

Students' Acceptance towards Small Private Online Course: A Case Study in one of Chinese Universities

Xu Tan^{1,2}, Zaidatun Tasir³

¹School of Education, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia, Johor, Malaysia, ²College of Electronic and Information Engineering, Hengshui University, Hebei, China, ³School of Education, Faculty of Social Sciences and Humanities,

Universiti Teknologi Malaysia, Johor, Malaysia

Corresponding Author Email: p-zaida@utm.my

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v14-i5/21666>

DOI:10.6007/IJARBSS/v14-i5/21666

Published Date: 25 May 2024

Abstract

Online learning has gained widespread acceptance among educators and learners, yet research on student acceptance within the context of Small Private Online Courses (SPOCs) remains limited. Understanding student acceptance toward SPOCs is crucial as it serves as a foundational step before further large-scale research endeavors in this area. This study investigated students' acceptance of SPOCs integrated with problem-solving tasks in the field of Educational Technology. The SPOC was developed following the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model and IDEAL (Identify, Define, Explore, Act, Look) problem-solving phases. Utilizing a quantitative research design, a survey based on the Technology Acceptance Model (TAM) was administered to 161 undergraduate students at a Chinese university. Analysis of the data using SPSS version 25.0, focusing on 128 responses, reveals high levels of acceptance among students. They demonstrate strong endorsement of the SPOC in terms of perceived usefulness (mean = 3.879), perceived ease of use (mean = 3.84), behavioral intention (mean = 3.829), and usage (mean = 4.04). Notably, correlation analysis indicates a significant relationship; students who find the SPOC easy to use also perceive it as useful and express a strong intention to use it for learning. This finding underscores the importance of user experience in driving acceptance and adoption of SPOCs in educational settings. Moreover, this study addresses a significant gap in understanding SPOC acceptance among Chinese university students, suggesting avenues for future research to explore further the utilization of SPOCs in China's higher education landscape.

Keywords: SPOC, Acceptance to SPOC Course, TAM, Questionnaire, ADDIE Model

Introduction

The present research of online courses focus primarily on the delivery style of the courses, their motivation, and how to design and evaluate the quality of online courses and

students' performance and dropout in online courses (Ruiz-Palmero et al., 2020; Alhothali et al., 2022; Martin et al., 2019; Bao, 2021). Previous study has looked into the elements that influence adoption of online learning and online courses (Olugbara et al., 2021; Ifinedo, 2016; Yang et al., 2019; Yin et al., 2015).

The Technology Acceptance Model (TAM)1 proposed by Davis in 1989 has achieved considerable popularity in the field of technology acceptance research and is widely regarded as a "key model" Maranguni et al (2015) or "gold standard" (Holden & Karsh, 2010) for elucidating determinants of IT acceptance. TAM1 model is still regularly utilized to evaluate the acceptability of new technologies (Muchran et al., 2019; Li et al., 2018; Kamal et al., 2020; Marangunić and Granić, 2015). Technology acceptance research analyzes whether individuals accept technology as a tool for increasing job efficiency (Davis, 1985). There are four variables in TAM1 model: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Behavioral Intention (BI), and Use (U) (Davis, 1989). Given this, it is critical to investigate students' acceptance of SPOC courses, which can be used as a prerequisite for study on how to improve the quality of online learning.

TAM1 theory has been used to study the acceptance of online courses, particularly MOOCs (Olugbara et al., 2021; Ye et al., 2016; Arpacı et al., 2020; Kharma, 2019). TAM1 research on the adoption of SPOC courses, on the other hand, have yet to be conducted. The constituents of TAM1 have been researched by some researchers (Olugbara et al., 2021; Ye et al., 2016), and the results reveal that PU and PEOU are two significant elements. Next, the acceptance framework for SPOC has been developed based on the correlation analysis finding. The framework has implications for future study on the theory and utilization of the TAM model.

Literature Review

Online Course

Caplan and Graham (2004) mentioned that there is no standard definition of online course. Though since mid 1990s to twenty-first century, characteristic of online course has shifted to open, distributed, dynamic, globally accessible, filtered, interactive, and archival nature (McGreal & Elliot, 2008). Online course can be described to the course that can be used through Internet, with various electronic terminals, such as computer, tablet computer, smartphone.

Yang et al (2019) synthesized and reviewed the history of Chinese online education. The development of online courses in China has gone through various stages, including online courses, high-quality courses, and online open courses. Yin et al (2015) investigated courses on global online course platforms, focusing on Coursera, Udacity, and edX in the United States, which remain the world's most influential platforms, and analyzed course content, course resources, course evaluation, course implementation, and course development.

According to Alhothali et al (2022), MOOC and SPOC are the primary forms of online courses used in online education. Present research of online courses focus primarily on the delivery style of the courses, students' motivation, and how to design and evaluate the quality of online courses and students' performance and dropout in online courses (Ruiz-Palmero et al., 2022; Martin et al., 2019; Bao, 2021).

