

Student's Mobile Phone Habitual Behaviour for Academic Purposes: Empirical Evidence From A Higher Learning Institute in Malaysia

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To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v13-i12/20358> DOI:10.6007/IJARBSS/v13-i12/20358

Published Date: 25 December 2023

Abstract

Mobile phones have become essential tools in educational environments, as they can significantly influence students' learning achievement and facilitate communication. The present study draws upon the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Habitual Behaviour. This study explores the relationship between factors (performance expectancy, effort expectancy, and social influence) and Malaysian undergraduate students' habitual behaviour of using mobile phones for academic purposes. Data was collected via questionnaires from 393 undergraduate students at a Malaysian public university. The findings demonstrated that effort expectancy and social influence had a significant relationship with mobile phone habitual behaviour for academic purposes. However, performance expectancy had no significant relationship with mobile phone habitual behaviour for academic purposes. This study sheds light on the critical role of effort expectancy and social influence in shaping students' habitual behaviour regarding academic mobile phone usage.

Keywords: Habit, Smartphone, Cell Phone, Regression, Correlation

Introduction

Mobile phones have grown prevalent in daily life during the last decade, exceeding their traditional usage as basic communication devices. The global penetration rate for mobile telephones increased from 33.9% in 2005 to 103.5% in 2017, signalling substantial growth in mobile phone usage (Zhang et al., 2018). The usage of mobile phones has accelerated change in a variety of fields, including in academic settings. As students and educators increasingly use the features of these mobile devices, the educational field is seeing a paradigm shift in its approach to teaching and learning strategies.

Mobile phones have become vital instruments for academic pursuit, providing unparalleled access to information, communication, and organisation (Supandi et al., 2019). These devices

offer versatility that allows students to engage with course content, collaborate with classmates, and access a plethora of educational resources quickly and easily (Muasa & Matsuda, 2019). Furthermore, the mobility and adaptability of mobile phones have blurred the lines between formal learning and informal learning environments, which leads to personalised learning experiences being offered to the students.

Nonetheless, despite its potential benefits, the use of mobile phones in academic contexts raises concerns about potential negative consequences on learning. Previous research has shown that phone usage during lectures and study sessions has a negative influence on academic performance (Shen et al., 2021; Tian et al., 2021). Moreover, overuse of mobile devices in education settings has been found to have a negative impact on students' academic performance, as it could hamper their ability to retain material presented during instructional sessions (Fook & Narasuman, 2022). The improper use of mobile devices within educational settings might also impose a burden on cognitive resources, which can reduce levels of academic involvement and effectiveness (Hernan et al., 2018). Henceforth, a pattern can be observed in the current literature whereby scholars are currently examining the effects of excessive mobile phone usage on students.

In contrast to the majority focus of previous studies on behavioural intentions in technology adoption (Alfalah, 2023; Rahi & Abd. Ghani, 2018) and mobile phone addiction (Fook & Narasuman, 2022), this study offers an investigation in examining habitual behaviour of using mobile phones for academic purposes. The objective of the present study is to identify the relationship between factors (performance expectancy, effort expectancy, and social influences) and mobile phone habitual behaviour for academic purposes. The present study research questions as the following:

1. Is there any relationship between Malaysian undergraduate students' performance expectancy and their mobile phone habitual behaviour for academic purposes?
2. Is there any relationship between Malaysian undergraduate students' effort expectancy and their mobile phone habitual behaviour for academic purposes?
3. Is there any relationship between Malaysian undergraduate students' social influence and their mobile phone habitual behaviour for academic purposes?
4. What are the factors influencing mobile phone habitual behaviour for academic purposes among Malaysian undergraduates?

