**International Journal of Evaluation and Research in Education (IJERE)**
Vol. 14, No. 3, June 2025, pp. 1743~1751
ISSN: 2252-8822, DOI: 10.11591/ijere.v14i3.32939 

# A Delphi study on factors influencing school students' adoption of social media as a learning platform in Malaysia

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**Article Info**

***Article history:***

Received Sep 24, 2024
Revised Feb 19, 2025
Accepted Feb 21, 2025

***Keywords:***

Delphi method
Education
Learning platform
Social media
Transformation

**ABSTRACT**

The increasing use of social media platforms among students offers potential for both academic and personal information exchange. However, the factors influencing its adoption for learning by school students remain underexplored. This study aims to identify and rank the key factors that affect the use of social media for learning among primary school students. Utilizing the Delphi method, data were collected in two rounds from 30 expert participants, who were primary school teachers, using purposive sampling. In the first round, thematic analysis identified six key factors influencing social media adoption. In the second round, these factors were ranked in order of importance, with Kendall's W of 0.364 and a p-value of 0.000 confirming consensus. In addition, an intraclass correlation coefficient (ICC) value of 0.923 indicated reliability. The top three factors identified were learning transformation, technology reform, and long-term prospects for students. The findings suggest that schools should prioritize these factors in strategic planning. Future research could expand this study to include private and international educators, and qualitative studies like tracer research could further enrich the understanding of social media's role in learning.



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## 1. INTRODUCTION

Social media is becoming increasingly important to Malaysians, from business to personal relationships and knowledge sharing. Malaysians used the internet for 8 hours and 17 minutes daily on average as of January 2024, as presented in Figure 1. In contrast, the average person uses social media for 2 hours and 48 minutes daily [1]. These statistics demonstrate how important social media is for Malaysians to be online. Interestingly, Malaysians spent 4 hours and 37 minutes of their daily internet usage on mobile devices, compared to 3 hours and 40 minutes on laptops and tablets [1]. This highlights the growing trend of mobile internet usage in Malaysia, indicating a shift towards more convenient and accessible online platforms. With the increasing reliance on social media and mobile devices for internet access, Malaysians are adapting to a more digital-centric lifestyle. In Malaysia, the power of social media to unite individuals has proven essential to preserving relationships. Since most Malaysians prioritize staying in touch with friends and loved ones, maintaining personal ties is the top motivation for using social media among the country's population [2].

Based on Figure 2, the top social media platform in Malaysia is WhatsApp (26.8%), which is predominantly used for socializing [3]. However, recent studies show that WhatsApp is also used in education and training [4]-[6], health [7], and industry [8]. Interestingly, WhatsApp was widely used to support online learning in Africa during COVID-19 [9], Indonesia [10] and Malaysia [5]. Like other social media platforms, TikTok is also used in many diverse areas related to education [11]-[13]. TikTok has been utilized for educational purposes in various countries, including Malaysia. Its short-form video format has become popular for engaging students and creatively sharing knowledge. Additionally, TikTok has been used to promote health awareness campaigns and industry-related content in Malaysia. Based on Figure 2, TikTok is gaining popularity as a global entertainment platform in Malaysia. It has the highest audience engagement in terms of time spent with users remaining actively involved for an average of 38 hours and 49 minutes each month because of the platform's ability to provide tailored content through its concise and algorithmically enhanced material [1]. This has led to a surge in educational content shared on TikTok, with teachers and educators utilizing the platform to reach a wider audience. The interactive nature of TikTok allows for a more engaging learning experience, making it an effective tool for knowledge dissemination.

Figures 1 and 2 show that most Malaysians use social media to keep up with their trend as a communication or entertainment tool. TikTok's user-friendly interface and popularity among younger demographics make it an ideal platform for educational content to resonate with a larger audience. As a result, educators are increasingly leveraging TikTok as a valuable resource for sharing knowledge and engaging with students in a modern and dynamic way.


Figure 1. Average time spent using online media in Malaysia in January 2024 [1]