With the advancement of technology, the quality of on-campus education for SPOC courses has substantially increased while tuition costs have decreased (Xu et al., 2014). SPOC courses are more popular and have a greater completion rate than MOOCs, which are notorious for their high dropout rates (Ruiz-Palmero et al., 2020).

Small Private Online Course

Small Private Online Course (SPOC) is a concept presented by Fox and Patterson, computer science professors at the University of California, Berkeley in 2014. SPOC is a way to disrupt the status quo of traditional higher education by utilizing MOOC resources for small, targeted groups. Its simplest form is to supplement classroom instruction with MOOC lecture recordings or online evaluations in typical campus classes. (Xu et al., 2014) The two are not in competition, but rather promote and complement one another.

Martinez-Munoz and Pulido (2015) investigated the use of SPOC technology in flipped classroom instruction and discovered that it can improve students' involvement, satisfaction, and final grade. Guo (2017) mentioned that SPOCs are better suited for on-campus education. Some researchers conduct study on the application of SPOC for online learning. Jia and Zhang (2021) found that is SPOC can be conducive to improving students' interest in learning and cultivating their comprehensive ability. SPOC has a decreased dropout rate, according to Ruiz-Palmero et al (2020), and most students can complete the course.

Researchers have also undertaken study on the instructional design of SPOC courses (Castro and Tumibay, 2021). Literature that can be retrieved at present is mainly research on the acceptance of online courses such as MOOC (Olugbara et al., 2021; Ye et al., 2016; Arpaci et al., 2020; Kharma, 2019). However, there are few studies on the adoption of online courses, particularly SPOC courses, which is one of the study's research objectives.

TAM

Davis (1985) introduced the Technology Acceptance Model (TAM) in his PhD dissertation, which established a theoretical framework for explaining the link between attitudes, intentions, and behavior. Davis (1989) stated that two criteria, perceived use (PU) and perceived ease of use (PEOU), were thought to be the primary predictors of users' acceptance of information technology.

There are four major variables in TAM: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Behavioral Intention (BI), and Use (U). PU is used as both a dependent and independent variable since it is predicted by PEOU, and predicts BI and U at the same time. Behavior was usually measured using frequency of use, amount of time using, actual number of usages, and diversity of usage. The relationship between PU and BI is strongly significant (Davis, 1989). TAM 1 model is depicted in Figure 1.

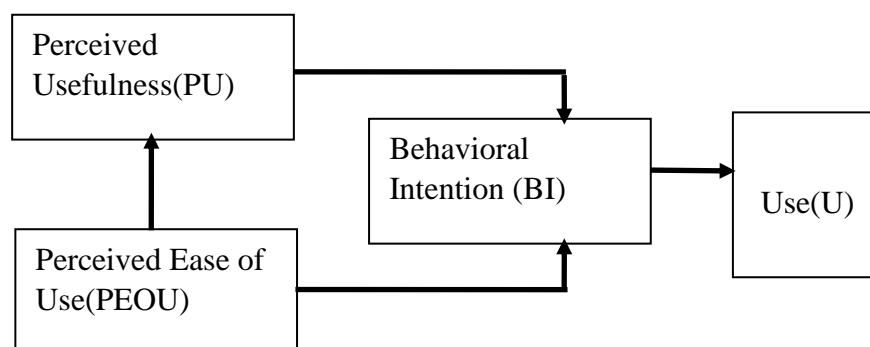


Figure 1 The Technology Acceptance Model 1 (Davis, 1989)

Venkatesh and Davis (2000) introduced TAM 2. It clearly defines the external variables of PU, PEOU and U, they define the external variables of PU, such as social influence

(subjective norms, image, experience) cognitive instruments (job relevance, image, quality, and result demonstrability) and voluntariness.

To improve Informational Technology (IT) adoption determinants, IT utilization, and distractions. Venkatesh and Bala suggested TAM 3 in 2008. This approach, which has not been extensively used, refines the external factors in TAM 2. In spite of TAM 2 and TAM 3 are more developed and have a broader variety of applications than the original TAM1, The TAM1 model is still regularly utilized to evaluate the acceptability of new technologies (Muchran & Ahmar, 2019; Li et al., 2018; Kamal et al., 2020; Marangunić & Granić, 2015).

Furthermore, based on a literature from 1986 to 2013 of TAM model, Marangunić and Granić (2015) points out TAM has become the main model for describing and predicting technology utilization. Though TAM model had been discussed by so many people and been developed to TAM2 and TAM3, the original TAM model is the most popular one. TAM1 model has become so widespread that it has been referenced in the majority of research on user adoption of technology.

Acceptance towards SPOC

As for the literature search of the study on students' acceptance of online courses, English literature largely focuses on the study of the acceptance of MOOC or SPOC courses, the acceptance of online education, and the acceptance model, among which TAM model are in the majority. Therefore, this study investigates the acceptability of online courses by students based on the TAM model.