Literature Review

The utilisation of mobile devices among students enrolled in higher learning institutes (HLI) has been the focus of numerous academic investigations. A study explored the determinants that impact the use of smartphones for mobile learning among students and highlighted the importance of technology within educational environments (Onaolapo & Oyewole, 2018). Additionally, Reddy et al. (2023) emphasised how mobile phones can be used to engage students by providing course materials and learning resources that can be assessed by students. Ahmad (2020) emphasised the role of mobile technologies in enhancing the social, collaborative, and contextual aspects of human learning. A similar study conducted by Fakhri et al. (2020) revealed that students employ mobile phones as tools to enhance their learning experience, encompassing activities such as peer communication and accessing academic resources. Previous studies on mobile phones among students in institutions of higher education have explored diverse aspects of learning, which encompass mobile phones' influence on scholarly conduct and psychological well-being. The aforementioned research

jointly emphasises the diverse aspects of mobile phone usage among students and the resulting effects on educational achievements.

Mobile phone usage in Malaysia also has witnessed substantial expansion and diversification. Previous studies have shed light on different aspects pertaining to the adoption and utilisation of mobile technology within the nation. The Malaysia Education Blueprint (2013-2025) was implemented by the Malaysian government with the aim of aligning the nation's progress in science and technology. This initiative illustrates the significance placed on education and technology in Malaysia (Idris et al., 2023). A qualitative investigation conducted on the effects of mobile technology on students in private higher education institutions in Peninsular Malaysia emphasised that although smartphone technology encounters certain obstacles in facilitating effective education dissemination in Malaysia, it is anticipated that mobile technologies will serve as the predominant method for enhancing educational accessibility in the region (Arokiasamy, 2017).

The Unified Theory of Acceptance and Use of Technology (UTAUT) framework has served as a prominent theoretical framework for comprehending the acceptance and utilisation of technology across various contexts, including the academic field (Venkatesh et al., 2003). The UTAUT model offers valuable insights into the determinants of students' intentions and behaviours. According to the Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Venkatesh et al. (2003), the factors of performance expectancy, effort expectancy, and social influence play a significant role in influencing an individual's inclination to adopt and utilise technology.

Performance expectancy, within the academic context of mobile phones, pertains to the beliefs held by students on the potential enhancement of their academic performance through the use of these devices. Based on a study conducted by Fook and Narasuman (2022), it has been found that students perceive mobile phones as valuable instruments for numerous purposes, such as obtaining information, establishing connections with peers, and facilitating the organisation of academic tasks. These perceptions significantly impact their inclination to utilise mobile devices for academic activities.

Effort expectancy refers to the perception of ease of use in using technology. It plays a significant role in shaping students' attitudes and behaviours around the use of mobile phones in academic settings. The intuitive interfaces and wide range of applications that can be downloaded onto mobile phones motivate students to use mobile devices for their learning practises (Onaolapo & Oyewole, 2018). On the other hand, social influence encompasses the influence exerted by peers and educators. It plays a significant role in shaping students' choices about the utilisation of mobile phones for educational purposes. Students demonstrate a higher propensity to adopt and incorporate mobile phones into their academic practice when they receive encouragement and endorsement from both their peers and educators on the use of mobile phones for educational purposes (Chen et al., 2023).

The UTAUT framework offers a structured approach to understanding the tendency to utilise mobile phones for academic objectives. However, it is crucial to acknowledge that habitual behaviour plays a significant role in the consistent employment of these devices. The Theory of Habitual Behaviour posits that the repetition of activities within specific contexts results in the formation of automatic reflexes, subsequently leading to the development of habits (Verplanken & Aarts, 1999). Habitual behaviour can occur in the setting of academic work involving mobile phone usage, as students consistently depend on their mobile phones to access course materials, communicate with classmates, or manage their calendars (Grewal et al., 2020; Li et al., 2020)

Thus, this study aims to examine the relationship between the factors of the Unified Theory of Acceptance and Use of Technology (UTAUT) and the theory of habitual behaviour in the context of mobile phone usage for academic purposes among undergraduate students at a public institution in Malaysia. The habitual behaviour of using mobile phones for academic activities is revealed through the UTAUT's determinants. On the other hand, habitual behaviour focuses on the long-term patterns of usage that emerge when students incorporate mobile phones into their academic routines. The conceptual framework depicted in Figure 1 is being presented.