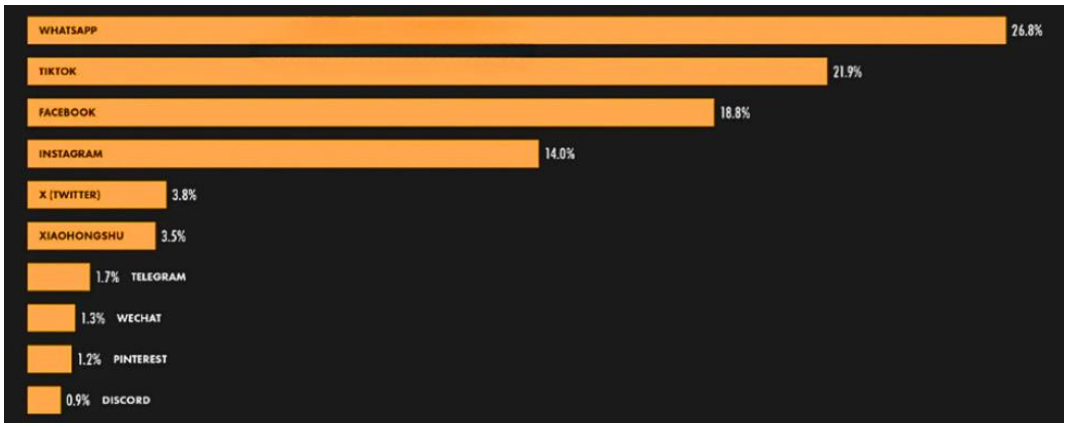


Figure 2. Favorite social media platforms in Malaysia [1]

The novelty of this paper is the focus on social media as a learning platform for government primary school students, as most Delphi studies focus on university students [14] and higher education [15]. While there are many studies on social media as a learning platform for government primary school students, these

studies do not use the Delphi method, and no such studies have been done in Malaysia. As such, the purpose of the research was to conduct a Delphi study to determine factors that influence the implementation of social media among primary school students using teachers as the panel of experts as they better understand the school children's requirements. Subsequently, the factors were ranked based on the order of importance of prioritizing action plans following the school's budget.

## 2. METHOD

The Delphi method is a tool for achieving educated consensus among a group of people regarding a complex problem by using a series of questionnaires delivered in multiple iterations to gather data from a panel of chosen experts. Although there is no standard, panels of 10 to 100 participants are the most prevalent; panels of experts with less than 10 participants and over 1,000 are uncommon [16]. The anonymity of responses allows for unbiased opinions and prevents dominant individuals from influencing the group. This approach is particularly helpful when geographic restrictions make face-to-face discussions difficult. In this study, the researchers used purposive sampling to identify 30 experts [17] based on the following criteria: i) they must be primary school teachers at government schools; ii) they must have at least two years of teaching experience; and iii) the must have at least a diploma qualification. The same 30 experts were involved in both rounds of the Delphi method [17].

Implementing the Delphi method in this study has potential bias from purposive sampling and dependence on questionnaire responses. However, despite the limitations, the method effectively obtains consensus among experts on complex issues and provides unbiased input based on an iterative process. Additionally, geographical flexibility facilitates the participation of experts without the necessity for face-to-face interaction. Therefore, the Delphi technique is applicable to educational research.

### 2.1. First round Delphi method

In the initial round, a qualitative approach was implemented by distributing an open-ended questionnaire to the 30 experts via Google Docs. The inquiry is, "Please provide a list of 4 factors that affect the adoption of social media as a means of learning by school students." The data analysis process follows a six-phase guide to develop themes that should be coherent and from each other, as shown in Figure 3 [18]. Examples of keywords which were grouped into the first theme, technology reform, include: engaging educational videos (teacher 5), enhanced infrastructure for social media learning (teacher 12), and collaboration on learning across schools (teacher 14).

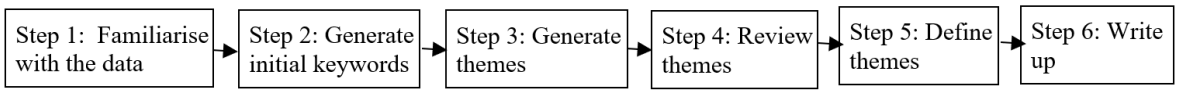


Figure 3. Thematic analysis process flow

### 2.2. Second round Delphi method

For this study, keywords from the experts' responses at the end of the first round were grouped into themes based on their similarities [17] for the second round. During the second round of the Delphi method, data gathering consisted of administering a closed-ended questionnaire to the same 30 experts, asking them to rank the themes uncovered from the first round. The questionnaire offered a quantitative analysis of the importance of each theme in affecting students' use of social media for educational purposes. Upon completion of the rating by the experts, statistical analyses were performed to evaluate the reliability and consensus of their responses. Firstly, the intraclass correlation coefficient (ICC) was tested to determine statistical reliability. Reliability is classified as excellent (ICC>0.90) [19]. Secondly, Kendall's coefficient of concordance (W) was computed to evaluate the degree of consensus between the experts on the specified factors based on mean rankings [20]. After the second round, Kendall's W was calculated to provide valuable insights into the consensus reached by the experts, which was used to make informed decisions moving forward. A high Kendall's W (close to 1) with a corresponding low p-value (less than 0.05) indicates consistency, i.e. the experts largely agree on and apply the same criterion for determining the relative significance of the factors. In contrast, a low Kendall's W (close to 0) implies low agreement. In this study, the ranking of the themes was tested for consensus based on the following hypothesis: the experts' rankings are inconsistent (there is no consensus) (Ho).