The research of Olugbara et al (2021); Ye et al (2016) demonstrates that perceived usefulness and perceived ease of use are critical variables affecting students' acceptance of MOOC courses, and these two variables correspond to two core variables of Davis' TAM model. Arpaci et al (2020) examined the degree to which MOOCs are accepted by engineering students in Malaysia and Turkey. Kharma (2019) concluded from an analysis of data from an online course at Al-Ahliyya Amman University that technical knowledge (EXP2) of using a computer for online access, awareness of the availability of online courses, subjective (social) norms, cost, and effort expectancy all had a significant effect on behavioral intention to accept online courses.

As can be seen from the literature review, when it comes to research on the acceptance of online courses, the literature that can be retrieved at present is mainly research on the acceptance of online courses such as MOOC (Olugbara et al., 2021; Ye et al., 2016; Arpaci et al., 2020; Kharma, 2019). However, there are few studies on the acceptance of online courses, particularly SPOC courses, which is one of research objectives of this study.

As a result, students from a northern Chinese university were chosen for this study to assess their acceptance level of SPOC courses after using SPOC for online learning. The following study questions were developed to accomplish this purpose.

RQ1: What is students' acceptance level towards SPOC ?

RQ2: What is the framework of students' acceptance towards SPOC?

Materials and Methods

Research Setting and Sample

The setting for this study was an online learning based on educational technology SPOC course run on Chaoxing network platform in 2022. According to Tashakkori and Teddlie (2003); Creswell and Creswell (2005), quantitative method is used in this study. Quantitative data is

collected during the research process in order to gain a better understanding of the research problem.

The population for this study is undergraduate students enrolled in a course on Educational Technology at a Chinese University. The majority of these students are not majoring in Educational Technology, and this is the only course that incorporates computer science with professional courses throughout their college years. So they may not be professional in the online learning process, and some learning tasks may be tough to them. The students represent all of a Chinese University's traditional academic disciplines, including literature, science, engineering, and art.

For participants with a known total sample size, theory proposed by Krejcie and Morgan (1970) can be used to calculate the sample size. Because the total number of students is 161 in this study, the sample size must be greater than 113. To mitigate the effects of majors, we sampled students from at least three major categories: Science and Engineering, Liberal Arts, and Arts randomly based on cluster random sampling method.

Data Sources

According to Kothari (2004), questionnaires are a fairly frequent type of research tool since they are used to elicit respondents' thoughts and opinions concerning them through a series of targeted questions.

In addition to the respondents' basic information, the questionnaire created for this study focuses primarily on four dimensions. Regarding the acceptance of SPOC courses, the majority of the questionnaire's questions are based on the TAM1 model (Davis, 1989), which is comprised of four factors: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Behavioral Intention (BI) and Use (U). The numbers of items of the TAM1 questionnaire can be seen as following Table 1.

Table 1

The numbers of items of the TAM1 questionnaire

No.	Dimensions	Numbers of Items
1.	Perceived Usefulness (PU)	10
2.	Perceived Ease of Use (PEOU)	10
3.	Behavioral Intention (BI)	10
4.	Use (U)	3

The reliability of the questionnaire is based on the internal consistency of the items, with Alpha Cronbach value of 0.941.

Data Collection

After the learning process was done, the TAM1 questionnaire was sent online and all 161 students were asked to answer it. However, after collecting and analyzing the questionnaire data, only 128 students' responses were found to be legitimate. According to Krejcie and Morgan's (1970) theory, 128 is larger than the required 113, allowing the following phase to proceed.

Following that, the data from these 128 valid surveys was entered into SPSS 25.0, and mean values were used to assess the students' acceptance level towards SPOC online course.

Data Analysis

SPSS 25.0 was used to organize and analyze the questionnaire data, and Means were used to examine the students' acceptance towards SPOC online course. Table2 shows the mean value range and corresponding student acceptance level.

Table 2

Quantitative Findings of Questionnaire Data (mean) & Correspond Student Acceptance Level

No.	Range of Mean	Descriptions
1.	1 – 2.33	Low Acceptance level
2.	2.34 – 3.66	High/Low Acceptance level
3.	3.66 – 5.00	High Acceptance level

Result and Discussion

Among the 128 students, there are 44 males (34.4% of the total number) and 84 females (65.6% of the total number), as shown in Table 3.

Table3

Respondents Analysis

		Frequency	Percent(%)
Valid	Male	44	34.4
	Female	84	65.6
	Total	128	100

Table 4 reveals that the reference value for SPOC course usefulness: the mean PU value is 3.879. The mean value of PEOU is 3.84, which is the reference value for the ease of use of the SPOC course. The reference value for the tendency to utilize SPOC courses: the mean value of BI is 3.829. the mean value of U is 4.04. The fact that the average scores for these four characteristics range between 3.66 and 5 demonstrates that students have a high level of acceptance for SPOC courses.