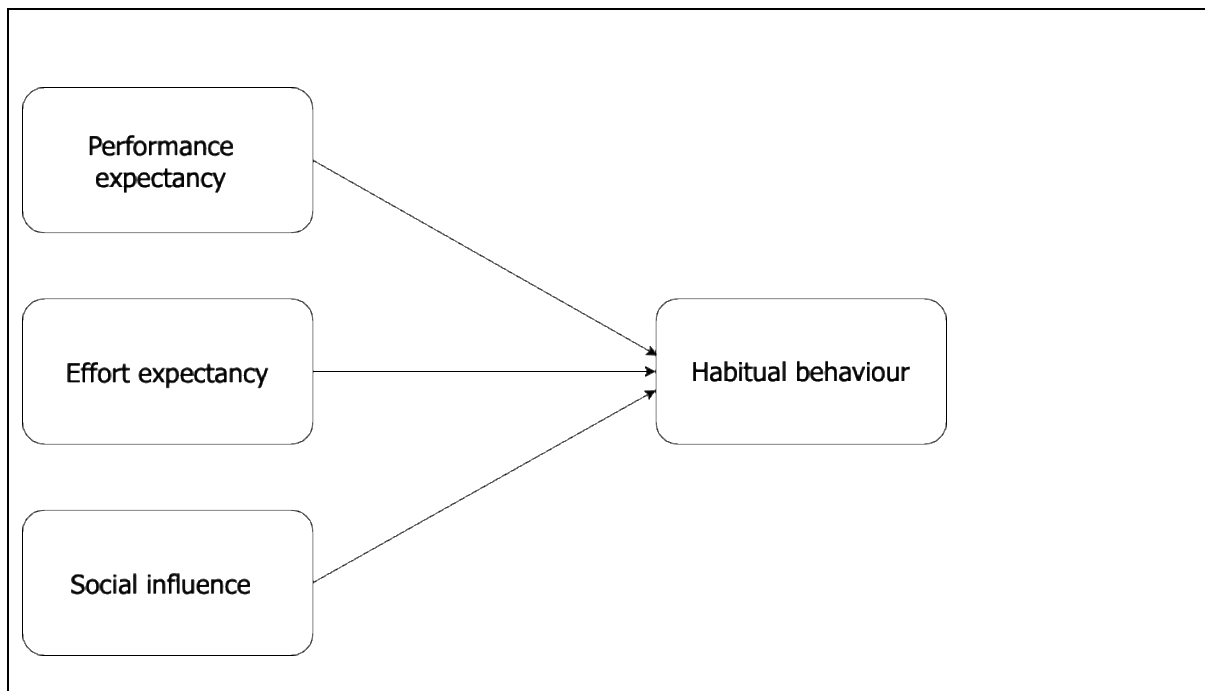


Figure 1. Conceptual framework

Methodology

This study employed a correlation research design. The survey study is a widely used approach for collecting data (Chua, 2020). This approach involves the researcher's formulation of the attributes of a collective by quantifying attitudes and beliefs pertaining to various topics. Questionnaires are a valuable tool for gathering information from a large number of participants in a cost-effective and efficient manner (Ary et al., 2006).

The study sample comprises undergraduate students enrolled at a public institution in Malaysia. The participants of this study consisted of undergraduate students who were residing in a total of 17 residential colleges. To ascertain the precise number of students residing in each of the residential colleges, the researchers initiated direct communication with the college administrators by telephone.

The sampling of this study uses a stratified random sample method. The sample is a distribution or small group taken from the actual number of undergraduate students staying in 17 residential colleges. Based on study sample calculations by Cochran (1977), the minimum number of study samples was 255. A suggestion from Salkind (2012) is to add 30 to 50 per cent of the sample size of the study to improve the reliability of the instrument. Besides, Krejcie and Morgan (1970) suggested an increase of 40 per cent to avoid data loss. Hence, a total sample size of 393 is used for the analysis.