## 3. RESULTS AND DISCUSSION

The demographic information indicated that the 30 experts who participated in the Delphi study ranged in age from 27 to 61. Most experts hold a bachelor's degree. However, three have a master's degree, and three others have a diploma. The experts included in this study are primary school teachers from across 20 schools, each with teaching experience ranging from 2 to 34 years.

### 3.1. Round one Delphi findings

During the first round, 30 experts answered the questionnaire, collecting 46 key responses. Consequently, the researchers compiled all the keywords proposed by the experts into six distinct themes, refer to Table 1. The experts identified six themes to explain the potential elements influencing students to use social media as a learning platform. A total of 10 responses indicate technology reform, 13 indicate learning transformation, seven responses denote prospects for students, five indicate learning–entertainment collaboration, another five signify hands-on tools, and six responses point to skills development. The themes were validated based on brainstorming sessions by organizing qualitative data into related groups [21]. Table 1 displays the findings of the thematic analysis, where keywords were categorized into themes to be ranked during the second round.

Table 1. Round one Delphi findings

| Themes | Key responses |
|---|---|
| Technology reform | Engaging educational videos |
| | Enhanced infrastructure for social media learning |
| | Collaboration on learning across schools |
| | Transformation in digital form |
| | Integrating information and communication technology |
| | Students have access to resources and can study at any time |
| | Technical retraining |
| | Lessons that are recorded online |
| | Online tests that are automatically graded |
| | Students can study more quickly and efficiently |
| Learning transformation | An infinite supply of reading materials |
| | Quick lessons from virtual instructors on social media |
| | Continuous learning |
| | Flexible instruction and learning |
| | Reliable assessment |
| | Remote opportunities for learning |
| | Blending of instruction and learning |
| | Customized instruction |
| | Online instruction and training |
| | Results-based learning |
| | Video-oriented learning |
| | The restoration of learning standards and value |
| Long-term prospects for students | Students can enroll in free, brief online courses to learn |
| | Simple access to learning materials such as videos |
| | Attractiveness of social media platforms |
| | Use friendly for information sharing |
| | Empowering students |
| | Possibility of selling secondhand reading materials and textbooks online |
| | Fair learning opportunities |
| Learning–entertainment collaboration | Students can prevent loneliness by sharing and analyzing the posts of classmates |
| | Learning through films is unlikely to make students bored readily |
| | One can enjoy knowledge-based games with their peers at school |
| | Students can encourage their peers to publish interesting learning-related facts, and others can reply to them (enticing learning) |
| | The appealing ability of influencers to share knowledge |
| Hands-on tool | Faster sharing of documents and reading materials by students |
| | The educational movies can be saved so students can watch them again later for reference |
| | During the holidays, students can stay in touch with their friends |
| | Working together and collaborating |
| Skills development | Encourage students to learn and share with an open mind |
| | Students can learn how to think critically. |
| | Better digital skills (for students and teachers) |
| | When students learn through social media, they do not have to rely on their teachers; they can study independently. |
| | The students can come up with new ideas and think outside the box. |
| | Getting more knowledge |

### 3.2. Round two Delphi findings

After the second round of the Delphi technique was completed, the ICC was 0.923. The p-value was 0.000, with a 95% confidence interval between 0.789 and 0.987, implying statistical reliability and consensus, refer to Table 2. In the second round of the Delphi study of this study, a p-value of 0.000 and Kendall's W of 0.364 were calculated, refer to Table 3. In this study, Kendall's W value of 0.21 to 0.4 indicates fair agreement [22]. These results can be considered reliable for decision-making purposes. Therefore, the null hypothesis can be rejected since there is no consistency in the experts' responses and conclude the Delphi study at round two.

### 3.3. Discussion

For practical purposes, the researchers will focus on the top three themes as input for strategic planning purposes. Furthermore, schools should prioritize the top three themes when faced with a wide range of strategic planning options because of various constraints. By focusing on the top three themes, schools can ensure that their strategic planning efforts are aligned with the most critical areas for improvement. This targeted approach will maximize resources and efforts towards achieving the desired outcomes.