Table 4

The Situation of Four Factors and Their Mean Value

	Total items	Mean value	Standard deviation	Level of Acceptance
PU	10	3.879	0.7261	High
PEOU	10	3.84	0.6553	High
BI	10	3.829	0.7719	High
U	3	4.04	0.47342	High

The means of the 10 questions of perceived usefulness are displayed in Table 5. All averages fall within the range of 3.66 to 5, indicating that students feel that SPOC online courses for studying Educational Technology are useful.

Table 5

Students' Acceptance towards Perceived Usefulness (PU)

Items	Mean	Level of Acceptance
PU1: SPOC improves performance	3.78	High
PU2: SPOC increases productivity	3.73	High
PU3: SPOC enhances effectiveness	3.79	High
PU4: SPOC is useful in online learning	3.87	High
PU5: SPOC allow assess learning progress	3.88	High
PU6: media in SPOC aids comprehension	3.88	High
PU7: SPOC provide several ways to access	3.86	High
PU8: SPOC allow study at one's own pace	4.16	High
PU9: influenced by online forum	3.73	High
PU10: reflect on the learning process	4.11	High

When evaluating students' acceptance level towards SPOC course for online learning of Educational Technology, one important element is to consider whether or not students find SPOC courses easy to use. It can be seen from Table 6 that except for the PEOU2 value of 3.43, its value falls between 2.33 and 3.66. Other PEOU values range from 3.66 to 5. Maximum value is 4.07 and minimum value is 3.71. Collectively, students believe that Educational Technology SPOC course are more ease to use.

Table 6

Students' Acceptance towards Perceived Ease of Use (PEOU)

Items	Mean	Level of Acceptance
PEOU1: interaction with SPOC is clear	3.89	High
PEOU2: Interacting does not require mental effort	3.43	High/Low
PEOU3: SPOC be easy to use	3.85	High
PEOU4: easy to get SPOC to do	3.71	High
PEOU5: online learning simpler than before with SPOC	3.74	High
PEOU6: simpler to learn complete the task with SPOC	3.79	High
PEOU7: video helps solve the problems	3.98	High
PEOU8: contact instructor or peer	4.02	High
PEOU9: Tools facilitate interaction in online learning	4.07	High
PEOU10: educational technologies facilitates online study	3.92	High

In addition to the perception that SPOC courses are not only useful but also easy to use, the desire to use and psychological tendency are also significant in determining whether students accept and are willing to utilize SPOC online courses for online learning.

Table 7 reveals only BI6 has a mean value less than 3.66, while the other nine have means values between 3.66 and 5. It demonstrates that students are still satisfied with their decision to study online with SPOC, where they have high behavioral intention to use SPOC to learn Educational Technology.

Table 7

Students' Acceptance towards Behavioral Intention (BI)

Items	Mean	Level of Acceptance
BI1: intend to use it	3.91	High
BI2: predict would use it	3.77	High
BI3: plan to use SPOC	3.82	High
BI4: willing to use SPOC for simple interaction	3.99	High
BI5: prefer online learning method for its merits	3.71	High
BI6: select SPOC for online learning	3.51	High/Low
BI7: delighted with SPOC for online education	3.78	High
BI8: SPOC more convenient,willing to use	3.88	High
BI9: more convenient to use SPOC for online interaction	3.82	High
BI10:watch live and recorded videos through SPOC	4.10	High

Table 8 displays a situational analysis of students who enroll in Educational Technology SPOC course. The average value of all items in the table is between 3.66 and 5. Among them, the maximum value is 4.20, and the minimum value is 3.84, indicating that students are willing to take SPOC courses for online learning.

Table 8

Students' Acceptance towards Use (U)

Items	Mean	Level of Acceptance
U1: will continue to study online for four hours per week	3.84	High
U2: will engage in discussion in online forum	4.08	High
U3: will submit the task on time	4.20	High

Table 9 reveals that the Pearson Correlation between PU and PEOU is 0.749 and indicates a significant association. PU and BI have a correlation of 0.725, which is statistically significant. PEOU and BI have a correlation coefficient of 0.770, which is statistically significant, too. It indicates Perceived Usefulness and Perceived Ease of Use have a substantial effect on the inclination to employ SPOC. Furthermore, there is a substantial link between Perceived Usefulness and Perceived Ease of Use. In conclusion, Perceived Usefulness and Perceived Ease of Use had a substantial influence on Behavioral Intention towards using SPOC in learning.

Table 9

Pearson Correlation Analysis among the Four Elements in TAM1 Model

Acceptance Dimensions	PU	PEOU	BI	U
PU	1.00	-	-	-
PEOU	0.749**	1.00	-	-
BI	0.725**	0.770**	1.00	-
U	0.053	0.105	0.087	1.00

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

Based on the analysis of the Pearson Correlation, Figure 2 shows the final students' acceptance framework towards SPOC in learning.