The original items for these questions are in English. This item was subsequently modified and translated into Malay. The purpose is to make it easier for students to understand the construction of sentences better. Three language experts have been appointed for the language translation. The instruments distributed to the students are in bilingual form. In addition, researchers also have obtained the validity of the study instrument from two experts in the field of educational technology. Subsequently, a pilot study is conducted to assess the instruments that have been developed by checking the validity and reliability of the research instrument before the actual study (Polit, Beck & Hungler, 2001). For the purposes of the pilot study, 40 students from one residential college have been selected as respondents. The Cronbach's alpha coefficient for all the studied constructs exceeds the threshold of 0.70. Therefore, all constructs are deemed suitable.

Prior to performing the correlation analysis, a comprehensive parametric assessment was undertaken. Normality tests were conducted employing statistical techniques to ensure data is normally distributed. To eliminate the potential impact of outliers on the analysis, analysis using box plots was employed to identify and effectively handle the outliers accurately. The implementation of these parametric tests was crucial before conducting the subsequent analyses, which will be discussed in the next section.

Research Findings

This section examines the correlation between the independent variable (performance expectancy, effort expectancy, and social influence) and the dependent variable (mobile phone habitual behaviour for academic purposes). A Pearson correlation analysis was performed in order to ascertain the relationships between the three independent factors and habitual behaviour. Table 1 presents the correlation coefficient between the mean values of each independent variable and the mean value of habitual behaviour. A significant positive relationship was observed between performance expectancy ($r = .611$; $p < .001$), effort expectancy ($r = .343$; $p < .001$), and social influence ($r = .619$, $p < .001$), with mobile phone habitual behaviour for academic purposes.

Table 1

Correlation Coefficients Between Students' Performance Expectancy, Effort Expectancy, Social Influence and Habitual Behaviour

	Performance expectancy	Effort expectancy	Social influence
Habitual behaviour	.611	.343	.619

A regression analysis was performed to determine the factors influencing mobile phone habitual behaviour for academic purposes among Malaysian undergraduates.

Table 2 presents the multiple correlation coefficient, which was shown to be .515. This value signifies that about 51.5% of the variance in mobile phone habitual behaviour for academic purposes can be attributed to students' performance expectancy, effort expectancy, and social influence.

Table 2

Model Summary of Multiple Correlation Coefficient

Model	R	R Square	Adjusted R Square
1	.718 ^a	.515	.511

a. Dependent Variable: Habitual behaviour

The results presented in

Table 3 demonstrate that the influencing factors under investigation were found to be statistically significant. This is supported by the analysis of variance (ANOVA) test, which yielded a significant F-value of 137.670. The p-value was found to be less than .001, further confirming the statistical importance of the influencing factors. This finding suggests that factors included in this study serve as significant predictors for determining mobile phone habitual behaviour for academic purposes.

Table 3

Anova Test Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	60.148	3	20.049	137.670	.000 ^b
Residual	56.651	389	.146		
Total	116.799	392			

As tabulated in

Table 4, the outcomes of the multiple regression analysis demonstrated that effort expectancy and social influence have a significant influence on mobile phone habitual behaviour for academic purposes. Nevertheless, an insignificant relationship between performance expectancy and mobile phone habitual behaviour for academic purposes was found.

The order of importance of predictive factors influencing mobile phone habitual behaviour for academic purposes was determined through the examination of beta values (β). The findings revealed that effort expectancy ($\beta = .439$) and social influence ($\beta = .419$) were the key factors in determining mobile phone habitual behaviour for academic purposes. To conclude, the results indicate that effort expectancy accounted for 43.9%, while social influences accounted for 41.9% of the observed variance in students' mobile phone habitual behaviour for academic purposes.