The findings of this survey indicate that the prevailing factor impacting the use of social media as a learning platform by school students in Malaysia is learning transformation (mean ranking of 2.07). Some of the salient points raised under learning transformation include unlimited reading materials [23], convenient tutorials [24], continuous and flexible education [25], as well as consistent evaluation [26], and individualized education [27] capabilities demonstrated by online learning with support from social media platforms. Furthermore, the study highlights the significance of personalized learning experiences and immediate feedback social media provides in enhancing students' engagement and motivation. These findings underscore the potential of interactive social media as a powerful tool for transforming traditional education practices in Malaysia. Interactive social media platforms can provide video-based knowledge [27] and, if used correctly, can promote result-based learning [28]. Moreover, integrating social media into education can facilitate collaborative learning among students, allowing them to share resources and ideas easily. This innovative approach can revolutionize how students learn and interact in Malaysian schools.

Technology reform is the second most important theme influencing school students' adoption of social media (mean ranking of 2.43). Technology reform is needed to adopt relevant information in communication technologies [29] that can improve social media learning infrastructure [30] and make learning attractive and effective [31]. This theme highlights the importance of integrating new technologies into education to enhance students' learning experiences. By embracing technology reform, schools can better prepare students for the digital age and equip them with the necessary skills for success in the future. Inevitably, technology reform will promote inter-school collaboration on learning [32] and better teaching and learning environments for teachers and students [33]. In addition, integrating new technologies can also help bridge the gap between traditional and modern teaching methods, catering to different learning styles and preferences. This shift towards technology-driven education is essential in keeping up with the rapidly evolving education landscape and ensuring students are adequately prepared for the future workforce.

The third most important theme influencing school students' adoption of social media is the long-term prospects for students (mean ranking of 4.00). This indicates that students are also considering how their use of social media can impact their future opportunities and career prospects. Understanding the long-term implications of social media usage can help students make informed decisions about their online presence and digital footprint. The free short online courses available for students to join and learn and the ease of use to share knowledge will create more interest among students to explore social media for learning [34]. Interestingly, social media is perceived as an instrument to boost students' engagement and performance, empowering them to reach their full potential [35]. For this reason, the researchers believe that social media platforms should be attractive and easy to use to entice schoolchildren to enjoy teaching and learning.

Several theories can be applied to explain social media adoption at schools. These theories include the unified theory of acceptance and use of technology (UTAUT) and the mobile technology acceptance (TAM) model. The UTAUT [36] can help analyze how social influences (e.g., from peers or administrators), organizational support, and prior experience with technology affect the adoption of digital transformation in schools. A mobile learning acceptance framework was developed using UTAUT to demonstrate the substantial impact of independent learning, learning preparation, anticipated effort, anticipated performance, social impact, and favorable conditions on estimating a formal part-time learner's behavioral intention and use habits towards mobile learning [37]. UTAUT has been widely applied in various educational settings to understand the factors influencing technology adoption and usage among students and educators. It provides a comprehensive framework for assessing the impact of different variables on the successful implementation of digital tools in educational environments. In addition, the mobile TAM is most applicable to understanding an individual's acceptance and adoption of mobile technology usage for knowledge provision [38], [39]. This model focuses on the factors influencing acceptance of mobile technology, such as perceived usefulness and

ease of use. By combining UTAUT and the Mobile TAM, educators can better understand how to effectively integrate digital tools into their teaching practices to enhance student learning outcomes.

Table 2. ICC

| | | 95% confidence interval | | F test with true value 0 | | | |
|---|---|---|---|---|---|---|---|
| | Intraclass correlation | Lower bound | Upper bound | Value | df1 | df2 | Sig |
| Single measures | 0.284[a] | 0.111 | 0.723 | 10.933 | 5 | 145 | <0.001 |
| Average measures | 0.923[c] | 0.789 | 0.987 | 10.933 | 5 | 145 | <0.001 |

Two-way mixed effects model where people effects are random, and measures effects are fixed.
a. The estimator is the same, regardless of whether the interaction effect is present.
b. Type A ICCs using an absolute agreement definition.
c. This estimate is computed assuming the interaction effect is absent because it is not estimable otherwise.