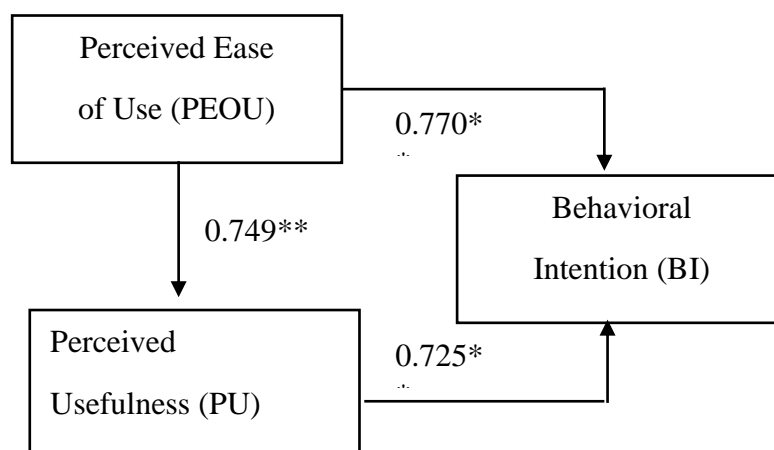


Figure 2 The Acceptance Framework towards SPOC

Conclusion

The findings of this study are based on the TAM1 model (Davis, 1989), which provide valuable insights into the acceptance of Educational Technology SPOC courses among students, as measured by the components of Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Behavioral Intention (BI), and Use (U).

The mean values obtained for PU, PEOU, BI, and U were 3.879, 3.84, 3.829, and 4.04 (refer Table 3) respectively, indicating a generally high level of acceptance for the SPOC course among the surveyed students. Even though the mean values of the four elements of TAM1 are relatively high, the study acknowledge that the acceptance level to SPOC is relatively high. However, by analyzing the mean value corresponding to each element separately, the students' perspectives on particular elements are varies.

Based on table 4, SPOC classes permit students to study independently and students are able to reflect on the learning experience to teacher feedback. Students enjoy self-paced learning using SPOC. They are also willing to interact with teachers during the SPOC learning process and make modifications in response to teacher feedback. This is aligned with results of some researchers Bedregal-Alpaca et al (2022); Lin & Cantoni (2018) where SPOC-based learning, for example, is self-paced, with the capacity to communicate learning experiences and experiences with teachers, as well as to receive feedback from teachers.

However, in term of whether SPOC increases productivity and performance, evidently, not everyone is confident that utilizing SPOC will support those aspects. Students who believe that SPOC does not assist them improve their productivity, then they may lack faith in the learning process of using SPOC for online learning. It is expected that as students get more comfortable with online learning methods, the role of SPOC in online learning would gradually gain acceptance.

Through SPOC, students can engage in collaborative learning activities with instructors and peers during the online learning process. Students believe that the instructional instruments utilized in the SPOC online learning process, such as social media can facilitate learning. In term of interacting with SPOC whether it requires a lot of my mental effort or not, students perceived SPOC course is challenging and require them to exert a variety of mental endeavors in order to complete various online learning tasks. This finding demonstrates that some students perceived to exert considerable mental effort in SPOC learning. This perception occurs might be because of they have never experienced learning through SPOC.

Although this study did not explore in detail on student's mental effort in learning through SPOC, it is worth in the future this aspect should be focused in detail and interesting findings will be revealed.

The findings also indicate that students enjoy watching live and recorded broadcasts for SPOC online learning. Additionally, SPOC is often used for basic online interactions. Some students are not entirely on board with the use of SPOC for online learning and prefer to use alternative learning methods. This might be because again they never experienced learning through SPOC, and they are not familiar with online learning with SPOC methods.

In term of Use elements, students demonstrate a willingness to submit relevant materials for the learning requirement as required by the SPOC course, which contribute significantly to their overall grades. However, it is crucial to note that for some students may lack a strong motivation to actively engage with the SPOC course, as indicated by their reduced usage of the online instruction for only four hours per day over the next two months. This raises concerns regarding the level of commitment and dedication among certain individuals in choosing to participate fully.

Furthermore, future research could delve deeper into understanding the factors influencing student motivation and engagement in SPOC courses, particularly among those who exhibit a lack of desire to actively participate. Exploring strategies to enhance student motivation and address any potential barriers to engagement would be valuable for improving the effectiveness of online instruction in the future.

All of the mean values of U stay within the range of 3.66~5.00, indicating that students have high acceptance of using SPOC for online learning. It might be because the SPOC learning approach is unique, or because the scores for the courses can only be acquired by using SPOC. Because of these factors, students' acceptance of SPOC relatively high.

