons*, 52(4), 357-365.

[11] Ratna, P. A., & Mehra, S. (2015). Exploring the acceptance for e-learning using technology acceptance model among university students in India. *International Journal of Process Management and Benchmarking*, 5(2), 194-210.

[12] Rauniar, R., Rawski, G., Yang, J., & Johnson, B. (2014). Technology acceptance model (TAM) and social media usage: an empirical study on Facebook. *Journal of Enterprise Information Management*, 27(1), 6-30.

[13] Selwyn, N. (2007). The use of computer technology in university teaching and learning: a critical perspective. *Journal of computer assisted learning*, 23(2), 83-94.

[14] Sujatavani, G., & Mari, M. T. (2015). Using Digital Simulation as an e-learning tool to create dynamic learning in Architecture students. *Global Journal of Business and Social Science Review*, 3(1), 107-114.

[15] Turner, M., Kitchenham, B., Brereton, P., Charters, S., & Budgen, D. (2010). Does the technology acceptance model predict actual use? A systematic literature review. *Information and Software Technology*, 52(5), 463-479.

[16] Venkatesh, V., Morris, M.G., Davis, F.D. and Davis, G.B. (2003) ‘User acceptance of information technology: toward a unified view’, *MIS Quarterly*, Vol. 27, No. 3, pp.425–478.