Table 4

Model Coefficients

Model	Unstandardised Coefficients		Standardised Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.648	.192		3.380	.001

Performance expectancy	-.043	.059	-.036	-.730	.466
Effort expectancy	.505	.064	.439	7.880	.000
Social influence	.389	.038	.419	10.209	.000

a. Dependent Variable: Habitual behaviour

Discussion and Suggestions

The findings reveal that external factors influence students' habitual behaviour on the utilisation of mobile phones for academic purposes. Previous research has demonstrated the effect of using mobile phones on individual behaviours (i.e., Ahmad, 2020; Chen et al., 2023; Fook & Narasuman, 2022; Li et al., 2020; Onalapo & Oyewole, 2018; Reddy et al., 2023), this study presents a contrast from the previous study that employed the Unified Theory of Acceptance and Use of Technology (UTAUT) framework. While the majority of the prior studies emphasised examining the factors that impact individual behavioural intentions towards technology usage (Alfalah, 2023; Rahi & Abd. Ghani, 2018), this study used habitual behaviour as the focus of the study.

This study aims to examine the application of the UTAUT theory in assessing mobile phone habitual behaviour for academic purposes. Specifically, the factors of performance expectancy, effort expectancy, and social influence from the UTAUT have been adapted for this investigation. This implies that these factors derived from the UTAUT possess the capability to influence students' habitual behaviour in utilising mobile phones for academic purposes. The aforementioned result can be inferred from the initial framework of the Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2), as proposed by Venkatesh et al. (2012), which incorporates habit as a predictive factor to account for changes in behavioural intentions and use behaviour.

Understanding this concept holds significant importance in establishing the relationship between the predictive variables of the UTAUT and the habitual behaviour of students in utilising mobile phones, specifically for academic purposes. Previous studies reported the direct and positive impact of habit on behavioural intention (Gupta & Arora, 2019; Malešević et al., 2021). The findings mentioned above play a crucial role in clarifying the relationship between the UTAUT prediction characteristics of students' habitual behaviour in regard to mobile phone usage for academic purposes.

The survey methodology employed in this study offers a robust approach to gathering data. However, it is crucial to recognise and consider certain limitations that warrant attention. Firstly, relying solely on self-reported questionnaires may introduce response bias or social desirability bias, hence potentially undermining the accuracy of the gathered data. Additionally, it is important to note that the sample population utilised in this investigation was limited only to undergraduate students at one public educational institution located in Malaysia. Consequently, the generalizability of the study's findings may be limited in terms of their applicability to a broader population or diverse academic settings.

Furthermore, the use of residential colleges as the sampling framework may inadvertently exclude students who do not reside in these specific accommodations, hence potentially excluding the perspectives of commuting or off-campus students. In addition, it is imperative to consider that the utilisation of the stratified random sampling method in this research may not have adequately accounted for additional demographic factors, such as age, field of study, or socioeconomic status. The limitation, as mentioned earlier, has the potential to impact the study's ability to incorporate a diverse array of viewpoints within the student demographic.

Further study in this field may delve into doing a comparison examination among various demographic groups within the student body, with the aim of gaining a more comprehensive comprehension of the nuances underlying the use of mobile phones for academic purposes. To obtain a more thorough perspective, it is advisable to include a range of variables such as age, field of study, and socioeconomic background in the sample technique. A longitudinal investigation that monitors the progression of mobile phone usage patterns among students throughout their educational trajectory has the potential to provide significant insights into the shifts in behaviour that occur over time. Furthermore, it is worth considering that qualitative research methods, such as interviews or focus groups, have the potential to enhance survey results by providing a more comprehensive understanding of the underlying motives and attitudes associated with the utilisation of mobile phones in educational environments.

Conclusion

The utilization of mobile phones has emerged as a worldwide phenomenon with a substantial influence on numerous fields, including education. The purpose of this study is to investigate the behavioural habit of using mobile phones in academic settings by focusing on three main factors: performance expectancy, effort expectancy, and social influence. This study aims to gain a deeper understanding of the underlying motivations that influence the use of mobile phones for academic tasks among undergraduate students. The research employed a methodology that focused on correlation studies and utilised questionnaires to collect data from undergraduate students at a public university in Malaysia. The results indicated that there was a significant influence of effort expectancy and social influence on mobile phone habitual behaviour for academic purposes. However, performance expectancy did not demonstrate a significant effect. This research provides significant findings about the impact of effort expectancy and social influence on students' habitual behaviours related to the utilisation of mobile phones for academic purposes.

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