In summary, according to the analysis of the survey results, students have high willing to use SPOC. Educators and students have embraced online learning due to its flexibility Smedley (2010), interactivity Leszczyński et al (2018); Wagner et al (2008), self-pacing Amer (2007), instantaneous results and feedback (Turk et al., 2022). Online learning with SPOC possesses all of the benefits of online learning listed above. This is consistent with student responses to the questionnaire survey. Students are eager to make use of SPOC.

On the basis of Pearson correlation analysis, only the three correlations between PEOU and BI, and PU and BI were statistically significant. They perceived high behavioral intention to use the SPOC course when they perceived the course easy to use and usefulness. This is consistent with the findings of Zhu et al (2022), who applied SPOC to integrated learning in their research. Both perceived usefulness and perceived ease of use have similar, positive effects on behavioral intentions. These findings are aligned with their comments in the forum after learning through SPOC. After utilizing SPOC for online learning, students observe that SPOC courses are simple to use and can improve their learning performance, then they create a psychological tendency to utilize SPOC for online learning.

The perception ease of use of SPOC might encourage students to discover the usefulness of SPOC courses, and simultaneously might encourage students' psychological tendency to use SPOC for online learning. This viewpoint is consistent with the following findings of Wang (2021)'s TAM study on English SPOC course shows that perception of ease of use of English SPOC by students is a psychological factor that promotes the use of SPOC for online learning, and ease of use of SPOC makes students aware of its usefulness in the learning process.

In this study, students believe that SPOC courses are simple to use and beneficial to their learning process. As a result, they have an inclination to utilize SPOC, but do not do so. To change this situation, we can begin by enhancing the SPOC course's design and attractiveness, implementing external stimuli to increase students' enthusiasm for online learning, and enhancing the influence of SPOC courses on students' sense of accomplishment. In short, allow students to conclude that online learning via SPOC has enhanced their academic performance.

Despite the students' favourable perception of SPOC, the survey results were unable to affirm that they would enroll in the course, despite their high PEOU, PU, and BI. This may be due to the inactivity and lack of self-discipline of some students during online learning. If there is no assessment following the study, some students will not be motivated to use SPOC for online learning.

The Pearson correlation coefficient between the two variables; BI and U, however, is only 0.087, indicating a weak correlation. This demonstrates that students have a psychological tendency to use SPOC courses for online learning, although some students do not choose SPOC courses for online learning. This finding is consistent with that of Li et al (2008); Ong and Lai (2006), who examine how gender and relationships between dominants influence e-learning acceptance. All of them state that the correlation between BI and U is not strong, which can be explained as following; if a person adopts a technology, he may have a high willingness to act, but not necessarily a positive attitude towards its use. Therefore, additional research on the acceptability and application of SPOC modeled on TAM1 after enhanced task orientation or score orientation is required.

The results of this study have significant theoretical implications, particularly when it comes to online learning and the acceptance of technology. Although the Technology Acceptance Model (TAM) is a widely used paradigm for researching technology acceptance, its application to college students' acceptance of online courses like SPOC has not been thoroughly investigated. Using information gathered from a questionnaire survey of students participating in online learning, this study investigates the connections between the four TAM1 model elements, namely perceived ease of use (PEOU), perceived usefulness (PU), behavioral intention (BI), and user acceptance (U).

The findings show a strong relationship between PEOU and PU, PU and BI, and PEOU and BI, demonstrating the importance of these constructs in students' acceptance of SPOC courses. By extending the TAM1 paradigm to the field of online education, this study emphasizes the high acceptance level of educational technology SPOC, among students who readily accept digital media and online content for instructional purposes.

Limitations and Future Research

The first limitation of the research is that the research samples are students from Chinese university who enrolled in educational technology SPOC course. Using the Chaoxing online learning platform, the research development procedure is executed. The selected SPOC course is educational technology, which is a course with both theoretical and practical content. Other forms of pure theory and pure practise courses were not involved in the scope of this study. Next, SPOC is the form of online courses utilized in this study for online learning. It has characteristics distinct from online courses like MOOC. This study concentrates solely on online learning research in SPOC. Research on the utilization of other online courses for online education is forthcoming. In this study, a student acceptance level check is incorporated after the completion of online learning with SPOC to assess students'

acceptance of the platform. Future research should check the acceptance towards learning through SPOC before and after using it to get more comprehensive findings. In comparison to doing survey research at other times, students' acceptance of SPOC courses will be influenced by a variety of elements, including the task difficulty level based on problem solving, students' learning motivation, and so on. Furthermore, future research can look at additional aspects that influence the acceptance of SPOC courses to increase students' acceptance of SPOC or other online courses, as well as the performance of students' online learning.

Acknowledgment

This work was supported/funded by the Ministry of Higher Education (MOHE) Malaysia under Fundamental Research Grant Scheme [FRGS/1/2023/SSI07/UTM/01/2].