Table 3. Second round of the Delphi method

| | Themes | | | | | |
|---|---|---|---|---|---|---|
| Experts | Technology reform | Learning transformation | Long-term prospects for students | Learning–entertainment collaboration | Hands-on tool | Skills development |
| 1 | 3 | 1 | 5 | 2 | 6 | 4 |
| 2 | 1 | 2 | 6 | 5 | 4 | 3 |
| 3 | 2 | 4 | 3 | 5 | 6 | 1 |
| 4 | 2 | 1 | 4 | 6 | 5 | 3 |
| 5 | 2 | 3 | 4 | 1 | 6 | 5 |
| 6 | 1 | 3 | 5 | 6 | 2 | 4 |
| 7 | 3 | 1 | 2 | 4 | 5 | 6 |
| 8 | 2 | 1 | 6 | 3 | 4 | 5 |
| 9 | 3 | 1 | 4 | 5 | 6 | 2 |
| 10 | 2 | 1 | 5 | 3 | 4 | 6 |
| 11 | 3 | 1 | 5 | 2 | 4 | 6 |
| 12 | 2 | 1 | 5 | 3 | 4 | 6 |
| 13 | 1 | 4 | 5 | 6 | 2 | 3 |
| 14 | 6 | 1 | 4 | 3 | 5 | 2 |
| 15 | 3 | 1 | 6 | 2 | 4 | 5 |
| 16 | 4 | 3 | 5 | 6 | 1 | 2 |
| 17 | 1 | 2 | 5 | 3 | 6 | 4 |
| 18 | 3 | 1 | 2 | 5 | 4 | 6 |
| 19 | 1 | 2 | 4 | 3 | 5 | 6 |
| 20 | 1 | 3 | 6 | 4 | 2 | 5 |
| 21 | 2 | 1 | 4 | 5 | 3 | 6 |
| 22 | 2 | 1 | 4 | 6 | 5 | 3 |
| 23 | 5 | 6 | 4 | 1 | 3 | 2 |
| 24 | 2 | 1 | 3 | 4 | 5 | 6 |
| 25 | 2 | 1 | 3 | 6 | 5 | 4 |
| 26 | 4 | 3 | 2 | 5 | 1 | 6 |
| 27 | 1 | 4 | 2 | 6 | 3 | 5 |
| 28 | 4 | 3 | 2 | 5 | 6 | 1 |
| 29 | 1 | 4 | 2 | 3 | 6 | 5 |
| 30 | 4 | 1 | 3 | 5 | 2 | 6 |
| Mean | 2.43 | 2.07 | 4.00 | 4.10 | 4.13 | 4.27 |
| Rank | 2 | 1 | 3 | 4 | 5 | 6 |
| Kendall's W of 0.364; p<0.001 | | | | | | |

## 4. CONCLUSION

Based on the outcomes of the Delphi study, the themes deemed as essential factors that influence social media adoption by school students based on consensus by the experts are: i) learning transformation (mean=2.07); ii) technology reform (mean=2.43); iii) long-term prospects for students (mean=4.00); iv) learning-entertaining collaboration (mean=4.10); v) hands-on tool (mean=4.13); and vi) skills development (mean=4.27). These themes provide valuable insights for educators looking to effectively incorporate social media into their teaching strategies, highlighting the importance of focusing on skills development and creating a hands-on learning experience. Educators can use these findings to ensure that digital tools are utilized to maximize student engagement and learning outcomes. This study provides valuable insights into the factors influencing students' adoption of social media for learning, offering practical implications for stakeholders.

The results highlight three key themes: learning transformation, technology reform, and long-term student prospects. These themes can guide educators in integrating social media into teaching practices to

enhance student engagement, critical thinking, and digital literacy. Schools and stakeholders should collaborate with industry partners to create strategic plans that significantly impact social media use in school learning and prepare students for future careers.

Several limitations were observed in this study. The research involved only government schoolteachers, which may limit the generalizability of the findings. Some experts found it troublesome to complete the questionnaires, and getting them to respond was tedious. Future research could expand to include other schools and explore the perspectives of teachers and parents. Additional qualitative and longitudinal studies are also recommended for a more comprehensive understanding of the phenomenon. The themes identified can be used to develop survey instruments for measuring social media adoption in various educational settings. Finally, future studies with additional variables and methods can provide a more holistic view of social media use for learning, leading to better strategies and interventions.

## ACKNOWLEDGMENTS

The people involved obtained the necessary consent, and the participants' anonymity has been secured. All procedures performed in studies involving human participants followed the ethical standards of the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

## FUNDING INFORMATION

This study did not receive support for certain costs from the public, commercial, or non-profit funding agency.

## AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

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C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

## CONFLICT OF INTEREST STATEMENT

The authors state that no ethical issues were involved in this study.

## INFORMED CONSENT

We have obtained informed consent from all individuals included in this study.

## ETHICAL APPROVAL

The research on human use has complied with all the relevant national regulations and institutional policies under the tenets of the Helsinki Declaration and has been approved by the author's institutional review board or equivalent committee.

## DATA AVAILABILITY

The authors confirm that the data supporting the findings of this study are available within the article.

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