References

- Alhothali, A., Albsisi, M., Assalahi, H., & Aldosemani, T. (2022). Predicting student outcomes in online courses using machine learning techniques: A review. *Sustainability*, 14(10), 6199. <https://doi.org/10.3390/su14106199>
- Amer, T. (2007). *E-learning and Education*. Cairo: Dar Alshehab publication.
- Arpaci, I., Al-Emran, M., & Al-Sharafi, M. A. (2020). The impact of knowledge management practices on the acceptance of Massive Open Online Courses (MOOCs) by engineering students: A cross-cultural comparison. *Telematics and informatics*, 54, 101468. <https://doi.org/10.1016/j.tele.2020.101468>
- Bao, Z. (2021). Current Situation and Reflection: A Review of Domestic Online Course Research in the Past Ten Years—Based on Bibliometric Analysis of 8 CSSCI Journals. *Electronic Education for Primary and Secondary Schools*, (10), 9-12.
- Bedregal-Alpaca, N., Guevara, K., Delgado-Barra, L., & Laura-Ochoa, L. (2022, September). Adaptive structure of a SPOC to train teachers in active methodologies: Cooperative Learning Case. In *2022 IEEE Learning with MOOCs (LWMOOCs)*, 108-113. doi: 10.1109/LWMOOCs53067.2022.9927938
- Caplan, D., & Graham, R. (2004). The development of online courses. *Theory and practice of online learning*, 175.
- Castro, M. D. B., & Tumibay, G. M. (2021). A literature review: efficacy of online learning courses for higher education institution using meta-analysis. *Education and Information Technologies*, 26, 1367-1385. <https://doi.org/10.1007/s10639-019-10027-z>
- Creswell, J. W., & Creswell, J. D. (2005). *Mixed methods research: Developments, debates, and dilemma* (pp. 315-26). Oakland, CA: Berrett-Koehler Publishers.
- Davis, F. D. (1985). *A technology acceptance model for empirically testing new end-user information systems: Theory and results* [Doctoral dissertation, Massachusetts Institute of Technology].
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340. <https://doi.org/10.2307/249008>
- Guo, P. (2017). MOOC and SPOC, which one is better?. *Eurasia Journal of Mathematics, Science and Technology Education*, 13(8), 5961-5967. doi: 10.12973/eurasia.2017.01044a
- Holden, R. J., & Karsh, B. T. (2010). The technology acceptance model: its past and its future in health care. *Journal of biomedical informatics*, 43(1), 159-172. <https://doi.org/10.1016/j.jbi.2009.07.002>

- Ifinedo, P. (2016). Applying uses and gratifications theory and social influence processes to understand students' pervasive adoption of social networking sites: Perspectives from the Americas. *International Journal of Information Management*, 36(2), 192-206. <https://doi.org/10.1016/j.ijinfomgt.2015.11.007>
- Jia, Y., & Zhang, L. (2021). Research and application of online SPOC teaching mode in analog circuit course. *International Journal of Educational Technology in Higher Education*, 18(1), 1-14. <https://doi.org/10.1186/s41239-021-00247-0>
- Kamal, S. A., Shafiq, M., & Kakria, P. (2020). Investigating acceptance of telemedicine services through an extended technology acceptance model (TAM). *Technology in Society*, 60, 101212. <https://doi.org/10.1016/j.techsoc.2019.101212>
- Kharma, Q. (2019). Investigating students' acceptance of online courses at Al-Ahliyya Amman University. *International Journal of Advanced Computer Science and Applications*, 10(7). doi: 10.14569/IJACSA.2019.0100729
- Kothari, C. R. (2004). *Research methodology : Methods and techniques*. new Age.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, 30(3), 607-610. <https://doi.org/10.1177/001316447003000308>
- Leszczyński, P., Charuta, A., Łaziuk, B., Gałązkowski, R., Wejnarski, A., Roszak, M., & Kołodziejczak, B. (2018). Multimedia and interactivity in distance learning of resuscitation guidelines: a randomised controlled trial. *Interactive Learning Environments*, 26(2), 151-162. <https://doi.org/10.1080/10494820.2017.1337035>
- Li, J., Han, X., Wan, Y., Zhang, S., Zhao, Y., Fan, R., & Zhou, Y. (2018). TAM 2.0: tool for MicroRNA set analysis. *Nucleic acids research*, 46(W1), W180-W185. <https://doi.org/10.1093/nar/gky509>
- Li, Y., Qi, J., & Shu, H. (2008). Review of Relationships Among Variables in TAM. *Tsinghua Science and Technology*, 13(3), 273-278.
- Lin, J., & Cantoni, L. (2018). Decision, implementation, and confirmation: Experiences of instructors behind tourism and hospitality MOOCs. *International Review of Research in Open and Distributed Learning*, 19(1). <https://doi.org/10.19173/irrodl.v19i1.3402>
- Marangunić, N., & Granić, A. (2015). Technology acceptance model: a literature review from 1986 to 2013. *Universal access in the information society*, 14, 81-95. <https://doi.org/10.1007/s10209-014-0348-1>
- Martin, F., Ritzhaupt, A., Kumar, S., & Budhrani, K. (2019a). Award-winning faculty online teaching practices: Course design, assessment and evaluation, and facilitation. *The Internet and Higher Education*, 42, 34-43. <https://doi.org/10.1016/j.iheduc.2019.04.001>
- Martínez-Muñoz, G., & Pulido, E. (2015). Using a SPOC to flip the classroom. In 2015 *IEEE global Engineering education conference (EDUCON)* (pp. 431-436). IEEE. DOI: 10.1109/EDUCON.2015.7096007
- McGreal, R., & Elliott, M. (2008). Technologies of online learning (e-learning). *Theory and practice of online learning*, 115.
- Muchran, M., and Ahmar, A. S. (2019). Application of TAM model to the use of information technology. *International Journal of Engineering & Technology*, 7 (2.9), 37-40. <http://doi.org/10.48550/arXiv.1901.11358>
- Olugbara, C. T., Letseka, M., & Olugbara, O. O. (2021). Multiple Correspondence Analysis of Factors Influencing Student Acceptance of Massive Open Online Courses. *Sustainability*, 13(23), 13451. <https://doi.org/10.3390/su132313451>

- Olugbara, C. T., Letseka, M., Ogunsakin, R. E., & Olugbara, O. O. (2021). Meta-analysis of factors influencing student acceptance of massive open online courses for open distance learning. *The African Journal of Information Systems*, 13(3), 5.
- Ong, C. S., & Lai, J. Y. (2006). Gender differences in perceptions and relationships among dominants of e-learning acceptance. *Computers in human behavior*, 22(5), 816-829. <https://doi.org/10.1016/j.chb.2004.03.006>
- Ruiz-Palmero, J., Fernández-Lacorte, J. M., Sánchez-Rivas, E., & Colomo-Magaña, E. (2020). The implementation of Small Private Online Courses (SPOC) as a new approach to education. *International Journal of Educational Technology in Higher Education*, 17(1), 1-12. <https://doi.org/10.1186/s41239-020-00206-1>
- Smedley, J. (2010). Modelling the impact of knowledge management using technology. *OR insight*, 23(4), 233-250. <https://doi.org/10.1057/ori.2010.11>
- Tashakkori, A., & Teddlie, C. (2003). Issues and dilemmas in teaching research methods courses in social and behavioural sciences: US perspective. *International journal of social research methodology*, 6(1), 61-77. <https://doi.org/10.1080/13645570305055>
- Turk, M., Heddy, B. C., & Danielson, R. W. (2022). Teaching and social presences supporting basic needs satisfaction in online learning environments: How can presences and basic needs happily meet online?. *Computers & Education*, 180, 104432. <https://doi.org/10.1016/j.compedu.2022.104432>
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, 46(2), 186-204. <https://doi.org/10.1287/mnsc.46.2.186.11926>
- Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision sciences*, 39(2), 273-315. <https://doi.org/10.1111/j.1540-5915.2008.00192.x>
- Wagner, N., Hassanein, K., & Head, M. (2008). Who is responsible for E-learning in Higher Education? A Stakeholders' Analysis. *Educational Technology & Society*, 11 (3), 26- 36.
- Wang, F. (2021). Analysis of the acceptance of SPOC teaching mode of foreign language courses during the new crown epidemic. *Journal of Inner Mongolia Electric University*, 04, 69-73.
- Xu, W., Jia Y., Fox, A., & Patterson. (2014). 'From MOOC to SPOC—A Conversation Based on MOOC Practice at UC Berkeley and Tsinghua University', *Modern Distance Education Research*, 4, 13-22.
- Yang, X., Zhou, H., Zhou, X., & Hao, Z. (2019). A Review of Domestic Online Course Quality Assurance Research. *Audiovisual Education Research*, 40(6), 50-57. DOI:10.13811/j.cnki.eer.2019.06.007
- Ye, D., Wan, K. & Huang, Y. (2016). A Study on the Influencing Factors of MOOC Acceptance of Students in Local Normal Colleges, *Journal of Shangrao Normal University*, 36(03), 59-64. DOI:10.3969/j.issn.1004-2237.2016.03.012
- Yin, R., Liu, L., Zhang M., & Shi J.. (2015). A Content Analysis of the Design and Development Characteristics of Hundreds of Massive Open Online Courses Abroad: A Curriculum Perspective. *Audiovisual Education Research*, 36(12), 30-37. DOI:10.13811/j.cnki.eer.2015.12.005
- Zhu, Y., He, J., & Li, Z. (2021). Research on SPOC blended teaching behavior intention in the context of inter-school online course sharing—A multi-group perspective based on structural equations based on the TAM model. *Advances in Education*, 12, 348.